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The Effects of Covid-19 On Web-Based Education Among African Americans With Cardiometabolic Syndrome: A Qualitative Case Study

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THE EFFECTS OF COVID-19 ON WEB-BASED EDUCATION AMONG AFRICAN AMERICANS WITH CARDIOMETABOLIC SYNDROME: A QUALITATIVE CASE STUDY

by

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CHAPTER 1: BACKGROUND

This chapter provides a detailed discussion on why this scholarly project was conducted. The chapter also discusses how COVID-19 played a significant role in bringing more awareness to the impact of an unhealthy lifestyle on health, especially in individuals with cardiometabolic syndrome (CMS). This chapter details several types of diets and how they impact CMS, which contributes to heart disease, the leading cause of death in the United States and worldwide. Lastly, the theoretical frameworks used to guide the scholarly project will be discussed.

Background

COVID-19, also known as SARS-CoV-2, is a severe acute respiratory syndrome first reported in China on December 31, 2019. COVID-19 rapidly spread globally, with its first case reported in the United States on January 20, 2020. Cases of COVID-19 became a global pandemic, spreading to multiple countries worldwide (Holshue et al., 2020).

Mandatory global restrictions were established to control the spread of this infection. Conditions such as social distancing, quarantine, facial masks, travel limitations, and shelter-in-place orders halted daily routines. In the United States, the lockdown period occurred between March and May 2020 and led to significant mental, physical, and economic crises (Bhutani et al., 2021). Due to limitations and restricted access to daily routines, it was not surprising that internet use increased.

Despite COVID-19 being the primary focus within media and community health initiatives during the last year, cardiovascular disease (CVD) remains the leading cause of death in the Black or African American population (Centers for Disease Control [CDC], 2017). African Americans have a lower prevalence of CMS than Whites. Still, African American women have higher type 2 diabetes and cardiovascular mortality rates despite a more favorable lipid and

lipoprotein profile (Gaillard, 2018). Moreover, African American women worldwide have the highest obesity, hypertension, and prediabetes rates compared to other racial groups. Health care disparities, poor diet, socioeconomic status, stress, and decreased physical activity play a significant role in this occurrence.

Problem Statement

CMS is a constellation of metabolic dysfunctions that increase the risk of developing CVD, such as coronary artery disease (CAD) and stroke. CVD is the number one leading cause of death in the United States and worldwide (CDC, 2017). The cost of treating CVD in the United States was $219 billion in 2014 and 2015. CAD killed 365,914 people in 2017, and approximately 18.2 million adults age 20 and older have CAD (Fryar et al., 2012). In 2018, one in every six death was due to stroke, and every year, 795,000 people have a stroke in the United States. African Americans have the highest death rate due to stroke and are nearly twice as likely to have their first stroke than Whites (CDC, 2021).

CMS is characterized by insulin resistance, impaired glucose tolerance, dyslipidemia, hypertension, and central adiposity (Saljoughian, 2017). Insulin resistance is the primary driving force of CMS and is related to obesity, type 2 diabetes, and hypertension (Gaillard, 2018). Diet plays a significant role in preventing, treating, and reversing CMS and reducing the risks of heart disease regardless of one's ethnicity, age, or gender. Modifiable risk factors such as hypertension, impaired glucose and lipid metabolism, central obesity, and inflammation are all elements precipitated by dietary intake of saturated fats, salts, refined carbohydrates, and lack of fruits and vegetables. Diets high in saturated fats, salt, and processed foods and low in fruits and vegetables are related to the development of CMS.

Multiple studies reveal the benefits of a whole-food plant-based diet (WFPBD) in preventing, treating, and reversing CMS (Dinu et al., 2016; Esselstyn et al., 2014), yet multiple barriers may discourage adoption of a WFPBD among African Americans with CMS. According to Gustafson (2014), WFBPD has often been misunderstood and mislabeled as a diet for the vulnerable, affluent social, economic groups, or those from a certain racial group. Healthcare providers are not comfortable recommending a WFPBD to their patients because they believe their suggestion will not be well received, and the providers lack adequate information about the diet. Physicians do not get sufficient training in medical school on nutrition. Due to the medical treatment model, medical school educators primarily focus on disease treatment; thus, physicians have little clinical awareness of the importance of food as a foundational consideration in disease prevention (Gustafson, 2014).

Healthcare providers who practice a healthy lifestyle, eat healthily, and exercise tend to recommend such habits to their patients; in other words, those who practice what they preach advocate for healthier behaviors more quickly than those who do not (Gustafson, 2014). A structured educational program led by a healthcare provider knowledgeable about a plant-based diet and the health benefits may reduce patients' anxiety in adopting the dietary change. Cultural sensitivity plays a role in promoting healthy lifestyle changes. When patients receive educational information that addresses their cultural uniqueness, it reduces the challenges and increases adherence to health-promoting recommendations (Zhang et al., 2019).

Yet, COVID-19 has created multiple limitations to lifestyle education and behavioral change. Office visits for preventative care decreased markedly in 2020, and while telemedicine visits replaced a portion of those, healthcare providers were less likely to assess cardiovascular risk factors during telemedicine visits (Alexander et al., 2020).

Purpose of the Study

Diet plays a significant role in preventing, treating, and reversing CMS and reducing CVD risks regardless of ethnicity, age, or gender. Although scientific studies demonstrate the benefits of a WFPBD, very few physicians and advanced practice providers are entirely comfortable discussing or recommending this dietary practice to their patients (Gustafson, 2014). A structured educational program led by a healthcare provider knowledgeable in WFPBD may reduce patients' anxiety in adopting the dietary change.

A well-structured program must be implemented to educate African Americans about the benefits of a WFPBD, assist patients in adopting the diet, and promote sustainability. The first step in developing such a program is to understand the motivation and unique challenges to dietary change faced by African Americans, especially during COVID-19. The purpose of this scholarly project was to determine why African Americans with CMS choose to participate in web-based nutrition education programs and how COVID-19 has affected that decision.

Research Question

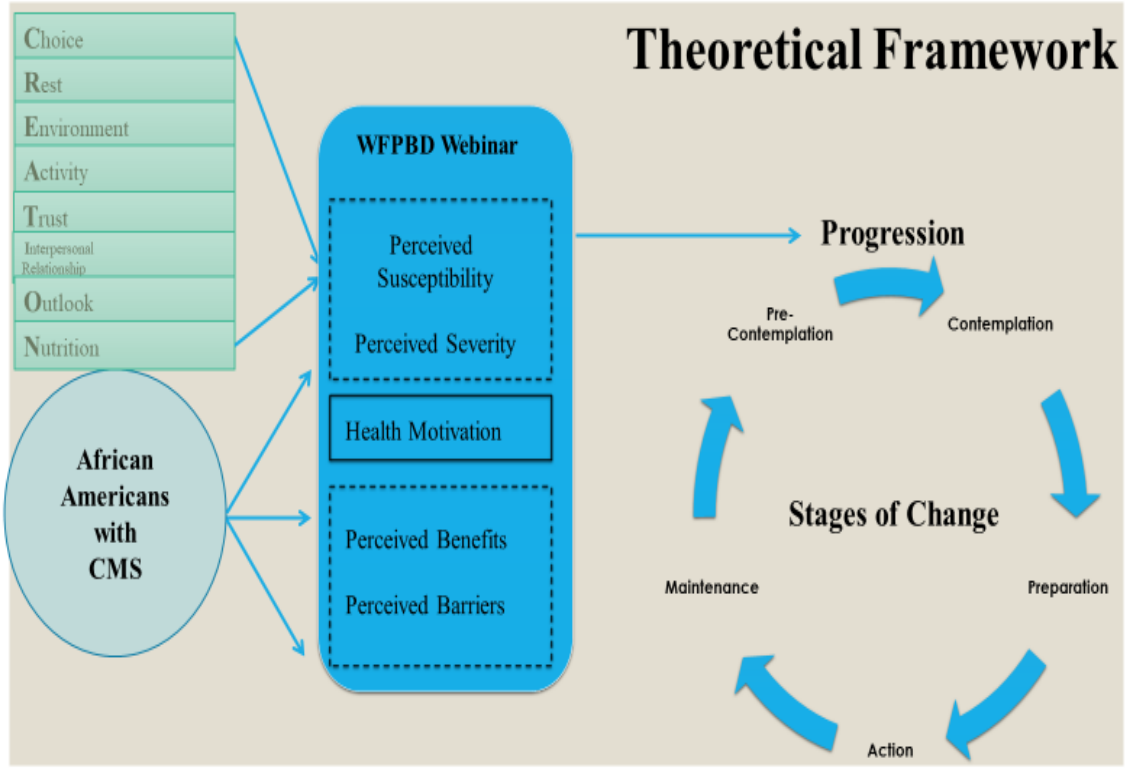
The research question for this scholarly project was: Why do African Americans choose to participate in culturally adapted, web-based nutrition education, and how has COVID-19 affected that decision?

Theoretical Framework

The theoretical framework for this project is a synthesis of three theories: The Transtheoretical Model of Change, the Health Belief Model (HBM), and the CREATION model. Figure 1 illustrates the interactions between each theory and how each theory plays a significant role in increasing the likelihood of African Americans with CMS consuming a WFPBD.

Figure 1

Theoretical Framework



Transtheoretical Model of Change

As with any other change process in life, dietary changes require self-awareness of the need for change and motivation to change. Prochaska and DiClemente's Transtheoretical Model of Change has been used to promote behavioral change (Diclemente, 1983). This model includes five stages: pre-contemplation, contemplation, preparation, action, and maintenance. In the pre-contemplation stage, individuals have no intention for behavioral changes. In the contemplation stage, changes are being considered, but no plans are made. In the preparation stage, the individual intends to make changes, which leads towards gradual changes. The action stage involves actively making changes, and the maintenance stage occurs when the changes are

sustained. Individuals do not usually progress through these stages smoothly and quickly. Sometimes a person may stay in a stage for several months or years before moving forward. For instance, Warren et al. (2016) found racial differences in stages of change, with African Americans and Hispanic Americans having a greater likelihood of being in an inactive stage of change (i.e., pre-contemplation or contemplation) when compared with their non-Hispanic, White counterparts.

Patients who aim to transition to a healthier and nutritious diet must undergo a change process. The Advanced Practice Registered Nurse (APRN) must be aware of the tendency of the African American population to experience reluctance to change and acknowledge that African American patients may be stuck in one of the stages of change.

Health Belief Model

For individuals to change their behavior, their perceptions and beliefs about the reason for change must align with their belief system. The HBM can be used to assess patients and guide them towards change. The HBM was developed to explain and predict health-related behaviors to promote healthy behavioral changes (Penn State, n.d.). The HBM involves an individual's belief about the problem, perceived benefits, barriers to taking action, and self-efficacy. The key to action needs to be present before change can occur; sometimes, the key to action is a health threat like COVID-19 or CMS (Martinez et al., 2016).

To promote change in the African American population, healthcare providers must assess African American patients' perception of susceptibility to CMS and CVD. Scobie et al. (2011) compared the effects of integrated versus disease-specific risk education in a community-based sample of African Americans in a randomized control trial. The perceived risk of developing CVD and factors associated with risk perception was evaluated. The study was comprised of 199

African American adults with an average age of 45 years. The participants had CVD risk factors and were under the care of a healthcare provider. The results revealed that 62% of participants did not perceive themselves to be at increased CVD risk. Family history, recent doctor's appointments, and usual sources of health care had a significant association with risk perception. The study suggested that patients' risk perception is affected by their interactions with their regular health care provider. Their perception could also relate to the trust developed and relationship with their provider.

The CREATION Model

The CREATION model includes the following elements: choice, rest, environment, activity, trust, interpersonal relationships, outlook, and nutrition (Edgerton, 2011). All the elements of this model are related and play a significant role in achieving optimal health. The two components in the CREATION model—choice and nutrition—informed the development of this scholarly project. Choice is defined as the ability to evaluate different courses of action and select among them (Edgerton, 2011). Choice is the first step to making healthy changes. Nutrition is the process of providing or obtaining the food necessary for health and growth (Lexico.com, n.d.). Nutrition is essential for health; improving nutrition can help prevent diseases, and produce happier, healthier lives.

Concepts and Definition of Main Terms

For a better understanding of this scholarly project, the following concepts and terms are defined.

Cardiometabolic Syndrome. CMS is a combination of metabolic dysfunctions characterized by insulin resistance, impaired glucose tolerance, dyslipidemia, hypertension, and central adiposity (Saljoughian, 2017). CMS is diagnosed with a history of three or more of these components

according to the National Cholesterol Education Program Adult Treatment Panel III: hypertension (blood pressure > 130/85), prediabetes (hemoglobin A1C 5.7%–6.4%), or high fasting blood glucose (> 100 mg/dL), high triglyceride levels (> 150 mg/dL), low high-density lipoprotein cholesterol levels (< 40 mg/dL in men or < 50 mg/dL in women) and excess abdominal fat (waist measurement > 40 inches in men or > 35 inches in women).

African American. Black American.

Whole Food Plant-Based Diet. A diet focused on maximizing fruits, vegetables, whole grains, and legumes and minimizing intake of animal products such as meat, fish, poultry, eggs, and dairy (Satija & Hu, 2018).

Standard American Diet. A typical American diet is low in vegetables, fruits, and whole grains and high in dairy, seafood, oil, refined grains, added sugars, saturated fats, and sodium. The Standard American Diet is also high in red meat, processed meats, poultry, and eggs (U.S. Department of Health and Human Services and U.S. Department of Agriculture, 2015).

Summary

CVD and other dietary-related diseases are reduced by adopting a healthier diet. CMS is common in the African American population, and healthcare providers need to guide their patients towards making healthier food choices. Lifestyle changes occur voluntarily when individuals are aware of their risks and are provided with resources to make those changes. When people can make choices with added knowledge, it improves autonomy and propels them to make positive changes. Yet COVID-19 has changed both the delivery of lifestyle education as well as patients' openness to change. The purpose of this scholarly project was to determine why African Americans with CMS choose to participate in web-based nutrition education and how COVID-19 has affected that decision.

CHAPTER 2: LITERATURE REVIEW

The purpose of this scholarly project was to determine why African Americans with CMS choose to participate in web-based nutrition education and how COVID-19 has affected that decision. I conducted a literature review to determine (a) why individuals participate in online educational programs, (b) the effects of COVID-19 on lifestyle changes, and (c) what is known about the effects of WFPBD on CMS, (d) why African Americans face challenges in making healthy dietary changes. The information discussed in this chapter is based on literature published within the last 10 years. The databases used for the literature review search were PubMed, MEDLINE, and CINAHL Complete. I used the following search keywords when conducting the literature review: *plant-based diet*, *whole food plant-based diet*, *cardiometabolic syndrome*, *African American*, *Black*, *barriers to change*, *healthy diet*, *web-based learning*, *patient education*, *culture*, *healthy food*, *nutrition*, *heart disease*, *diet*, *COVID-19*, *online education*, and *healthy lifestyle*. This literature review will discuss the benefits of WFPBD; barriers to healthy eating; educational programs and web-based learning; and the impact of COVID-19 on mental and physical health, research, dietary patterns, and CMS.

SAD vs. WFPBD in the Determination of CVD Risk

Effect of SAD on CVD Risk

Mathews et al. (2015) conducted a systematic review of 294 cohort studies to assess how high glycemic load diets influence coronary heart disease and the interconnectivity of the effects of high glycemic load diets with CVD pathological pathways. They found that highly refined carbohydrates have high glycemic loads and negatively affect CVD and cardiometabolic disease biomarkers. Chronic consumption of high glycemic foods resulted in elevated hemoglobin A1C and chronic hyperglycemia, which leads to insulin resistance. Insulin resistance is associated

with hyperinsulinemia and increased fibrinogen levels. Elevated fibrinogen levels produce hypercoagulation, a hallmark of CVD; in addition, high glycemic foods reduce HDL levels and increase LDL and triglycerides. High glycemic foods are also found to increase obesity and visceral adiposity, leading to cardiometabolic disease.

Inflammatory markers such as C-reactive protein (CRP) can become elevated based on dietary choices. Chronic inflammation is measured by CRP and linked to the risk of developing CMS and CVD (Mathews et al., 2015). Inflammation can be closely related to the consumption of the typical SAD. For example, Craddock et al. (2019) examined 30 observational and ten intervention studies that observed the effects of a vegetarian diet on inflammatory markers. Craddock et al. noted that CRP was significantly lower in the vegetarian groups *(p* = .0001) compared to the nonvegetarian groups.

Effect of WFPBD on CVD Risk

Dinu et al. (2016) reported that consumption of a WFPBD improves cholesterol, hemoglobin A1C, and body mass index (BMI). They analyzed cross-sectional studies with 56,461 vegetarians and 8,421 vegans compared with 184,167 omnivores. The analysis revealed that both plant-based groups had significantly lower BMI ($p < .0001$), total cholesterol ($p < .0001$), LDL-cholesterol ($p < .0001$) and blood glucose ($p < .0001$) compared to the omnivore group. Although the plant-based group had lower triglycerides levels than the omnivorous group, it was not statistically significant ($p = .09$).

Hypertension is one of the diagnostic factors in CMS, and the consumption of a WFBPD has been known to result in a significantly reduced incidence of cases of hypertension. Yokoyama et al. (2014) conducted a meta-analysis to evaluate the effects of a vegetarian diet on blood pressure. They reviewed seven controlled trials and 32 observational

studies that comparing a vegetarian diet and an omnivorous diet to lower blood pressure. The seven controlled trials revealed that vegetarians had lower systolic blood pressure (−4.8 mm Hg, $p < .001$) and diastolic blood pressure (−2.2 mm Hg, $p < .001$) compared with the omnivores. The 32 observational studies revealed that vegetarians had lower mean systolic blood pressure (−6.9 mm Hg, $p < .001$) and diastolic blood pressure (−4.7 mm Hg, $p < .001$) compared with the omnivores (Yokoyama et al., 2014).

Diets rich with whole plant foods protect against insulin resistance, resulting in weight loss, reduced cholesterol, inflammatory biomarkers, and decreased accumulation of atherosclerotic plaque. Legumes and fiber have been shown to reduce the risk of diabetes and CMS. Elimination of animal-based foods, mainly processed and unprocessed red meat, reduce the risk of insulin resistance. For example, McMacken and Shah (2017) found that a plant-based diet was associated with up to 35% reduction in serum LDL cholesterol compared with small amounts of lean meat consumption. Inflammatory markers such as CRP are elevated based on one's dietary choices. Eichelmann et al. (2016) conducted a systematic review and meta-analyses of interventional trials. They found that those who adopted a mostly plant-based diet had significant reductions in CRP levels and other obesity-related inflammatory biomarkers compared to the controls.

Effect of WFPBD on CVD

WFPBD is beneficial for preventing and treating CVD. Esselstyn et al. (2014) evaluated the effects of dietary changes alone to determine if dietary changes benefit patients with established CVD. The study enrolled 198 patients with CVD, and the participants were interested in transitioning into a plant-based diet and maintaining their routine medical treatments. Participants were educated on WFPBD nutrition; to show adherence to the program, participants

were instructed not to consume dairy, fish, meat, and added oil. The study revealed that 89% of participants were adherent to the diet, consuming a WFPBD without meat (including poultry and fish), dairy, eggs, or added oils. The cardiovascular event rate was extraordinarily low, at 0.6% among the adherent patients versus 62% among the nonadherent group.

Barriers to Healthy Eating

Despite the overwhelming evidence regarding cardiovascular risk arising from SAD and the benefit from incorporating whole plant-based foods in a diet, individuals face many barriers to dietary change. Reed et al. (2016) reviewed healthy eating barriers in adults living in rural and urban areas. Reed et al. analyzed 42 studies: 14 were in rural settings, two had a combination of rural and urban settings, and 26 were in urban settings. The analysis revealed that adults in rural settings who tend to have a higher prevalence of obesity faced barriers such as the cost of purchasing healthy foods, access to grocery stores that provide healthy produce, lack of social support, and lack of time. Individuals in both settings can also face personal barriers such as lack of time, taste preference, knowledge, attitudes, behavior, self-concept, skills, developmental history, cost, and lack of motivation or willpower (Reed et al., 2016). Healthcare providers must consider these barriers when recommending a plant-based diet to their patients, especially the African American population, who might be prone to face many limitations.

Richards Adams et al. (2019) conducted a cross-sectional study of 100 African American adults to assess the effects of age, gender, education, income, self-efficacy, social support factors, barriers to healthy eating, and diet quality among this population. The study revealed that participants had a significantly higher intake of the SAD ($p < .0001$) and a low intake of whole fruits, dairy, and total protein foods ($p < .0001$) compared to the national average. Barriers to healthy eating were reported as easy accessibility of fast foods, cost of food, and lack of time to

prepare healthy food. The self-efficacy scores were high, and most reported a greater likelihood of eating healthier if friends or family members provided positive support (Richards Adams et al., 2019).

Taste preference, culturally relevant prepared meals, and lack of time are barriers that affect African Americans' adoption of a plant-based diet. Crimarco et al. (2020) conducted a randomized study for three weeks in the southern United States to decrease the perceived barriers of consuming plant-based diets and increase the perceived benefits and acceptance among African Americans. Crimarco et al. aimed to determine if dining at a local vegan soul food restaurant compared to cooking at home would affect these variables. Both groups ($N = 30$) received materials and education about plant-based diet; online resources included simple plant-based soul food recipes, shopping lists, and counseling. Participants were randomly assigned to groups. The study revealed significant reductions in perceived barriers and increased perceived benefits and diet acceptance in both groups. Considerable weight loss was recorded in each group ($p < .001$); however, no significant difference was noted between-group differences ($P = .72$). This finding indicates that individuals who are educated, provided with resources, and prepared foods that incorporate cultural preferences are more likely to consume plant-based meals.

Lifestyle Education Programs

Patient educational programs are very effective at increasing awareness of lifestyle change options in patients with chronic diseases. Barnidge et al. (2015) conducted a quasi-experimental study to determine the effects of an educational program in addition to access to fruit and vegetable consumption in a rural African American community. The interventional group received nutritional education and had access to fresh fruits and vegetables from the

community garden. In contrast, the control group only received access to the fruits and vegetables from the community garden. There were 367 participants in the interventional group and 367 in the control group. The educational program included cooking demonstrations, goal setting, family dinner nights, taste tests, information about CVD risk factors, and culturally tailored recipes with less salt and more fruits and vegetables.

They then conducted a cross-sectional survey to evaluate the intervention's effect on blood pressure, BMI, and perceived fruit and vegetable consumption. At baseline, 61% of the interventional group had hypertension, and 46.7 % in the control group, 69.8% in the interventional group had increased BMI, and 65.2% in the control group; the results revealed the participants in the interventional group had a reduction in hypertension and BMI, and their perceived consumption of fruits and vegetables was also high. The most substantial effect on perceived fruit and vegetable consumption was associated with participation in nutrition education and access to community gardens. The control group, which did not receive any nutritional education, had a lower likelihood of consuming the recommended servings of fruits and vegetables. The incidence of hypertension and elevated BMI did not change. Barnidge et al. (2015) concluded that education is vital at increasing the consumption of fruits and vegetables in a rural African American population. When individuals are provided with relevant education regarding their health, they are more likely to make positive changes.

Web-Based Learning

Fast and easy accessibility of medical information can provide more information to many people and overcome some barriers in accessing this information. Since Internet provides a quick and convenient way to find health information, people often look for information through this medium. Chu et al. (2017) explored why individuals seek health-related information online in a

qualitative study based in Hong Kong. Hong Kong is known for the most extensive advancement in technology and the most availability to its citizens. The study conducted interviews with individuals ages 18 and over between November 2015 to January 2016 with participants ($N = 49$ divided into five focus groups). The study revealed that people who used the Internet for health-related issues used it as their first source before seeking professional advice regardless of their illness severity. The Internet addressed barriers to accessing a healthcare provider because it was viewed as convenient and provided much information (Chu et al., 2017).

Kang et al. (2014) conducted an 8-week educational program for patients with CMS to determine if a web-based program effectively promoted healthier behavior in patients. The study enrolled 56 patients: 29 in the intervention group and 27 in the control group. The intervention group had access to online materials, and the control group had booklets, education, and a visit from a nurse. The online materials included video clips about diet and exercise, epidemiology, etiology, clinical manifestation, management, and complications of CMS, and health promotion content such as exercise, diet, stress management, smoking cessation, and modest drinking. The study revealed statistically significant differences between the intervention and control group in waist circumference ($p < .001$) and HDL levels ($p = .031$).

Education Increases Self-Efficacy and Knowledge

Knowledge and self-efficacy are vital precursors to dietary change, and educational programs increase both knowledge and self-efficacy, as seen in research by Ben Nasr et al. (2018). When patients better understand their health risks or chronic diseases, they are more likely to feel confident about making changes to improve their overall health. A prospective cohort study was conducted to evaluate the effects of an educational program on blood pressure management in hypertensive stroke patients in France. The program detailed lifestyle changes

such as diet and physical activity. Participants demonstrated improvements in self-confidence and knowledge of hypertension from baseline to post-intervention (Ben Nasr et al., 2018).

Culturally Sensitive Nutrition Education

Patients are unique, and not all education reaches all individuals. It is essential to consider cultural uniqueness when promoting health behavior changes or educational materials. Zhang et al. (2019) created ethnically tailored material and assessed the usefulness of web-based nutritional education resources for people with prediabetes and type 2 diabetes. A total of 291 individuals participated in the study. Before developing the materials, a small group of participants completed a questionnaire to determine which materials they felt were most helpful in an educational program. The survey revealed participants' strong desire to learn nutrition through simple, visual, practical, and culturally appropriate materials. The web-based educational resources included videos, ethnically tailored materials, and simple information for the participants. The study results revealed an increase in participants' ability to identify foods that increase blood glucose concentration and an increase in participants' plans to make positive dietary and lifestyle choices.

Effects of COVID-19

COVID-19 Effects on Online Health Information

As shown above, web-based education has been an effective means of health education. During the COVID-19 pandemic, Internet use for medical and health-related information has increased. Many used the Internet for information and connection due to the enforcement of social distancing and isolation. Zhao et al.'s (2020) study in China used data collected by the most prominent social networking database, Weibo, which analyzed 10,908 posts from 1496 patients with COVID-19 living with family in Wuhan, China. The purpose of the study was to

assess health-seeking behavior during the COVID-19 pandemic. The authors looked at the hashtag "#COVID-19 Patient Seeking Help" to seek medical-related health information. Internet behaviors provide perspective on how people seek medical information during a pandemic crisis. The study revealed a surge in Internet activity using the #COVID-19 Patient Seeking Help at the beginning of the pandemic. The entries increased and remained elevated on February 3, 2020, but peaked February 12 at 13,436 when the increased COVID-19 cases were reported. This increase in Internet activity supports the use of the Internet for medical information and social networking during pandemic outbreaks. The medical information was fast, easily accessible, saved time, and avoided the cost of travel to the medical practitioner for information (Zhao et al., 2020).

COVID-19 Effect on Research

Although the pandemic has increased the use of online health information, participation in health-related research has precipitously declined due to guidelines for isolation, quarantine, and social distancing. Many clinical research studies had to be stopped, delayed, or altered due to safety concerns from participants and principal investigators (Padala, Jendro, and Padala, 2020). Research organizations, participants, investigators, and family members are concerned about ongoing studies and even about changes in conducting research now and in the future. The authors assessed the impact of COVID-19 on research through the viewpoint of both investigators and participants. Participating in research is a voluntary act; in normal circumstances, when there are no immediate stressors, people are willing to contribute to the greater good of the study. When safety, increased stress, and changed priorities are concerns, research participation might not be a priority. This could, in turn, lead to increased attrition rates,

low recruitment, reduction in the number of researchers conducting research, and redirection to only critical research.

Padala, Jendro, Gauss, et al. (2020) conducted a cross-sectional study to assess participants' and caregivers' perspectives on clinical research during the COVID-19 pandemic. Padala, Jendro, Gauss, et al. studied 51 participants currently enrolled in geriatric clinical research studies and participants' caregivers. Interviews occurred from March 4, 2020 to March 18, 2020, before the Office of Research and Development required discontinuation of in-person visits. Results revealed that the participants felt safe attending the scheduled research appointment; 63% thought the extra screening made them feel secure or very safe, and 82% believed that the medical center was prepared or very prepared for the pandemic. The number of participants who preferred phone versus in-person visits was evenly divided; however, females had higher panic levels than males. This information provides great insight into how participants' visits can be modified to accommodate safety concerns, and how video or virtual meetings can be used as an alternative to conducting visits during COVID-19.

COVID-19 Effect on Mental Health

Social distancing, quarantine requirements, and other safety measures to curtail the spread of COVID-19 infection have led to much emotional and mental distress. Studies conducted in China and Poland during the lockdown periods revealed a significant psychological impact on many individuals, such as increased anxiety, depression, irritability, increased anger, and posttraumatic stress disorder (Renzo et al., 2020). In the United States, the prevalence of depression has risen likewise (Ettman, 2020). Ettman (2020) assessed the prevalence of depression before and during the pandemic and the risk factors predisposing individuals to depressive symptoms. The National Health and Nutrition Examination Survey (NHNES)

assessed mental health between 2017–2018 (pre-COVID-19). During the pandemic, 1441 diverse participants completed a COVID-19 and Life Stressors Impact on Mental Health and Well-Being survey. Data from the NHNES were compared to data from the COVID-19 and Life Stressors Impact on Mental Health and Well-Being survey; the comparison revealed three times increase in the prevalence of depression symptoms from pre-COVID to post-COVID. Higher scores were related to lower income (less than $5,000), job loss, death of someone close, and financial problems (Ettman, 2020).

Increased emotional stress, anxiety, and depression can lead to dietary intake changes. Renzo et al. (2020) conducted a study in Italy to examine the correlation between psychological status during the COVID-19 pandemic and the Italian population's eating habits. The survey was conducted online using 602 participants. A high percentage of respondents reported depressed mood, anxiety, insomnia, and hypochondria. About half of the participants were anxious; females were more anxious and used more comfort foods to cope than males. The study occurred during the critical time of the Italian lockdown due to the increased cases of COVID-19 (Renzo et al., 2020).

Effects of COVID-19 on BMI

The lockdown and social distancing precautions led to a decline in physical activity, disruption in sleep patterns and quality of sleep, and increased consumption of snacks and high caloric dense foods. Weight increase occurred due to these factors. Bhutani et al. (2021) conducted a longitudinal study in the United States to assess weight changes and lifestyle behaviors during the pandemic. Bhutani et al. collected self-reported data from 727 participants during the peak lockdown (April/May) and post lockdown (September/October). Results showed increased BMI ($p < .01$) at the post-lockdown period versus the peak-lockdown period. About

18.2% of participants lost weight during these periods. Those who gained weight ate more processed foods ($p < .01$), snacked more ($p < .001$), had less physical activity ($p < .05$), and reported increased stress levels. After the lockdown ended, those who gained > 5 pounds (33%) gained more weight, and 28% maintained their higher body weight. The unhealthy eating habits of those who gained weight continued even after the lockdown. This study revealed how the lockdown and social distancing precautions led to a decline in physical activity and increased consumption of snacks and high caloric dense foods, contributing to weight increase.

COVID-19 and CMS

Individuals with CMS are more at risk of hospitalization due to COVID-19. From March 1–30, 2020, CDC data revealed that 89.3% of those admitted to the hospital had one or more underlying conditions (CDC, 2020). Out of all hospitalized individuals, 49.7% had hypertension, 48.3% were obese, 34.6% had chronic lung disease, 28.3% had diabetes mellitus, and 27.8% had cardiovascular disease, respectively (Garg, 2020). Ethnicity also plays a role in the rates of COVID-19 deaths, cases, and hospitalization. CDC data from March 12, 2021, revealed that Black individuals were 1.1 times more likely to contract COVID-19, 2.9 times more likely to be hospitalized, and 1.9 times more likely to die due to COVID-19 than White people individuals (CDC, n.d.-a).

Summary

The literature review detailed the different factors that positively or negatively contributed to individuals adopting healthy lifestyles during the pandemic. Literature supports the countless benefits of a WFPBD in the prevention and treatment of CMS. When individuals adopt this diet, there are documented improvements in their health biomarkers and overall health. Education programs have been shown to increase self-efficacy and knowledge, essential first

steps in lifestyle behavior change. Although limited research was found and all with relatively small samples, preliminary evidence supports the efficacy of web-based and culturally adapted education programs.

COVID-19 led to an increase in mental health symptoms, which increased unhealthy lifestyle behaviors. Many individuals reported weight gain, decreased physical activity, and increased consumption of unhealthy food across populations. There was increased awareness for making healthy lifestyle changes and increased demands of seeking health information online. Specifically, the pandemic highlighted CMS' adverse effects on African Americans' mortality and morbidity; thus, it is essential to educate and promote healthy lifestyle changes in the African American population. The negative impact of COVID-19 pandemic cannot be ignored. These include an increase in emotional stress, anxiety, depression, disrupted sleep patterns; lack of physical activity, which increases one's risk of developing or worsening CMS; and an increase in consumption of high-caloric processed foods as coping outlets for emotional distress.

The literature review highlighted the benefits of a WFPBD in preventing and reversing CMS. African Americans face unique barriers that stop them from adopting a plant-based diet, yet little is known regarding African Americans' specific needs for CMS and web-based nutrition education. When suggesting dietary changes, African Americans' taste preference, cultural heritage, and ties to food must be considered. Easy accessibility of educational materials has been shown to promote healthy behavioral changes and improve disease management in patients with chronic diseases. The scholarly project aimed to determine what motivates African Americans to seek web-based education during the pandemic while ensuring the information is patient-centered, culturally focused, and easily accessible.

CHAPTER 3: METHODOLOGY

This chapter will discuss the process and design by which the research was carried out. The research methods helped answer the question as to why African Americans choose to participate in culturally adapted, web-based lifestyle education and how COVID-19 affected that decision.

Design

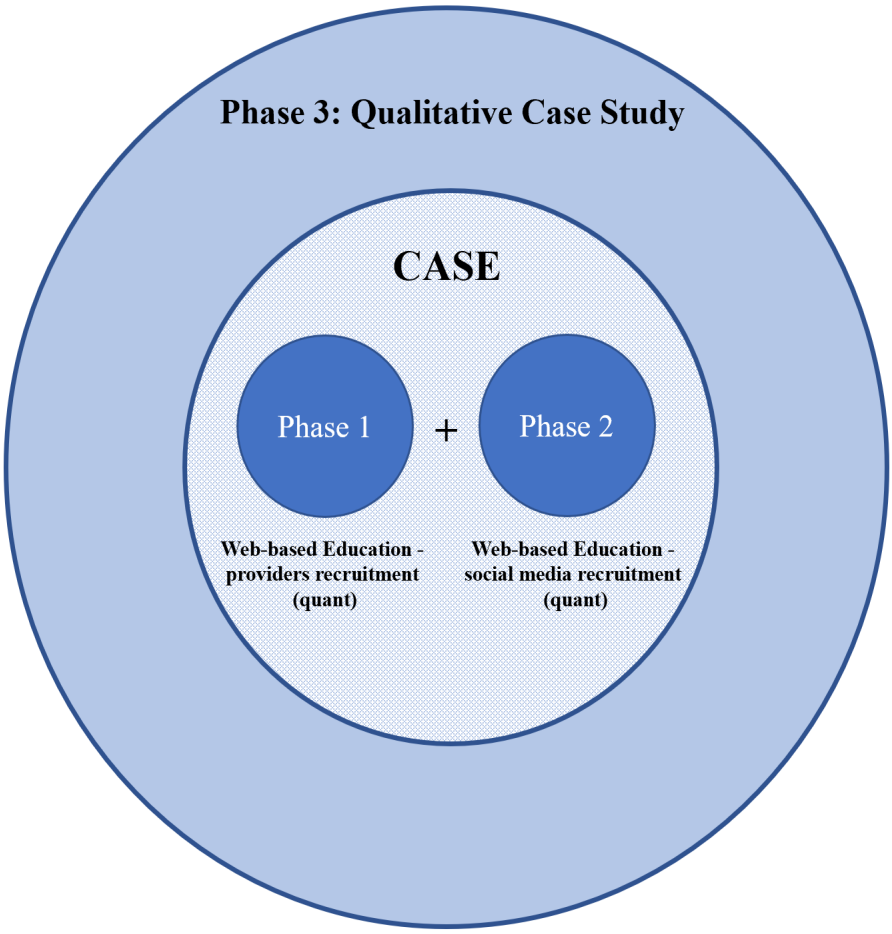
A qualitative case study design was employed in this scholarly project. Qualitative research design provides a naturalistic approach to the world using interactive materials such as field notes, conversations, recordings, interviews, and photographs (Yin, 2018, p. 44). Answers to research questions can be found through a real-life perceptive. Due to the desire to understand and explore extensively and gain an in-depth understanding of factors or phenomena that cannot be assessed through questionnaires, tests, or numeric data analysis, I decided to use an explanatory case study. Explanatory case studies draw from multiple sources of information to provide an in-depth understanding of the phenomenon. When researchers desire to answer "how" and "why," case studies provide the tools and methods needed to evaluate the concepts. Case study research "is a qualitative approach in which the investigator explores a real-life contemporary bounded system" or case (Creswell, 2012, p. 97). Case study research is different from clinical case studies or case reports. Clinical case studies report disorders, diagnoses, and treatments for individuals with mental or medical illnesses (Alpi & Evans, 2019).

Design of this scholarly project evolved from inception to completion. During phase 1, a quasi-experimental study was envisioned to determine if a web-based culturally tailored education program will increase the consumption of a WFPBD in African Americans with CMS. The study started recruitment in October 2020, but due to low enrollment rates and unforeseen

challenges caused by COVID-19, recruitment methods were changed in Phase 2 from recruitment by healthcare providers to advertisement on social media. Low recruitment made it apparent that understanding education within the culture, web-based delivery, and COVID-19 was imperative before testing the efficacy of the educational program quantitatively. Thus, a qualitative case study was undertaken, with Phases 1 and 2 becoming the case under investigation in Phase 3. See Figure 2. IRB approval was notified of the changes, and approval was received on March 3, 2021.

Figure 2

Case Study Phase Process



Setting

The case study occurred entirely online due to safety concerns and restrictions for COVID-19. Participants' interviews were conducted over the phone, and study materials for the web-based education program were delivered via e-mail. All participants resided in the southern United States, and the interviews occurred in Georgia, one of the southern states. The physician and APRN offices were in a suburban part of Georgia. All three healthcare providers were located within a 25 miles radius and had a large demographic composition of African American patients. The healthcare providers were contacted via phone and emailed interview questions and informed consent before the interview. Participants completed study materials such as informed consent, demographic forms, dietary assessments, and evaluation of the web-based education program online.

Sample

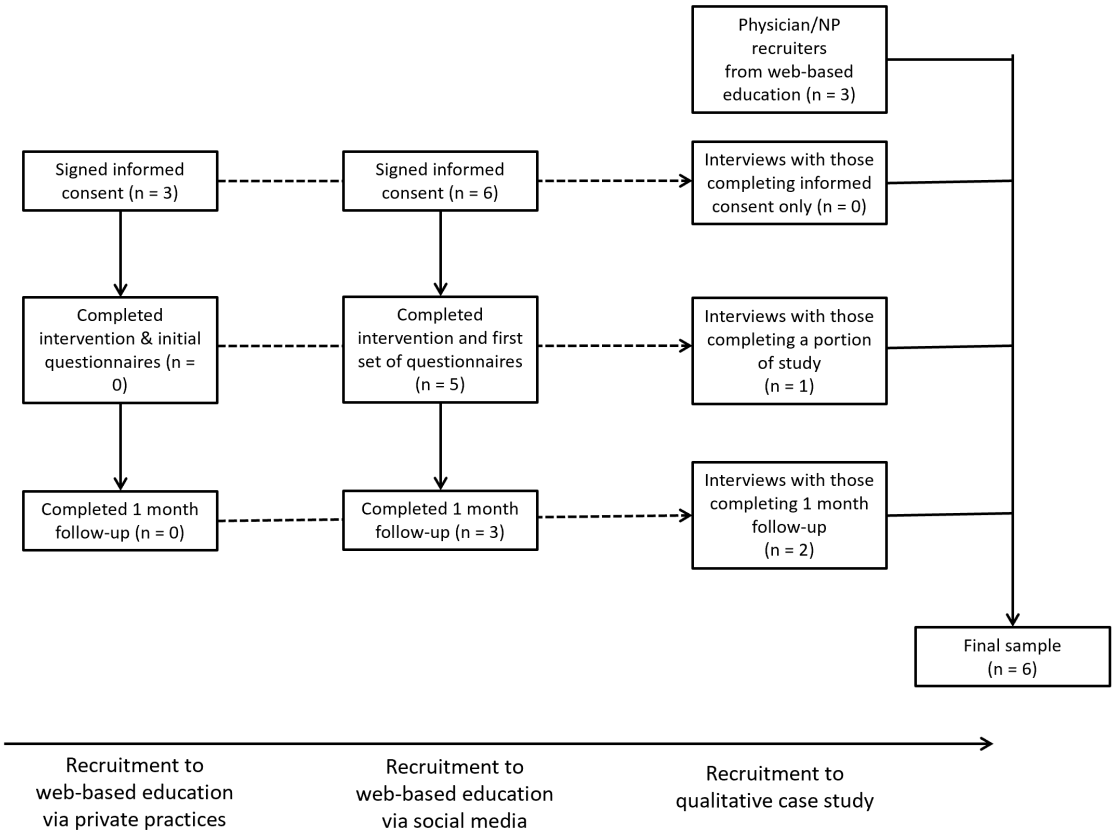
The target population was African Americans with known CMS living in the southern United States. Accessible sample for the qualitative case study included individuals previously enrolled in the web-based education program from Phases 1 and 2, as well as healthcare providers involved in recruitment during Phase 1. These providers also routinely care for the target population. All the healthcare providers involved were African Americans who had a large population of African American patients and supported research and lifestyle education.

During phase 1, I recruited participants from three private practices: two internal medicine practices and a gastroenterology practice. I posted flyers in the offices, and staff members were encouraged to discuss the study with eligible patients. The healthcare providers referred patients who met CMS criteria to enroll in the web-based education program. See

Figure 3 for the recruitment flow chart. During phase 2, recruitment shifted to social media, i.e., Facebook

Figure 3

Recruitment Flow Chart



The inclusion criteria for Phases 1 and 2 included:

- Ability to give informed consent to participate in the program and comply with study requirements,
- Black, African American between age 18–65 years old,
- Able to use a web-based education program and have access to the Internet,

- A history of three or more cardiometabolic disease components: hypertension (blood pressure > 130/85), prediabetes (hemoglobin A1C 5.7%–6.4%) or high fasting blood glucose (>100 mg/dL), high triglyceride levels (>150 mg/dL), low HDL cholesterol levels (< 40 mg/dL in men; < 50 mg/dL in women) and excess abdominal fat (waist measurement > 40 inches in men; > 35 inches in women).

Inclusion criteria specific to the qualitative case study (Phase 3):

- Interested or enrolled in a culturally adapted web-based education program for African Americans with CMS (during Phase 1 or 2)

  OR

- A physician or nurse practitioner recruiter for the web-based education program in Phase 1

Exclusion criteria included:

- Medical instability as identified by healthcare providers,
- Inability to understand and sign an informed consent,
- No access to the Internet.

Procedure

Web-Based Education Program

The participants were referred by their healthcare providers based on their medical history. The physicians or staff reviewed participants' medical records to verify the diagnosis of CMS. Once confirmed and all other inclusion criteria were met, participants were sent the study materials. Participants recruited through healthcare provider offices and online were sent the study materials after completing an eligibility questionnaire. Participants were e-mailed the link to access the study materials after signing the electronic informed consent form. Once the link

was accessed, the participant was prompted to complete a section to verify that the informed consent was signed. In addition, an automated email was delivered to the participants after their e-mail addresses were provided. The study progressed with rolling enrollment. Day 1 for any given participant commenced once the e-mail containing all the study materials was received.

After signing the informed consent form, participants completed the Rapid Eating and Activity Assessment for Participants Short (REAP-S) food assessment (see Appendix A) and demographic forms (see Appendix B) before watching the web-based education program. Once all modules were completed, participants completed a program evaluation (see Appendix C). The REAP-S questionnaire was repeated 4 weeks after postintervention to assess an increase in plant-based foods' consumption. Weekly e-mails were sent to each participant with pretest period reminders to complete the REAP-S questionnaire in 4 weeks. I e-mailed a $10 electronic Visa gift card to each participant after all requirements were satisfied.

Case Study Procedures

The interview section of the scholarly project included the physician and nurse practitioners who participated in the recruitment for the web-based education program, participants who completed all aspects of the study, and participants who completed only a portion of the study (including those solely signing informed consent without completing additional study material). All were contacted for an interview, and informed consent was obtained from each healthcare provider before conducting the interviews. The healthcare providers were interviewed over the phone, and each interview lasted for 15 minutes. The interview questions were unstructured to allow for more in-depth conversation and perspective from the healthcare providers, and structured questions were provided for the program participants (see Appendix D). Two web-based education program participants were interviewed

via phone, and one web-based education program participant responded via e-mail. None of the participants who only signed the informed consent responded to the email. The interviews were not taped but written in a notebook and then transcribed immediately following the interview to a Word document. Each individual interviewed was assigned a code to avoid confusion or mixed information. The information was kept confidential. The participants who completed the additional portion of the study were compensated with a $10 Visa gift card.

Sources of Evidence

Qualitative studies use multiple sources of data to gather pertinent information about the problem of concern. Various data collection methods are vital in a case study because it brings more credibility and a deeper understanding of the concept studied. I used multiple sources of evidence such as demographic assessment forms, dietary assessments, program evaluation surveys, structured and unstructured interviews, and participant observation to understand the research question fully. Interviews from healthcare providers served as a voice for those who did not participate in the web-based education program. Data needs to be collected and analyzed from different angles for in-depth knowledge and resolution of the research question using a case study methodology. As discussed above, case study research requires the simultaneous consideration of multiple sources of data. One source of evidence would give a narrow perspective of the problem; therefore, the principle of triangulation was used to strengthen this case study's quality by connecting, analyzing, and reviewing all the sources of information together (Yin, 2021).

REAP-S

I used the REAP-S nutritional assessment questionnaire to assess the dietary quality of the participants. The REAP-S is a nutritional survey that contains 13 questions that are focused

on evaluating the consumption of fruits, vegetables, whole grains, dairy, meats and poultry, fats, saturated fats, calcium-rich foods, sugary beverages, and sodium. The survey also contained questions about frequency of dining out, cooking from home, and finally, readiness to change to a healthier diet.

The 13 questions were rated on a scale of 1–3 points. Responses of "usually" or "often" were scored as 1 point, responses of "sometimes" were scored as 2 points, and responses of "rarely," "never," or "does not apply to me" were scored as 3 points (Johnston et al., 2018). The REAP-S focuses on food intake among low-literacy populations. The total REAP-S scores range from 13–39, with higher scores indicating a healthier diet. REAP-S has been validated against the Healthy Eating Index for scoring dietary quality; a significant correlation was shown between the two ($r = .227$, $p = .047$), and the test-retest reliability was adequate ($r = .860$; Johnston et al., 2018). I transcribed the REAP-S questions to Office 365 forms for ease of electronic accessibility. Participants completed the REAP-S questionnaire prior to watching the web-based education program. Participants completed a repeated REAP-S nutritional assessment 4 weeks after they participated in the web-based education program.

Demographic Form

Participants completed a demographic form that included age, sex, education, employment status, and income.

Program Evaluation Form

Participants completed the program evaluation form, which was developed specifically for the web-based education program. The form assessed the effectiveness and acceptability of the web-based education program after all the modules were completed. The document contained four-question with three questions using a five-point Likert scale. The questions ranged from the

accessibility of the content to how likely the participant was to recommend the program to others.

Interview

The goal of the unstructured interview questions directed to healthcare providers was to gather perspective on how COVID-19 impacted patients' health habits and what barriers hindered their participation in the web-based education program. Those who participated in the web-based education program also answered structured interview questions; these questions helped me understand why they were interested in a web-based education program and how COVID-19 affected their decision.

All structured interviews contained five questions, but wording varied slightly based upon the level of completion of the web-based education program. The following structured interview questions were used for those who completed most or all aspects of the web-based education program:

- What factors influenced your choice to participate in a web-based health education program?
- Did the culturally adapted nature of this lifestyle education influence your decision to participate in the study? If so, how?
- How has COVID-19 affected your lifestyle choices (diet, exercise, sleep habits)?
- Has COVID-19 influenced your willingness to make lifestyle changes? If so, how?
- Did COVID-19 affect your decision to participate in a research study at this time? If so, how?

The following structured interview questions were used for those only completing a consent form but no other study elements:

- What factors influenced your choice not to complete this web-based health education program?
- Did the culturally adapted nature of this research increase your interest in the study? If so, how?
- How has COVID-19 affected your lifestyle choices (diet, exercise, sleep habits)?
- Has COVID-19 influenced your willingness to make lifestyle changes? Please explain.
- Did COVID-19 affect your decision not to complete this web-based health education at this time? If so, how?

The following questions guided the unstructured interviews for healthcare provider–recruiters:

- What factors do you believe influenced patients' interest or lack of interest in this web-based lifestyle education program? Do you believe that the culturally adapted nature of this education increased patients' interest?
- How has COVID-19 affected your patients' lifestyle choices in general (diet, exercise, sleep habits)? Engagement in care?
- How has COVID-19 influenced patients' willingness to make lifestyle changes, positively or negatively?
- How do you believe COVID-19 affected this research study, if at all?

Analysis

I analyzed the data using pattern matching, explanation building, and case study analysis techniques described by Yin (2018). Pattern matching compares finding observed in the case

study with a predicted pattern or alternative predictions observed in literature and compares to study data. The initial suggestion is confirmed when there are similar matching patterns, which adds more validity and strengthens the research (Yin, 2018, p. 175). Explanation building is similar to pattern matching but aims to analyze the case study data by building an explanation about the case (Yin, 2018, p. 179). I detected patterns once all the data were assessed, which eventually helped answer the research question.

I used demographic surveys, nutritional assessments, program evaluation surveys, and structured and unstructured open-ended interviews with the healthcare providers and participants in this case study. I reviewed and analyzed all sources of information before making conclusions.

I analyzed the survey data and reviewed interview responses to identify and group common concepts and ideas for pattern matching. Patterns were identified in extant literature; then interview data were examined with these patterns in mind, starting with providers, then participants, coming back to literature in the iterative process of explanation building (Yin, 2018). I matched completed surveys, demographic information, and interview responses with each participant to fully understand participants' perspectives and experiences.

All data were handled with care and confidentiality. I wrote responses to telephone interviews in a notebook and transcribed my notes into Word documents. In addition, I transferred survey responses on dietary assessments and demographic data into Excel worksheets for better analysis. I analyzed the demographic data and program evaluation questions using descriptive statistics.

Ethics and Human Protection

I received approval from the Southern Adventist University IRB before the study was conducted. Approval from IRB was received before modification in recruitment and research

methodology (see Appendix E). I provided each participant with detailed information and explained the purpose of the research during the recruitment phase via telephone and e-mail. Participants' rights were protected by using identifiable codes. Medical records were not accessed because recruitment was based on physician referrals, and participants were recruited via Facebook after a questionnaire was completed. The Facebook questionnaire included questions to determine their interest in the study, medical history supporting CMS, and location. Participants were informed of their right to decline participation in the scholarly project without any penalty. Informed consent was signed voluntarily by all participants and healthcare providers before participating in the scholarly project. Enrollment was voluntary and free. Data was stored in a secured place electronically and only accessed with passwords. Access to the data was only available to me and will be stored for seven years, after which it will be destroyed.

CHAPTER 4: ANALYSIS OF RESULTS

This chapter provides an analysis of the data collected during the scholarly project. A case study approach analyzes documents, interview questions and responses, program evaluation, and REAP-S assessment results. The final sample description is also discussed in detail.

Description of Case

This section will briefly describe the selected case analyzed in this chapter. As discussed in the previous chapter, the case was developed in Phases 1 and 2 of this scholarly project.

Design and Implementation

A qualitative case study design was used for this scholarly project. Quantitative data from the web-based educational program and the case study were used to answer the research question. Recruitment occurred between October 13, 2020 and February 19, 2021 in three healthcare practices in the southern United States. Due to low enrollment, recruitment was extended to social media, from January 18, 2021 to March 7, 2021.

Sample Description

While 24 individuals voiced interest in the web-based education program, only three completed all program elements. Physician recruitment was much less successful than social media. Four individuals were referred from a single provider; three signed the informed consent but none participated in any program elements. Of the 24 interested individuals, 22 showed they were interested in research via social media, and two were contacted via flyers. Of the 24 who showed interest in participation, only 13 were eligible, and only six signed the informed consent. Five proceeded with the study materials, three completed all the study requirements, and two partially completed the study. Table 1 describes the sample characteristics.

Table 1

Demographic Characteristics of Program Participants

	Gender	Age Range	Ethnicity	Marital Status	Employment	Education	Household Income	Study Participation
Participant A1	Female	35–44	2+ ethnicities	Single	Full-time	Trade school	$100–250K	Completed intervention, questionnaires, and 1 month follow up
Participant A2	Male	35–44	AA	Married or cohabitating	Full-time	Master's degree	$100–250K	Completed intervention, questionnaires,1 month follow up and Qualitative interview
Participant A3	Female	25–34	AA	Single	Unemployed	High school	< $25K	Completed intervention, questionnaires,1 month follow up and Qualitative interview
Participant A4	Female	18–24	AA	Married or cohabitating	Full-time	Bachelor's degree	$100–250K	Completed intervention, questionnaires
Participant A5	Male	35–44	AA	Married or cohabitating	Full-time	Ph.D. or higher	$250–$500K	Completed intervention, questionnaires, and Qualitative interview

Intervention

The web-based education program contained six modules, which lasted for 50 minutes. Below is a summary of each module. I developed and presented each module unless otherwise specified.

- Module 1: a cooking demonstration provided by Detria Dennis, a PCRM-certified food instructor and registered nurse.
- Module 2: What is CMS?
- Module 3: SAD versus WFPBD diet
- Module 4: Success stories. Video developed by the Physicians Committee for Responsible Medicine and used with permission.
- Module 5: Go plant-based?
- Module 6: Reading food labels, provided by Detria Denis, certified food instructor, and registered nurse.

I developed unique cultural adaptations using information from the literature review regarding specific CMS risks and barriers to lifestyle change among the African American population (Crimarco et al., 2020; Richards Adams et al., 2019), as well as personal knowledge gained from living and working in the African American community. The modules discussed the CMS statistics and complications in the African American population and how chronic diseases affect the overall health, quality of life, and mortality nationwide. The modules provided visual graphics to enhance awareness and to provide straightforward interpretation. The modules also addressed common barriers such as the cost of purchasing healthy foods, lack of time, knowledge, and taste preference.

Additionally, the modules provided information and resources on how and where to purchase affordable healthy foods. The recipes provided were easy to make and adapted to the cultural and tastes preferences of the African American community. The handout provided ("The African Heritage Power Plate") contained recipes and information on healthy food choices. The contents and materials were developed by members from The Old Ways Cultural Foods Tradition and The Physicians Committee for Responsible Medicine (See Appendix G).

Timing of Materials

Participants spent an average of 4 minutes and 53 seconds (range = 2:33 to 7:12) on all initial questionnaires (demographic form, intervention, program evaluation, and REAP-S). The web-based educational video length was 50 minutes. The estimated total time spent on the web-based education program was 52:33 to 57:12 minutes.

Program Evaluation

One hundred percent of participants were very likely to recommend the program to family and friends; I used a Likert-type scale to assess this likelihood, with 1 being "not likely" and 5 being "very likely." Furthermore, after watching the webinar, all participants said they planned to incorporate more whole foods and plant-based foods into their diet. This finding corresponded to the conclusions of the REAP-S regarding readiness to change (80% were very willing to make changes in eating habits to be healthier).

A total program acceptability score was formulated by adding responses for all questions regarding the program's acceptability (1 = strongly disagree to 5 = strongly agree; see Table 2). Two items ("confusing" and "too long") were reverse coded. The possible score range was 5–25, with lower scores denoting less program acceptability and 25 suggesting that the program was

highly acceptable to participants. The responses indicated good acceptability of the program among participants (*Mdn* = 23, range = 17 - 25).

Table 2

Program Acceptability Score

	Program acceptability score
Participant 1	23
Participant 2	17
Participant 3	25
Participant 4	25
Participant 5	17

Diet Quality

The average REAP-S score was 22.67 (*SD* = 6.58, range 16 - 33). As a guide, scores are categorized as low-density (15 - 19), moderate-dietary quality (20 - 28), high-dietary quality (29 - 38). Although there were too few responses to evaluate or draw firm conclusions statistically, responses indicated a possible positive correlation between income and REAP-S scores; as income increased, REAP-S score also increased. At 4-week follow-up, the average REAP-S score improved to 28.19 (*SD* = 7.94, range 20 - 35) among the three completers. The REAP-S findings are provided in Table 3 and Figure 4.

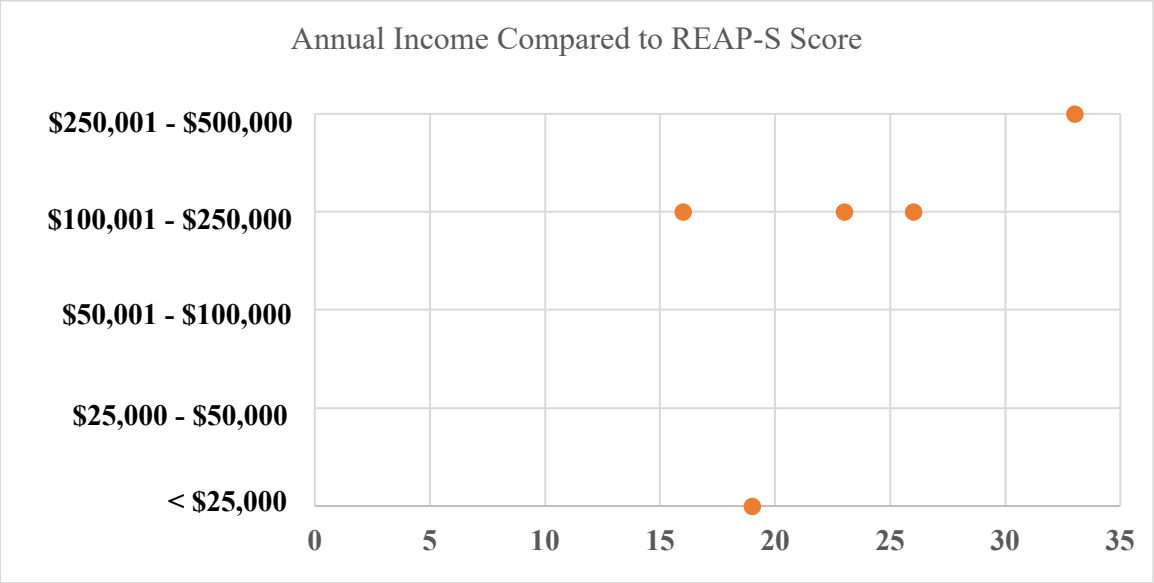
Table 3

REAP-S Findings

	REAP-S score (0–39, higher healthier)	Readiness to change eating habits (1 = very willing; 5 = not at all willing)	Usually cooks at home rather than eating out	Feels well enough to shop/cook
Participant A1	23	2	Yes	Yes
Participant A2	16	1	No	Yes
Participant A3	19	1	No	No
Participant A4	26	1	Yes	Yes
Participant A5	33	1	Yes	Yes

Figure 4

REAP-S Score Compared to Annual Income



Note. Annual income is represented on the y axis, and REAP scores are represented on the x-axis.

I analyzed the overall responses on the REAP-S questionnaire by summing the participants' scores for each question. This analysis provided insight into which questions had the worst dietary reports. A score of 5–15 was possible on each question, with a low score representing worse dietary choices and a high score representing the best dietary choices. Data revealed a range of 7 - 12 across questions. Overall, areas with the poorest dietary choices included vegetable intake and the addition of fats (butter, margarine, or oil) to food at the table. Questions 5 and 11 on the REAP-S addressed participants' consumption of fruits and vegetables. Three participants reported "usually" eating < 2 servings of vegetables per day, with the remaining two "sometimes" eating < 2 servings per day. Fruit intake was slightly better, with two participants reporting "usually" eating < 2 servings per day and three reporting "sometimes" eating < 2 servings per day. The best dietary habits were reported for choosing lean meats rather than regularly processed meats and avoiding sugary drinks (soda, fruit drink or punch, and Kool-Aid).

Questions 8 and 13 on the REAP-S addressed participants' consumption of dairy. Participants reported eating a low dairy diet, with four out of five reporting "usually" or "often" eating less than two servings of dairy daily. The final participant reported "sometimes" eating less than two servings of dairy daily.

In terms of simple carbohydrate intake, two participants reported "usually" or "often" eating sweets (cake, cookies, pastries, donuts, muffins, chocolate, and candies) more than two times per day, and an additional respondent "sometimes" ate sweets. As far as whole-grain intake, two participants reported "usually" eating < 2 servings of whole grains per day, and one additional respondent "sometimes" ate < 2 servings of whole grains daily. The participants were all highly motivated to make healthy lifestyle changes.

Three participants reported “usually” cooking and eating at home, and one participant “rarely” or “never” ate four or more meals at a to-go or sit-down restaurant per week. Two participants routinely ate out four or more times weekly. Not surprisingly, those who ate out more frequently had the lowest REAP-S scores.

Case Study Analysis

Case Study Sample

Data were analyzed based on a total sample size of eight, which included three healthcare providers and five participants. All the participants were African Americans who had known CMS and lived in the southern United States. The participants were both males and females with ages ranging from 18-44 years old. The healthcare providers consisted of one physician and two nurse practitioners from different practices and locations. The healthcare providers referred participants who met CMS criteria to enroll in the web-based education program. Only three of the participants completed the study's interview section, and two did not respond to be interviewed. The full description of all participants was listed in Table 1.

I also collected demographic information from the healthcare providers. The healthcare providers demographic information is as follows:

- Healthcare provider B1 was a male family medicine physician with over 28 years of experience. He owns six practices located mainly in urban areas in Atlanta, Georgia.
- Healthcare Provider B2 was a female nurse practitioner who works in a family medicine clinic in Atlanta, Georgia.
- Healthcare Provider B3 was a female nurse practitioner who works in a gastroenterology practice in suburban Georgia.

Results

Following the Yin (2018) method of case study analysis, several patterns were observed during the scholarly project analysis. I noticed patterns related to COVID-19 effects on mental health and lifestyle choices, perceived barriers and benefits, health promotion and benefits, and cultural sensitivity.

COVID-19 Effects on Mental Health and Lifestyle Choices

The COVID-19 pandemic caused a significant strain on mental health, the economy, and physical health. Studies conducted in China, Poland, and Italy during the lockdown periods revealed that the pandemic had had a negative psychological impact on many individuals. Individuals worldwide have experienced increased anxiety, depression, irritability, anger, and posttraumatic stress disorder (Renzo et al., 2020).

The providers reported increased clinic visits due to depression, anxiety, and stress-related complaints; however, many patients stayed away from the clinic due to fear of contracting COVID-19. As reported by the providers, many patients used foods as a coping tool for their depression, stress, and isolation. Patients also exhibited a decreased interest in eating healthy foods, exercising and increased insomnia. There were also reported worsening eating habits, such as increased highly processed carbohydrates, which led to worsening biomarkers such as blood pressure, cholesterol levels, and hemoglobin A1C.

Individuals experiencing increased stress, anxiety, and depression were less likely to consider adhering to lifestyle changes during a pandemic. For example, providers were asked, “How has COVID-19 affected your patients’ lifestyle choices in general (diet, exercise, sleep habits)? Engagement in care?” In response, Provider B1 shared:

> COVID affected patients' lifestyles because it led to limited exercise. They aren't able to walk outside. Those that usually walk can't because they're concerned about being infected. They have also started eating more food just because they are at home and they're stressed. Most of the patients that come in for their routine visits are about 2%. Most stayed away due to COVID. They were involved in telemedicine.

On the contrary, participants self-reported that COVID-19 triggered the need for healthier lifestyle choices. They were more self-aware and made positive changes, such as dietary preferences and decreased alcohol consumption. The data analysis revealed some commonalities among participants in terms of how each reacted to the COVID-19 pandemic. The anxiety of the health consequences of being infected by the virus caused a behavioral change as opposed to the patients seen by the healthcare providers. All participants focused on their diets and made dietary changes to improve their health and immunity to fight the virus.

Participants were asked, “How has COVID-19 affected your lifestyle choices (diet, exercise, sleep habits)?” Participant A1 stated:

> COVID-19 has positively affected my lifestyle. I was able to make positive changes; I had time to focus on my diet. I was not traveling out, which made it easy for me to stick with a plant-based diet. My sleep pattern did not change, and I did not exercise at all during COVID-19.

Participant A2 responded: “A lot. Especially diet. So that I can improve my immunity, I decreased my alcohol intake. I take more ginger and garlic because it will help my immune system.”

Perceived Susceptibility

Fear had a strong effect on individuals' health choices during COVID-19. Fear propelled individuals to make positive or negative lifestyle changes. In addition, fear caused increased emotional distress such as stress, insomnia, and anxiety. Providers shared that patients experienced increased anxiety and fear about the impact of COVID-19 on their health and family.

Drawing from the HBM, an individual's belief about the problem, the perceived benefits of the action, barriers to act, and self-efficacy can either lead to positive changes or halt any progress to change (Martinez et al., 2016). Fear can sometimes serve as a propeller for change to occur. Patients' perception of benefits and barriers to adopting a WFPBD can affect their willingness to make certain dietary changes. Moreover, self-efficacy can guide one's choice to change their lifestyle (Kang et al., 2014). The perceived susceptibility of being negatively affected by COVID-19 is a strong motivator for some. Data reported from CDC revealed patients with CMS were more likely to be hospitalized or die from COVID-19 (CDC, 2020). Although this information was reported on media platforms, it only served as a motivating factor for some. According to providers, the fear of COVID-19 infection was not a motivator for their patients to change their health behaviors. It was a barrier to exercise and office visits.

The interview questions directed to participants were aimed at assessing their reasons for participating in the study. Participants' perceived susceptibility to the complications of COVID-19 infection was a driver for change. Participants were asked: "Has COVID-19 influenced your willingness to make lifestyle changes? If so, how?" Participant A3 elaborated:

> Yes, COVID-19 has influenced my willingness to make lifestyle changes in that I want to be healthy. This will ensure that I have a strong immune system and reduce my risk of dying from COVID-19 if I ever contract the disease.

In contrast, the healthcare providers noticed fear as a negative factor in their patients because it hindered their willingness to make healthy lifestyle changes. All the providers' stated that their patients seemed reluctant to change their diets due to the perceived sense of another loss. The thought of losing their coping mechanism can cause more mental discomfort for them.

Provider B2 pointed to patients' resistance to give up food, which serves as a coping tool during stressful circumstances*:*

> I don't want to give up my cake for something healthy. They're concerned about what they will lose. A topic that says eating more food and losing weight might make them more interested to learn about it. Sometimes the word healthy eating terrifies people. They constantly think I live for the taste of my food. Taking their food away is like taking their life away from them. Food is their only weapon to cope with stress for those who are not engaged in any illicit drugs or substance abuse. And if they believe that you're going to take their food away, they will not be interested. All they have is their food.

Provider B3 reported similar disinterest among patients: "I think the study was considered a diet change for them, and they were not ready to give up their diet."

Although not reported by the participants, the intake of high caloric foods as a coping mechanism is reflected in the REAP-S scores. The dietary assessment scores for two participants revealed low dietary scores indicating poor diet quality. These two participants consumed high

caloric comfort foods such as cake, cookies, pastries, donuts, muffins, chocolate, and candies, which might support the use of food as a coping tool.

Perceived Barriers and Benefits

Patients who perceive lifestyle changes to be beneficial are more likely to follow through on their lifestyle changes. A patient's self-efficacy (their ability to make changes) also influences their choice to make positive lifestyle changes. The healthcare providers reported many barriers such as access barriers, time, change in routine and economic strain.

Access Barriers

Studies have shown that there are barriers to eating healthy foods, especially in those who are living in rural areas or are socioeconomically disadvantaged. Barriers such as cost of purchasing healthy foods, access to grocery stores that provide healthy produce, lack of social support, lack of time, easy accessibility of fast foods were all reported factors hindering dietary changes (Reed et al. 2016; Richard Adams et al. 2019).

Provider B1 stated her patients lost interest in the study due to a lack of money to change their diet. Furthermore, patients did not know if the diet would help them or have easy access to these healthy foods. Provider B3 stated that access to the Internet was a barrier for patients to sign up for the program: "Another reason is access to the Internet. Some cannot operate it".

The providers' demographic location and patient population contributed significantly to the access barriers faced by their patients. The three practices mainly served patients in an urban, socioeconomically disadvantaged setting. Many of the patients had either lost their jobs or were from a low socioeconomic group.

Participants did not mention access barriers; instead, they discussed benefits. The online delivery of the educational program provided privacy, easy accessibility, and convenience.

Participant A2 stated, “I will not feel judged. Is cheaper than face-to-face programs, and it's easily accessible to me.” None of the participants mentioned the cost of food, which might be due to their socioeconomic statuses. The demographic data completed revealed a range of income from less than $25,000/year to $500,000/year with a median salary range between $100-$250,000.

Time

Time was another barrier mentioned by both providers and participants. Provider B2 thought the program’s length might have been a barrier to participating:

> If the educational program stays too long on education, they will lose interest in listening to it. I think 50 minutes is too long. I think it should have been broken into minor segments because this might be a problem when capturing their attention. I think limiting it to 15 to 20 minutes max for an educational program is ideal.

The program evaluation completed by the participants assessed the program’s duration as sufficient and not too long. The acceptability score evaluated for time and clarity of the information. The high acceptability scores indicated acceptance by the participant group (*Mdn* = 23, range = 17 - 25). The time participants spent in isolation provided them an opportunity to focus on their health. For example, Participant A2 shared: “COVID-19 has positively affected my lifestyle. I was able to make positive changes. I had time to focus on my diet. I was not traveling out, which made it easy for me to stick with a plant-based diet.”

Change in Routine

A change in routine served as a barrier, as noted by the healthcare providers. Patients with CMS were uprooted from their routine; this was a stressor, making it difficult to consider another change, such as diet. Provider B3 stated:

> Patients thought of it as adding more to their already stressed lives. More to the stressors going on. I talked about it with the patients. It was something different, and they were not willing to try because of the stressful time of the year.

On the other hand, the change in routine was also beneficial to the program participants. Change in routine provided participants with more time to focus on making healthy lifestyle changes and offered an opportunity for patients to learn about other options to improve their dietary choices.

Economic Strain

COVID-19 resulted in a large amount of job loss; according to data from the bureau of Labor Statistics, April 2020 had the peak unemployment rate at 12.5% (Bureau of Labor Statistics, n.d.). Loss of jobs was mentioned by two of the providers as contributing to stress for their patients. The providers mentioned that COVID-19 caused an element of significant economic strain on their patients. Providers B2 noted two extremes: job loss versus increased demand for those working in essential areas. Individuals in both extremes experienced increased stress, contributing to their lack of interest in lifestyle or dietary change. Provider B2 discussed patients' struggles with these extremes:

> They are in survival mode due to a lot of unemployment. I am in the wreckage, not a good foundation. If anyone does not have a good exercise foundation, they will not consider changing their lifestyle. Some don't have

> jobs, and others working in a critical role have a highly demanding jobs and can't take time away, and they're constantly working. They have no time to engage in healthy lifestyle behaviors. They seem to be at the other end of the spectrum.

On the other hand, the program participants did not mention any economic strain, although Participant A3 indicated a lack of employment and a yearly salary of less than $25,000. Although there might be evidence of some financial pressure for this participant, her desire to make healthy lifestyle changes was a priority. The demographic data in Table 1 displays the participants' various economic statuses, which might explain why no participants mentioned a financial strain.

Health Promotion and Benefits

Change is more likely to occur when individuals believe that a healthy lifestyle can benefit more than the perceived loss or barriers they envision. One of the purposes of the web-based education program was to generate awareness of the benefits of adopting a WFPBD. The healthcare providers saw the program's benefits and lifestyle change; however, their patients only embraced the benefits if the program did not require extra work and did not cause a lot of change to their lifestyle or routine. The providers pointed out some perceived benefits their patients could gain from participating. Such benefits include reducing medications, lowering hemoglobin A1C, and improving erectile dysfunction among male patients. Although these changes are beneficial, the emotional stress and multiple barriers resulting from COVID-19 made diet change less priority.

All the participants interviewed had a positive perception of the benefits of adopting a WFPBD to improve their health. Participants demonstrated a common desire to make healthy

lifestyle changes, and all thought the educational program provided the opportunity to do so. Participant A3 listed many reasons why she was interested in the program:

> My weight- I wanted to shade off some of my weight. My health- I would like to be healthy and prevent myself from getting diseases because of gaining weight. Time- I have time to ensure that I can prepare myself healthy food. My family and friends- They encouraged and persuaded me to try it out. To be able to have good self-esteem.

Participant A5 shared a similar perspective: "I am looking to live a healthy lifestyle. I wanted to explore how to live healthier with other options, and this was an option for me."

Overall, the COVID-19 pandemic positively triggered participants to make healthy lifestyle changes. All participants focused on their diets and made dietary changes to improve their health and immunity to fight the virus.

Cultural Sensitivity

Educational programs that address the cultural differences of participants are well received and produce positive health changes. The scholarly project focused on addressing the cultural uniqueness of African American culture. Taste preference and culture were some of the barriers stated in many studies related to dietary changes. Both program participants and healthcare providers saw benefits in the cultural aspect of the web-based education program. Furthermore, the culturally adaptive nature of the program appeared to play a significant role in encouraging their participation. Each participant interviewed felt connected, understood, and motivated when their cultural preferences and uniqueness were addressed in the program. Four out of five participants strongly agreed that the program was culturally relevant; the remaining participant response was neutral. Participant A2 shared: "yes, because you had a sense of

belonging, and it was also sensitive to my culture and preference." Provider B1 explained: "Yes, anything culturally sensitive to the Blacks and African American population is always a positive thing."

All the web-based program participants were very likely to recommend the web-based education program to friends and family. Each participant planned to include more whole foods and plant-based foods in their diet, indicating that the program was well-received and the information was impactful. Participant's responses were linked to the findings in REAP-S. Eighty percent of participants were willing to make healthier food choices that would promote better health.

Summary

There are patterns between providers and participants regarding their perceptions and beliefs as it connects to making healthy lifestyle changes. The significant patterns noted were the perceived susceptibility to COVID-19 and its impact on health, perceived barriers and benefits of making a healthy lifestyle change, health promotion benefits, and cultural sensitivity. The providers felt that their patients perceived susceptibility to contracting COVID-19 was high, but their thoughts on the benefits of making healthy lifestyle changes and adopting a WFPBD were lacking. The web-based program participants thought overwise. Their perceived susceptibility was high, and so was their belief in the benefits of making healthy lifestyle changes and adopting a WFPFB. The providers reported many barriers encountered by their patients while the web-based program participants did not. Some of the obstacles, although experienced by both, were managed in different ways. Both providers and participants supported the cultural sensitivity of the web-based education program. Although it added an extra layer of motivation for the program participants, it was not a change motivator for patients in healthcare providers.

CHAPTER 5: DISCUSSION OF FINDINGS

This chapter details how COVID-19 affected the participants' mental health and discusses the barriers that could have contributed to a change in health behaviors. It discusses the patterns observed between both healthcare providers and the program participants. The study's limitations, the recommendation for future research, and possible application to clinical practice will be discussed in detail.

Observations

COVID-19 Effects on Mental Health and Lifestyle Choices

This qualitative case study highlighted why individuals chose to participate in web-based education programs and how COVID-19 affected their decision to participate. Multiple studies supported the adverse effects the COVID-19 pandemic had on mental health for many individuals both domestically and internationally. There were increased reported cases of anxiety, depression, irritability, anger, and posttraumatic stress disorder (Renzo et al., 2020). Dietary habits were unhealthy, and increased weight gain was reported due to consuming processed foods and high caloric meals.

These negative impacts of COVID -19 were consistent with this study’s observation based on the healthcare providers reported worsening of CMS biomarkers in their patients due to the unhealthy behavior and neglect of health-protective behaviors. The participants made positive changes towards improving their health, and COVID-19 acted as a driving force. While the stress of COVID-19 played a significant role in contributing to unhealthy lifestyle behaviors for many, a small percentage of people whose mental stress from the pandemic provided a positive opportunity for better health.

Varied Response to COVID-19

As previously mentioned, varied responses were noted between the non-participant CMS patients and the web-based program participants. While the providers' responses correlated with patterns from previous studies, the web-based program participants had divergent responses for almost all the evident patterns. These differences could have been influenced by the unique nature of the participants' resilience to obstacles and health beliefs.

The perceived susceptibility to COVID-19 infection was significant for the non-participant CMS patients. Still, their perception of the negative implications of worsening CMS and the benefits of adopting a healthier diet was blunted. The perceived benefits of maintaining their unhealthy lifestyle were more significant than the risk of developing worsening symptoms from COIVD-19 due to their comorbidities. This observation aligns with the HBM because their perceived risk of developing worsening CVD was low; hence the barriers were welcomed and used as an opportunity to remain complacent. Patterns like increased mental health symptoms, barriers to access the Internet, fear of another loss, time, change in routine, cultural sensitivity, and COVID-19 effect on research and economic strain all halted the implementation of change for these groups.

On the contrary, the program participants perceived susceptibility to COVID -19 infection appears to be similar to providers'' report of non-participant patient's perception. The HBM could explain their response as their health belief, perceived risks, and benefit favor making positive changes. Similarly, the patterns evident in this study, such as increased mental health symptoms, time, health promotion and benefits, change in routine, cultural sensitivity, and COVID-19 effect on research, all launched the start of positive, healthy lifestyle changes for this group. Access to the Internet, fear of another loss, and economic strain were not considered

barriers to making healthy changes. They all had Internet access and change in dietary pattern, and making healthier lifestyle choices, although a loss, did not produce a negative feeling of fear or deprivation. Economic strain was not mentioned as a barrier; however, one of the participants reported a low income, and participating in research during COVID-19 was viewed as an opportunity to equip themselves with more resources to improve their health.

Possible Explanations of Divergence in Groups

There were significant differences in the thought process, self-awareness, and confidence in making healthy changes from most African Americans with CMS, as reported by the healthcare providers and program participants. The transtheoretical change model could partially explain the divergence between the two groups. The program participants were ready to make healthy lifestyle changes, while the non-participants did not consider making changes. The providers seemed to face resistance from patients in certain stages of change; for example, job losses and increased stress led to a lack of interest in lifestyle changes. As a result, patients do not prioritize making healthy food choices. Most of the providers' patients were in the pre-contemplation stage (individuals have no intention for behavioral changes); thus, none were ready to make any changes. One provider noted that the patient's foundation determined if they were already on track to make healthy lifestyle changes. In order words, individuals who are already in the change process were more likely to continue or increase their desire to make healthy lifestyle changes. In a nutshell, COVID-19 negatively affected the providers' patients' willingness to make healthy lifestyle changes.

In contrast, the participants appeared ready for change and interested in positive change due to the pandemic. All participants were at different stages of change; these stages ranged from contemplation to preparation to action. Participant A3 was considering making changes but had

no plans; Participant A1 and A2 were in the action phase with changes already implemented. Another observation is that the healthcare providers did not refer any of the three participants; instead, the participants signed up voluntarily. Although COVID-19 was a factor propelling participants towards change, all participants were mentally ready for change. All the participants reported a strong readiness to change score on their REAP-S assessment (80% were very willing to make changes), supporting their interest in making healthy lifestyle changes.

In addition, the economic differences could explain the difference between these groups. Job losses and financial strain were a common problem for many in Georgia. The providers reported that their patients with CMS were in a survival mode, contributing to their lack of interest in making any changes. In contrast, web-based program participants were predominantly from higher socioeconomic levels, thus likely failing to provide a true reflection of the general African American population with CMS."

The healthcare providers serviced patients in mixed socioeconomic classes with a predominance of those in the low margins. That could explain the significant financial factor. On the other hand, the program participants were those with higher socioeconomic status that could have been more receptive to change because of the reduced financial stressors and improved access to food.

Providers identified several interesting components of fear. The pandemic resulted in several losses for many people: loss of job, loss of freedom due to social isolation and quarantine restrictions, loss of financial support, loss of social interaction, loss of family members or close friends. Ettman (2020) reported that the high scores of stressors which led to increased depressive symptoms for the participants were due to lower income (less than $5,000) and stresses from job loss, death of someone close, and financial problems. Changing dietary intake

to healthier options can seem like another loss for individuals who use food to cope with emotional distress. Bhutani et al. (2021) noted that people often use food to manage their emotional and mental distresses. The study revealed increased consumption of snacks and high caloric dense foods (Bhutani et al. 2021) in participants due to the pandemic. The providers' patients saw this as another loss that might have discouraged their willingness to change; on the other hand, the participants embraced it as a gain to better health.

Both groups appear to have different mindsets and attitudes towards challenges. One group seemed to have embraced the obstacles and used them to indicate growth and positive changes. At the same time, the others viewed the challenges as limiting factors and were paralyzed to change or blinded to see the possibilities of change. Other factors might have played a role, such as resilience, family or friend experience with COVID, and social support for change.

Limitations

There were several limitations observed in this study, and each will be discussed in this section. The recruitment method through social media might have brought some volunteer bias because those who responded were already interested in making healthy lifestyle changes. The timing of the study might have played a role in recruitment because it started close to the fall and winter holidays, which might have discouraged enrollment because of diet changes. The web-based education program research progressed during Thanksgiving and Christmas, which might have affected individuals' desire to participate in a program. Furthermore, the increased challenge of diet change during these periods may have also impacted recruitment.

The research failed to reach the CMS patients but used the healthcare providers as proxy respondents for non-participants to understand their challenges and perceived barriers. This

approach might have provided some bias to the study's validity but did provide a different viewpoint regarding the research question. Another limitation was compensation, as noted by one of the healthcare providers. The low compensation rate might have discouraged participation for some. A higher compensation incentive might have increased the participation rates but could also lead to bias, affecting the study's validity.

Despite the strengths of the sample, such as being representative for both genders, wide educational and socioeconomic range, the small sample size provided insufficient data to thoroughly analyze for statistical significance in diet improvement after one month of follow-up. The small sample size may have failed to capture a broad representation and perspectives from different African Americans with CMS, especially among lower socioeconomic groups, older individuals, and other geographical regions. The age range caused some limitations to this study. The highest age of the participants was 44 years old; the possible lack of comfort with technology might have acted as a barrier for the older adults.

The case study design poses its limitations. Since the case study only analyzed an event, it wasn't easy to generalize the results to a larger population or replicate them in other settings. Another limitation is the possibility of my own bias regarding what I am in tuned to see or expect from the study; I tried to decrease this by being objective to the information provided by the providers and program participants. I use coded numbers to identify the participants to not connect the responses to names or locations. REAP-S score assessment tool might not have been ideal for assessing intake of WFPBD. It provided positive scores for dairy intake, which are limited or avoided in WFPBD. Factoring in respondent burden and uniqueness of a WFPBD, a more favorable tool that could focus more on WFPBD intake is more applicable. It can be customized to capture the increased amount of plant-based meals as positive scores. Lastly,

confounding variables such as family support were noted and could have contributed to the need for change. One of the participants mentioned being encouraged by the family to change to a healthier diet.

Implications for Future Research

The study should be replicated using a mixed-methods design with a larger sample size to assess healthier dietary intake and perceptions on making lifestyle changes. This study revealed that some individuals used the change in routine and stress caused by the pandemic as an impetus to make lifestyle changes. The recruitment method through social media might have brought some volunteer bias because those who responded were already interested in making healthy lifestyle changes. The timing of the study should be modified not to occur close to significant fall and winter holidays because there are more family gatherings and more celebrations which could make dietary changes more difficult. Future studies could occur after the holidays and the beginning of the year where more people are more ready to make changes for the start of their new year.

Future studies should aim to recruit CMS patients in diverse groups and locations to represent African Americans with CMS better, focusing on those in low socioeconomic areas. Recruitment should focus on including older adults and provide technical support for those not comfortable using them. REAP-S score assessment tool might not have been ideal for assessing intake of WFPBD; future studies should incorporate assessment tools that can factor in the uniqueness of a WFPBD among a unique cultural group.

Implications for Practice

APRNs are faced with the challenge of educating and encouraging their patients to make healthier lifestyle choices. Logically, APRNs expect patients to follow their recommendations;

however, there seems to be reluctance, barriers, or lack of interest among patients when making lifestyle changes. Healthcare providers must assess readiness to change before recommending lifestyle changes; past studies have shown that a person can stay in a stage for change for several months or years before moving forward. Providers should also help the patients find strong motivations to guide them to change.

African Americans are more likely to be stuck in an inactive stage of change when compared with their non-Hispanic, White counterparts (Warren et al., 2016). APRNs must be aware of this reluctance to change among the African American population before promoting healthy lifestyle changes. Healthcare providers should also be mindful of the barriers faced by this population and provide references and resources when applicable.

The APRN can help patients move from one stage to the other by finding strong motivations to change, connecting with their values and visions of health, and identifying networks within the African American community. The healthcare provider can coach patients through this process by providing empathy, engagement, and guidance through making healthy lifestyle changes. These coaching services can be provided in both traditional and non-traditional practices. A more extended time slot or a different visit encounter can be scheduled to provide more time for discussion. Web-based educational programs can be delivered to patients as an added educational supplement when there are time constraints or during coaching sessions as a resource.

Conclusion

The COVID-19 pandemic had global impacts. Many individuals reacted negatively to the stresses of COVID-19, as evident in their worsening mental and physical health. Many individuals focused on more pressing issues rather than trying to improve their health. This study

revealed that those who sought web-based education programs had different perceptions and reactions to stressful situations. These individuals also had fewer barriers, making health changes less of a challenge. As the global pandemic led a small percentage of individuals to make healthy lifestyle changes, the vast majority struggled. These multiple factors were discussed, which may explain these differences. However, additional research is needed to understand better what sets these small groups apart and possibly can be used to promote health changes.

Further research on the efficacy of web-based education programs for this unique population should be repeated while adjusting for the limitations encounter by this project. Nevertheless, this scholarly project highlights the need for APRNs to understand individuals' responses to significant life or global events before recommending lifestyle change. Assessment of perceived benefits, barriers, support, etc., should be undertaken whenever addressing potential lifestyle change.

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Appendix A

REAP-S

REAPS (Rapid Eating Assessment for Participants - Shortened Version)

CJSegal-Isaacson, EdD RD, Judy-Wylie-Rosett, EdD RD, Kim Gans, PhD, MPH

In an average week, how often do you:	Usually/ Often	Sometimes	Rarely/ Never	Does not apply to me
1. Skip breakfast?	O	O	O	
2. Eat 4 or more meals from sit-down or take out restaurants?	O	O	O	
3. Eat less than 2 servings of whole grain products or high fiber starches a day? **Serving** = 1 slice of 100% whole grain bread; 1 cup whole grain cereal like Shredded Wheat, Wheaties, Grape Nuts, high fiber cereals, oatmeal, 3-4 whole grain crackers, ½ cup brown rice or whole wheat pasta, boiled or baked potatoes, yuca, yams or plantain.	O	O	O	
4. Eat less than 2 servings of fruit a day? **Serving** = ½ cup or 1 med. fruit or ¾ cup 100% fruit juice.	O	O	O	
5. Eat less than 2 servings of vegetables a day? **Serving** = ½ cup vegetables, or 1 cup leafy raw vegetables.	O	O	O	
6. Eat or drink less than 2 servings of milk, yogurt, or cheese a day? **Serving** = 1 cup milk or yogurt; 1½ - 2 ounces cheese.	O	O	O	
7. Eat more than 8 ounces (see sizes below) of meat, chicken, turkey or fish per day? ***Note**: 3 ounces of meat or chicken is the size of a deck of cards or ONE of the following: 1 regular hamburger, 1 chicken breast or leg (thigh and drumstick), or 1 pork chop.*	O	O	O	Rarely eat meat, chicken, turkey or fish O
8. Use regular processed meats (like bologna, salami, corned beef, hotdogs, sausage or bacon) instead of low fat processed meats (like roast beef, turkey, lean ham; low-fat cold cuts/hotdogs)?	O	O	O	Rarely eat processed meats O
9. Eat fried foods such as fried chicken, fried fish, French fries, fried plantains, tostones or fried yuca?	O	O	O	
10. Eat regular potato chips, nacho chips, corn chips, crackers, regular popcorn, nuts instead of pretzels, low-fat chips or low-fat crackers, air-popped popcorn?	O	O	O	Rarely eat these snack foods O
11. Add butter, margarine or oil to bread, potatoes, rice or vegetables at the table?	O	O	O	
12. Eat sweets like cake, cookies, pastries, donuts, muffins, chocolate and candies more than 2 times per day.	O	O	O	
13. Drink 16 ounces or more of non-diet soda, fruit drink/punch or Kool-Aid a day? ***Note:** 1 can of soda = 12 ounces*	O	O	O	
	YES			**NO**
14. You or a member of your family usually shops and cooks rather than eating sit-down or take-out restaurant food?	O			O
15. Usually feel well enough to shop or cook.	O			O

16. How willing are you to make changes in your eating habits in order to be healthier?	1 Very willing	2	3	4	5 Not at all willing

Appendix B

Demographic Form

What gender do you identify as?

- Male
- Female
- Trans-gender
- Non-binary
- Prefer not to answer

What is your age range?

- 18 – 24
- 25 – 34
- 35 – 44
- 45 – 54
- 44 – 64
- Above 65

Please specify your ethnicity or what is your ethnicity?

- Caucasian
- African American
- African
- Latino or Hispanic
- Asian
- Two or more ethnicities
- Middle eastern/Arabic
- Unknown
- Prefer not to say
- Other

What is your marital status?

- Single
- Divorced
- Separated
- Married or cohabitating
- Widow or widower
- Other

Which of the following best describes your current employment status?

- Full-time employment
- Part-time employment
- Self-employed
- Full time freelancing
- Unemployed
- Student

- Inability to work

What is the highest level of education you have completed?

- Some High school
- High school
- Associates degree
- Bachelor's degree
- Master's degree
- Ph.D. or higher
- Trade school
- Prefer not to say

What is the annual income range of your household?

- Under $25,000
- $25,000 – $50,000
- $50,001 – $100,000
- $100,001 – $250,000
- $250,001 – $500,000

Medical history

Has a healthcare provider ever told you that you have (check all that apply):

- Hypertension (high blood pressure)
- Elevated blood sugar
- Diabetes
- Dyslipidemia (abnormal cholesterol levels)
- Obesity
- Coronary artery disease/myocardial infarction (blockages in the heart or a heart attack)
- Peripheral artery disease
- Stroke

Appendix C

Program Evaluation Form

Program Evaluation

1.I think this Web-based program was:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Interesting					
Confusing					
Too long					
Informative					
Culturally relevant					

2.The web-based nature of this diet education was:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Easily accessible					
Appropriate for the content					

3.How likely are you to recommend this program to family or friends?

	Very unlikely	Somewhat unlikely	Neither likely nor unlikely	Somewhat likely	Very likely

4.Do you plan to incorporate more whole-food, plant-based choices in your diet after watching this Web-based program?

Yes
No
Maybe

Appendix D

Interview Questions

Structured interview questions for those completing most or all aspects of the study will include:

- What factors influenced your choice to participate in a web-based health education program?
- Did the culturally adapted nature of this lifestyle education influence your decision to participate in the study? If so, how?
- How has COVID-19 affected your lifestyle choices (diet, exercise, sleep habits)?
- Has COVID-19 influenced your willingness to make lifestyle changes? If so, how?
- Did COVID-19 affect your decision to participate in a research study at this time? If so, how?

Structured interview questions for those only completing a consent form but no other study elements:

- What factors influenced your choice not to complete this web-based health education program?
- Did the culturally adapted nature of this research increase your interest in the study? If so, how?
- How has COVID-19 affected your lifestyle choices (diet, exercise, sleep habits)?
- Has COVID-19 influenced your willingness to make lifestyle changes? Please explain.

- Did COVID-19 affect your decision not to complete this web-based health education at this time? If so, how?

An unstructured interview for healthcare provider-recruiters.

- What factors do you believe influenced patients' interest or lack of interest in this web-based lifestyle education program?
- Do you believe that the culturally adapted nature of this education increased patients' interest?
- How has COVID-19 affected your patients' lifestyle choices in general (diet, exercise, sleep habits)? Engagement in care?
- How has COVID-19 influenced patients' willingness to make lifestyle changes, positively or negatively?
- How do you believe COVID-19 affected this research study, if at all?

Appendix E

IRB Approval

Form A

SOUTHERN ADVENTIST UNIVERSITY
Power for Mind & Soul

IRB Institutional Review Board FORM A

RESEARCH APPROVAL
NOT REQUIRED FOR
LITERATURE REVIEW OR ACADEMIC EXERCISE

IRB Tracking #	**2020-2021-**Reserved for IRB Committee
Date of Approval:	Reserved for IRB Committee
Research Request:	☐ Exempt ☒ Full Review ☐ Expedited ☐ Animal/Plant
Type of Research (Check all that apply)	☒ DNP SCHOLARLY PROJECT ☐ APPLYING FOR ARC FUNDING ☐ GRAD. STUDENT RESEARCH ☐ FUNDED FACULTY RESEARCH ☐ UNDERGRAD. STUDENT RESEARCH ☐ GENERAL FACULTY RESEARCH ☐ THESIS

1. RESEARCH PRINCIPLE INVESTIGATOR

1.1. **TITLE:** A culturally tailored web-based nutrition intervention for African Americans with cardiometabolic syndrome.

1.2. **PRINCIPAL INVESTIGATOR:** Sarah Omodele	CITI TRAINING[1] ◉ Ye ○ No	EMAIL ADDRESS: saraho@southern.edu	PHONE #: 4046426577	SCHOOL/DEPARTMENT: Nursing
CO-INVESTIGATOR: Full Name	○ Ye ◉ No	EMAIL ADDRESS: Email Address	PHONE #: Phone Number	FACULTY SUPERVISOR: Dr Kristina Hall
CO-INVESTIGATOR: Full Name	○ Ye ◉ No	EMAIL ADDRESS: Email Address	PHONE #: Phone Number	STARTING DATE: 10/05/2020
CO-INVESTIGATOR: Full Name	○ Ye ◉ No	EMAIL ADDRESS: Email Address	PHONE #: Phone Number	ESTIMATED COMPLETION DATE: 11/23/2020
MORE CO-INVESTIGATORS. LIST THEIR NAMES, EMAILS, PHONE NUMBERS, AND CITI TRAINING COMPLETION	List Names, emails, & phone numbers here			

1.3. **IS THIS RESEARCH BEING DONE WITH ANY INSTITUTIONS, INDIVIDUALS, OR ORGANIZATIONS NOT AFFILIATED WITH SAU?** ○ Yes ◉ No
If yes, please provide information of authorized officials below

NAME OF INSTITUTION: Enter Name of Institution

ADDRESS: Street	CITY: City	STATE: Choose	ZIP CODE: ZIP Code
CONTACT NAME: Full Name	POSITION: Position Title	EMAIL ADDRESS: Email Address	PHONE #: Phone Number
EXTERNAL FUNDING AGENCY: Name of Agency		IDENTIFICATION # *(if applicable)*: Identification #	GRANT SUBMISSION DEADLINE *(if any)*: Date

1.4. **APPLICATION CHECKLIST. ATTACH ALL CHECKED ITEMS AT THE END OF THIS IRB FORM (*CHECK ALL THAT APPLY*)**

RESEARCH INSTRUMENTS: ☐ TESTS ☐ SURVEYS ☒ QUESTIONNAIRES ☐ PROTOCOLS ☐ OTHER FORMS ELSE USED TO COLLECT DATA

☒ INFORMED CONSENT DOCUMENTS

☐ PERMISSIONS FROM APPLICABLE AUTHORITIES *(such as principals of schools, teachers of classrooms, etc. to conduct your research at their facilities on their Letterhead)*

☒ RECRUITING MATERIALS AND TEXT OF E-MAIL OR WEB-BASED SOLICITATIONS

☐ ALL **LINKS** AND/OR **QR CODES** MUST BE ATTACHED AS COPIES

SUBMIT via irb@southern.edu ○ Signed by the faculty advisor, then scanned and submitted ◉ Submitted directly by the faculty advisor (no signature required)

YOU CANNOT BEGIN YOUR RESEARCH UNTIL IT HAS BEEN OFFICIALLY APPROVED BY THE IRB

2. Research Project Description

2.1. Background and Rationale for the Study

This section should present the context of the work by explaining the relation of the proposed research to previous investigations in the field. Include citations for relevant research.

Cardiometabolic syndrome is a constellation of metabolic dysfunctions that increase your risk of developing Cardiovascular disease and diabetes. Cardiometabolic syndrome is when there is a presence of three or more of the five elements such as high blood pressure, high blood sugar, excess body fat around the waist, high triglycerides and low High density lipid level(HDL cholesterol). According to data from the Center of Disease and Control and Prevention (CDC), Cardiovascular disease is the leading cause of death in African American population. African Americans have higher rates of type 2 diabetes and Cardiovascular mortality despite a more favorable lipid profile. Diet plays a significant role in preventing, treating, and reversing cardiometabolic syndrome and reducing the risks of heart disease regardless of ethnicity, age, or gender. Modifiable risk factors such as hypertension, impaired glucose and lipid metabolism, central obesity, and inflammation are all elements precipitated by dietary intake. The standard American diet has been associated with cardiometabolic syndrome and cardiovascular disease . It has also been associated with low-grade inflammation, insulin resistance, as well as higher cardiovascular mortality (McSwen, 2018).

The consumption of a whole food plant-based diet has been reported to provide improvement in biomarkers such as improvement in cholesterol, hemoglobin A1C and Body Mass Index (BMI). A systematic review and meta-analyses conducted by Monica Dinu et al., (2017) reported an analysis of cross-sectional studies with 56,461 vegetarians and 8,421 vegans compared with 184,167 omnivorous. The analysis revealed that there were significantly lower levels of BMI, total cholesterol, LDL-cholesterol, and blood glucose in both plant-based groups compare to the omnivorous group.

Educational programs are important when promoting healthy behavioral changes in this population. An experimental study was conducted to determine the effects of an educational program plus access to fruit and vegetable in a rural African American community. The aim of the study was to assess for increase in consumption of fruits and vegetables. The results showed a significant increase in the group provided with education and access to fruits and vegetables compared to the group with only access. (Barnidge et al.,2014).

Zhang et. Al. (2019) created and assessed the usefulness of web-based nutritional education resource for people with pre- and type 2 diabetes. The web-based educational materials were ethnically tailored, simple, and practical for the participants. The study showed an increase in identification of foods that increase blood glucose concentration, in people with pre- and type 2 diabetes. There was also an increased in plans to make positive dietary and lifestyle choices.

Multiple studies support the benefits of patients centered education that is culturally tailored, simple, easily accessible and practical. Patients with cardiometabolic syndrome in this population of interest would benefit from a nutritional program that would address their specific needs.

2.2. Purpose/Objectives of the Research

Briefly state, in non-technical language, the purpose of the research and the problem to be investigated. When possible, state specific hypotheses to be tested or specific research questions to be answered. For pilot or exploratory studies, discuss the way in which the information obtained will be used in future studies so that the long-term benefits can be assessed.

The purpose of this study is to determine if a culturally tailored web-based nutrition intervention will increase the consumption of a Whole food plant-based diet in African Americans with cardiometabolic syndrome. This study will be a pilot study using a web-based nutrition intervention on African American with cardiometabolic syndrome. The webinar will contain information about whole food plant-based diet, Its benefits and will address some of the barriers peculiar to this population. It will include a cooking demonstration and recipes tailored to the African American community. This pilot study will provide information about the effectiveness of a culturally tailored web-based program and will encourage the possibility of future research in a larger population. This web-based program can also serve as an educational extension for healthcare providers
looking to encourage their patients to improve their diet. The research question is: Does a web-based nutritional intervention increase the consumption of a whole food Plant-based diet in African American patients with

cardiometabolic disease? There are three hypotheses to be measured in this study.
Primary Hypothesis: African American with CMS who complete a brief web-based nutrition intervention will increase their REAP scores.
Secondary hypothesis: AA with CMS who complete A brief web-based nutrition intervention will improve their readiness to change scores.
Third Hypothesis: There is a positive correlation between readiness to change and increase in REAP scores.

2.3. Methods and/or Procedures

Briefly discuss, in non-technical language, the research methods which directly involve use of human subjects. Discuss how the methods employed will allow the investigator to address his/her hypotheses and/or research question(s).

The study would be conducted completely online with no face-to face interaction. All documents and questionnaires would be provided and signed electronically. The inclusion criteria to participate in the study includes the following: ability to give informed consent to participate in the program and comply with study requirements, identifies as African American between age 18 and 65 years old, ability to use web-based program and have access to internet, a history of three or more of cardiometabolic disease components according to the National Cholesterol Education Program Adult Treatment Panel III (NCEP-ATP III). Hypertension (Blood pressure > 130/85), pre-diabetes (A1C 5.7-6.4) or high fasting blood glucose >100 mg/dl, high triglyceride levels(>150 mg/dl), low high-density lipoprotein cholesterol levels(Less than 40 mg/dl in men 50 mg/dl in women.) and excess abdominal fat (waist measurement greater than 40 inches in men; greater than 35 inches in women). Participants would be rescreened and referred to the study by their physicians who feel the patients would benefit from the program.

The exclusion criteria include: Being unstable medically as determined by physician, unable to understand and sign informed consent, and does not have access to the internet. Participants will be recruited from an internal medicine, gastroenterology, and cardiology practices. Flyers would be posted in all offices, and staff members would encourage patients to participate. Physicians could also refer patients to participate if participant could benefit from such lifestyle change.

The study will aim to recruit 30 African American adults between ages 18 and 65. This sample size will be 30(with plan to recruit about 35 putting into consideration 20% attrition recruit 30). The sample size was calculated based on power analysis with a medium effect size (Cohen d = .60). A systematic review and meta-analysis by Sun et al. (2017) showed the effectiveness and cost of lifestyle intervention including nutrition education for diabetes prevention, reported small to medium effect sizes for nutrition education on weight loss, HbA1c and 2-hr blood glucose. The effect size was adjusted based on the subjective nature of self-report required in my study.

The web-based educational program was developed by the researcher (herself a nurse practitioner) in consultation with a certified health coach. Drawing upon their knowledge and clinical experience in caring for patients with CMS as well as review of literature regarding dietary interventions for metabolic health, a six-module webinar was recorded, lasting just under an hour. The modules include 1). a cooking demonstration, 2). what is CMS and why it matters, 3). the effects of a standard American diet versus whole food plant-based diet on health, 4). a video testimonial by an African American who adopted a plant-based diet (video developed by the Physicians Committee for Responsible Medicine and used by permission), 5). barriers to diet change, and 6). reading food labels. The unique cultural adaptations were developed both through review of literature regarding specific CMS risks and barriers to lifestyle change among this population as well as personal knowledge living and working within the African American community.

The study procedure will follow this process; The participants will be referred by their physicians based on their medical history. Participants medical records will be reviewed by the physicians and or staff to verify the diagnosis of cardiometabolic syndrome. Once verified and all other inclusion criteria has being met, participants will be informed of their eligibility and all forms such as the informed consent and demographic form will be sent for completion. Once signed, the REAP-S food assessment will be completed before watching the web-based nutrition program. The REAP-S questionnaire will be repeated 4-weeks post intervention assess for a increase on the consumption of plant-based foods. The web-based program will last for approximatly 50 minutes and will

contain 6 modules. There will be a brief introduction to the web-based program before starting the Modules. The modules include 1). a cooking demonstration, 2). what is CMS and why it matters, 3). the effects of a standard American diet versus whole food plant-based diet on health, 4). a video testimonial by an African American who adopted a plant-based diet, 5). barriers to diet change, and 6). reading food labels. Once all modules are completed, participants will complete a program evaluation. A weekly email will be sent to remind the participants of the 4-weeks post program questionnaire. A $10 Visa gift card will be emailed to each participant after all study requirements are completed.

The nutritional assessment will monitor for improvement in consumption of plant-based foods and readiness to change. The study results will be analyzed using a paired t test for pre and post intervention differences. It will also measure for any positive association between readiness to change and increase whole plant-based foods. Data will be analyzed using SPSS software.

The three physicians who will allow recruitment of patients within their private practices are themselves African Americans with a large population of African American patients, are located within the Southeastern US, and are supportive of research and lifestyle education. The researcher will in no instance access medical records. Physicians will identify eligible patients during routine office visits and point out study recruitment handouts posted within the office; patients will contact the researcher if they are interested in participating. The researcher will not be present, thus limiting the possibility of a sense of coercion linking the research to patients' healthcare.

3. Description of Research Sample

3.1. **Approximate Number of Subjects:** **30**

3.2. **Type of human subjects that are involved:**
If human subjects are involved, check all that apply

- ☐ Minors
  if minors are involved, attach a Childs Assent Form
- ☐ Prison Inmates
- ☐ Mentally Impaired
- ☐ Physically Disabled
- ☐ Institutionalized Residents
- ☐ Anyone unable to make informed decisions about participation
- ☒ Health Care Data Information
  if this line is checked, attach any necessary HIPAA forms
- ☐ Vulnerable or at-risk groups *e.g. poverty, pregnant women, substance abuse population*
- ☐ Animals or plants
- ☒ Other: **African American Adults referred by physicians**

3.3. **Participant Recruitment**
Describe how participant recruitment will be performed. Include how potential participants are introduced to the study. Check all that apply

- ☐ SAU Directory
- ☒ Postings, Flyers
- ☐ Radio, TV
- ☐ Participant Pool
  Specify
- ☐ Web-based Solicitation
  List the site(s): Specify
- ☐ E-Mail Solicitation
  How addresses obtained: Specify
- ☒ Other: **Referrals from 3 physician offices.**

Attach any recruiting materials you plan to use at the end of the document.

4. CONTENT SENSITIVITY, PRIVACY, AND CONFIDENTIALITY	
Efforts will be made to keep personal information confidential. We cannot guarantee absolute confidentiality. Personal information may be disclosed if required by law. Identities will be help in confidence in reports in which the study may be published and databases in which results may be stored	
4.1. DOES YOUR RESEARCH ADDRESS CULTURALLY OR MORALLY SENSITIVE ISSUES? *If **Yes**, describe* **Study is limited to African Americans and due to their vulnerability and sensitivity of COVID-19**	◉ Yes ○ No ○ N/A
4.2. WILL PERSONAL IDENTIFIERS BE COLLECTED? *If **Yes**, describe* **Collecting email addresses. Physician will provide Email of patients referred**	◉ Yes ○ No ○ N/A
4.3. WILL IDENTIFIERS BE TRANSLATED TO A CODE? *If **Yes**, describe* **Using numbers like 001**	◉ Yes ○ No ○ N/A
4.5. WILL RECORDINGS BE MADE (AUDIO, VIDEO)? *If **Yes**, describe* Enter	○ Yes ◉ No ○ N/A
4.6. HOW ARE YOU PLANNING TO PROTECT SENSITIVE/PERSONAL/HIPAA INFORMATION? *Please explain* **Personal information will use codes for identification. There will be no contact with medical records.**	○ N/A
4.7. WHO WILL HAVE ACCESS TO DATA (SURVEY, QUESTIONNAIRES, RECORDINGS, INTERVIEW RECORDS, ETC.)? *Please list* **Sarah Omodele, Dr Kristina Hall, Dr Frances Johnson.**	
5. FUNDING, COSTS, AND PARTICIPANT COMPENSATION	
5.1. IS FUNDING BEING SOUGHT TO SUPPORT THIS RESEARCH? ☐ INTERNAL ☐ EXTERNAL *If **Yes**, describe* Enter	○ Yes ◉ No ○ N/A
5.2. IS THERE A FUNDING RISK? *If **Yes**, describe* Enter	○ Yes ○ No ◉ N/A
5.3. WHO WILL KEEP THE FINANCIAL RECORDS? **Sarah Omodele**	
5.4. ARE PARTICIPANTS TO BE COMPENSATED FOR THE STUDY? ☐ **AMOUNT $ 10** *If **Yes**, describe* ☐ TYPE **eVisa Gift card** ☐ SOURCE Enter	◉ Yes ○ No ○ N/A
5.5. WILL PARTICIPANTS WHO ARE STUDENTS BE OFFERED CLASS CREDIT? *If **Yes**, describe* Enter	○ Yes ○ No ◉ N/A
5.6. ARE OTHER INDUCEMENTS PLANNED TO RECRUIT PARTICIPANTS? *If **Yes**, describe* Enter	○ Yes ◉ No ○ N/A
5.7. ARE THERE ANY COSTS TO PARTICIPANTS? *If **Yes**, explain* Enter	○ Yes ◉ No ○ N/A
6. ANIMALS/PLANTS	
6.1. ARE THE ANIMALS/PLANTS BEING STUDIED ON THE ENDANGERED LIST?	○ Yes ○ No ◉ N/A
6.2. ARE SCIENTIFIC COLLECTION PERMITS REQUIRED, I.E. TENNESSEE WILDLIFE RESOURCES AGENCY?	○ Yes ○ No ◉ N/A
6.3. HAVE THE ANIMAL(S) OF THIS STUDY ALREADY BEEN USED IN A PREVIOUS STUDY (NON-NAÏVE ANIMALS)?	○ Yes ○ No ◉ N/A
6.4. WILL THE ANIMAL(S) USED IN THIS STUDY BE USED IN A FUTURE STUDY?	○ Yes ○ No ◉ N/A
6.5. WHERE WILL THE ANIMALS BE HOUSED?	○ Yes ○ No ◉ N/A
6.6. WILL THE RODENTS (IF APPLICABLE) BE HOUSED IN WIRE BOTTOM CAGES?	○ Yes ○ No ◉ N/A
6.7. WILL PLANTS BE USED FOR INSTRUCTIONAL PURPOSES AS PART OF TEACHING A COURSE?	○ Yes ○ No ◉ N/A

7. RISKS

Risk is any potential damage or adverse consequences to researcher, participants, or environment. These might include physical, psychological, social, or spiritual risks whether as part of the protocol or a remote possibility.

7.1. **ARE THERE ANY RISKS INVOLVED WITH THIS STUDY?** ◉ Yes ○ No ○ N/A
*If **Yes**, check all that apply*

☐ **PHYSICAL RISK**
May include pain injury, and impairment of a sense such as touch or sight. These risks may be brief or extended, temporary or permanent, occur during participation in the research or arise after.
*If **Selected**, describe* Enter

☒ **PSYCHOLOGICAL RISK**
Can include anxiety, sadness, regret and emotional distress, among others. Psychological risks exist in many different types of research in addition to behavioral studies.
*If **Selected**, describe* **Feeling uncomfortable when discussing about their health and diet.**

☐ **SOCIAL RISK**
Can exist whenever there is the possibility that participating in research or the revelation of data collected by investigators in the course of the research, if disclosed to individuals or entities outside of the research, could negatively impact others' perceptions of the participant. Social risks can range from jeopardizing the individual's reputation and social standing, to placing the individual at-risk of political or social reprisals.
*If **Selected**, describe* Enter

☐ **LEGAL RISK**
Include the exposure of activities of a research subject "that could reasonable place the subjects at risk of criminal or civil liability."
*If **Selected**, describe* Enter

☐ **ECONOMIC RISK**
May exist if knowledge of one's participation in research, for example, could make it difficult for a research participant to retain a job or find a job, or if insurance premiums increase or loss of insurance is a result of the disclosure of research data.
*If **Selected**, describe* Enter

☐ **SPIRITUAL RISK**
May exist if knowledge of one's spiritual beliefs or lack of, could be exposed which in turn could invoke an economic, social and or psychological risk.
*If **Selected**, describe* Enter

7.2. IN YOUR OPINION, DO BENEFITS OUTWEIGH RISKS? ◉ Yes ○ No ○ N/A
*If **Yes**, explain* **Learning how to make healthy food choices**

7.5. EXPLAIN HOW YOU PLAN TO MINIMIZE THE RISKS IDENTIFIED ABOVE
The psychological risks will be reduced because the program is designed to build their knowledge about the benefits of a plant-based diet . The feeling of empowerment from learning how to make better food choices will remove their discomfort.

8. RESULTS

8.1. **HOW WILL THE RESULTS BE DISSEMINATED?**
☐ CLASSWORK ONLY ☒ PUBLISHED ARTICLE ☒ STUDENT CONFERENCE ☒ PROFESSIONAL CONFERENCE
☒ OTHER **Results would be discuss with the physicans and patients would be given a summary of the outcome of the study.**

Signatures: If submitted by a faculty member, electronic (typed) signatures are acceptable. If submitted by a student, please print out completed form, obtain the faculty advisor's signature, scan completed form, and submit it via e-mail. Only Word Form or PDF files are acceptable submissions.

Sarah Omodele
Principal Investigator (PI) or Student

8/7/2020
Date

Dr Kristina Hall
Faculty Advisor (for student applications)

Click dropdown to enter date
Date

All student applications must be either signed by the faculty advisor then scanned and submitted electronically, or submitted directly by the faculty advisor. All applications should be submitted by email to: irb@southern.edu

Additional Special Requirements or Attachments to the Application

Approvals from other IRBs

Cooperative research projects involve research that involves more than one institution. In these instances, federal law holds each institution responsible for safeguarding the rights and welfare of human subjects and for complying with federal policy; therefore, SAU IRB applications must be made even if there is another institution conducting a review of the same research project. When a study is being carried out at a non-USA site, and approval from other institutional review boards at the foreign site must be sought. The IRB recommends that a copy of each IRB approval be submitted.

Questionnaires/Other Instruments

Any questionnaires, tests, survey instruments or data collections sheets which are not standard and well known must be submitted as part of the application. Structured interview questions and outlines for unstructured interviews also must be included.

Advertisements/Notices/Recruitment Flyers

The text of any advertisement, video display, notice, sign, brochure or flyer used to recruit subjects either should be included as an attachment.

[1] Did the investigator complete CITI Training?

Form B

SOUTHERN ADVENTIST UNIVERSITY
Power for Mind & Soul

IRB Institutional Review Board FORM B

RESEARCH PROJECT MODIFICATION

Current Tracking #	2020-2021-006
Date of Approval:	October 13, 2020
Category of Approval:	☐ Exempt ☒ Full Review ☐ Expedited ☐ Animal/Plant
Request for	☒ Modification ☐ Research Termination ☐ Annual Review ☐ Research Completion
Date Received:	Reserved for IRB Committee
Date Approval Sent:	Reserved for IRB Committee

PRINCIPLE INVESTIGATOR

RESEARCH TITLE: A culturally tailored web-based nutrition intervention for African Americans with cardiometabolic syndrome.

PRINCIPAL INVESTIGATOR:	EMAIL ADDRESS:	PHONE #:	SCHOOL/DEPARTMENT:
Sarah Omodele	saraho@southern.edu	4046426577	Nursing
FACULTY ADVISOR (IF APPLICABLE):	EMAIL ADDRESS:	PHONE #:	
Kristina Hall	knelson@southern.edu	4234439498	

Provide the required information in the space available. If additional space is needed, attach a separate sheet or expand that section of the form. Both scanned original signatures and typed electronic signatures are acceptable. All forms and research instruments should be submitted by email to irb@southern.edu.

INCOMPLETE SUBMISSIONS WILL BE RETURNED TO THE APPLICANT WITH REVIEW

MODIFICATIONS

PROJECT STATUS

Select the status of the project

- (●) **ACTIVE** – Project ongoing
- ( ) **COMPLETE** – Project Completed!

Select changes status for the project

- ( ) **NO CHANGES** are planned and the project will continue as previously approved by the IRB
- (●) **CHANGES ARE PLANNED**. Please complete the section below

NOTIFICATION OF CHANGES

Check the appropriate boxes below and provide additional information where appropriate (e.g. new title, new PI, description of changes, etc.). If no changes are planned or project is completed, please leave blank.

☐ **CHANGE TO THE PROJECT TITLE**

If different from your last approval letter, please provide new title:
Add Title

☐ **CHANGE OF INVESTIGATORS**

If there are change(s) in regard of principal or co-principal investigators(s), other collaborators, or change in faculty advisor(s), provide their name(s):
List Names

☐ CHANGE AFFECTING PARTICIPATION OF HUMAN SUBJECTS

If there is changes(s) to project which will affect participation of human subjects, revise and amend any relevant sections of Form A and submit these changes with a Form B. ***This requires a new Form A as well as this Form B****. Remember, there is no change too small to report to IRB*:

Outline the Change(s)

☐ CHANGE TO RESEARCH INSTRUMENTS

If there is change(s) to informed consent forms and/or assent forms(s), ***submit new consent Forms with this Form B.***

☐ CHANGE TO LOCATION

If there are any additional locations for conducting project, submit with this Form B a copy of the letter(s) from these organizations which have given permission for you to conduct your research in their institution. The letters should be on the institution's own letterhead. List the new locations where research is being completed:

List New Locations

☐ CHANGE IN RISKS TO SUBJECTS

If you have encountered unexpected risks to research Subjects (e.g., breaches of confidentiality) or to yourself (e.g., angry parents, threats of violence), submit a copy of the Incident Report Form(s) with this Form B and describe how you have or will resolve the problem:

Describe the Change(s)

☒ OTHER CHANGE(S)

If there are any other changes, explain these changes:

Despite adjustments to recruitment methods previously submitted to IRB, participation has remained low for this research study. In order to increase rigor within the constraints of a small sample, I plan to add a qualitative look of the feasibility and acceptability of web-based lifestyle education during the COVID-19 pandemic. Using a qualitative case study methodology, I will explore the question: Why do individuals choose to participate in web-based lifestyle education, and how has COVID-19 affected that decision?

In a qualitative case study approach, multiple sources of data are considered. Data obtained from study instruments (previously described in IRB Form A) will be compared with the additional information obtained through interviews with physician/nurse practitioners who participated in recruitment, participants who completed all aspects of the study, and participants who completed only a portion of the study (including those solely signing informed consent without completion of additional study material). Informed consent will be obtained prior to interviews for all individuals not previously completing this (physicians/nurse practitioners). An updated informed consent form is attached. Interviews will be performed by the researcher, Sarah Omodele. These may be conducted in person or email depending upon participant preference. All additional data and participant information (including email addresses, additional notes or audio recordings obtained during interview process) will be handled in the same manner as previously described in Form A. Participants completing this portion of the study will be offered a $10 VISA gift card as previously described in Form A.

Structured interview questions for those completing most or all aspects of the study will include:

· * What factors influenced your choice to participate in a web-based health education program?

· * Did the culturally-adapted nature of this lifestyle education influence your decision to participate in the study? If so, how?

· * How has COVID-19 affected your lifestyle choices (diet, exercise, sleep habits)?

· * Has COVID-19 influenced your willingness to make lifestyle changes? If so, how?

· * Did COVID-19 affect your decision to participate in a research study at this time? If so, how?

Structured interview questions for those only completing a consent form but no other study elements:

· * What factors influenced your choice to not complete this web-based health education program?

· * Did the culturally-adapted nature of this research increase your interest in the study? If so, how?

· * How has COVID-19 affected your lifestyle choices (diet, exercise, sleep habits)?

· * Has COVID-19 influenced your willingness to make lifestyle changes? Please explain.

· * Did COVID-19 affect your decision to not complete this web-based health education at this time? If so, how?

An unstructured interview will be undertaken with provider-recruiters. The following questions will be explored, yet given the nature of an unstructured interview, additional areas may be discussed in a conversational manner in order to understand the research question.

· * What factors do you believe influenced patients' interest or lack of interest in this web-based lifestyle education program?

· * Do you believe that the culturally-adapted nature of this education increased patients' interest?

· * How has COVID-19 affected your patients' lifestyle choices in general (diet, exercise, sleep habits)? Engagement in care?

· * How has COVID-19 influenced patients' willingness to make lifestyle changes, positively or negatively?

· * How do you believe COVID-19 affected this research study, if at all?

Data will be analyzed using the techniques described by Yin (2018). This includes, but is not be limited to, pattern matching and explanation building. Triangulation will be employed with the use of multiple sources of evidence.

Reference: Yin, R. K. (2018). Case study research and applications: Design and methods (6th ed.). Sage Publishing.

Signatures: If submitted by a faculty member, electronic (typed) signatures are acceptable. If submitted by a student, please print out completed form, obtain the faculty advisor's signature, scan completed form, and submit it via e-mail. Only Word Form or PDF files are acceptable submissions. All forms should be submitted by email to: irb@southern.edu

Sarah Omodele NP-C	**3/1/2021**
Principal Investigator (PI) or Student	Date
	3/1/2021
Faculty Advisor (if applicable)	Date

Appendix F

Informed Consent for Participants

Informed Consent Form

Introduction:

My name is Sarah Omodele. I am a doctoral student at Southern Adventist University. I am conducting a research study to determine if a culturally tailored web-based nutrition intervention will increase the consumption of a whole food plant-based diet in African Americans with cardiometabolic syndrome. Cardiometabolic syndrome is when you have a combination of high blood pressure, high blood sugar, excess body fat around the waist and abnormal cholesterol. This syndrome increases your risk for heart attack and stroke. Your participation is completely voluntary. I am seeking your consent to involve you and your information in this study. Reasons you might want to participate in the study include, you are an African American between 18 and 65 year old, have three or more elements of cardiometabolic syndrome, you have access to the internet and you are able to give informed consent. An alternative to this study is simply not participating. I am here to address your questions or concerns during the informed consent process.

PRIVATE INFORMATION

Certain private information may be collected such as your emails address. I will make the following effort to protect your private information by using codes to identify you and keeping your email in password protected files. Even with this effort, there is a chance that your private information may be accidentally released. The chance is small but does exist. You should consider this when deciding whether to participate.

Activities:

If you participate in this research, you will be asked to:

1. Complete demographic information which would include your age, gender, marital status, employment status, level of education and income range.
2. Complete a dietary questionnaire before watching the web-based program.
3. Watch a 1-hour web-based nutrition program.
4. Provide feedback on program quality and acceptance.
5. Complete a dietary questionnaire 4 weeks after watching the web-based program.

Eligibility:

You are eligible to participate in this research if you:

1. Can give informed consent to participate in the program
2. Identify as African American
3. Are between age 18 and 65 years old
4. Ability to use web-based program and have access to internet

5. Have three or more of the following; Hypertension (Blood pressure > 130/85), pre-diabetes (A1C 5.7-6.4) or high fasting blood glucose >100 mg/dl, high triglyceride levels(>150 mg/dl), low high-density lipoprotein cholesterol levels(Less than 40 mg/dl in men 50 mg/dl in women.) and excess abdominal fat (waist measurement greater than 40 inches in men; greater than 35 inches in women).

You are not eligible to participate in this research if you:

1. Are unstable medically as determined by your doctor.
2. Are unable to understand and sign informed consent
3. Have no access to internet.

I hope to include 30 people in this research.

Risks:

There are minimal risks in this study. Some possible risks include possible privacy breach through your email, but this will be protected by keeping the information in a password protected file. Your email would be needed because the gift card would be delivered electronically. You will also get reminders via email regarding follow-up survey. There is also a risk of feeling uncomfortable when discussing your health and diet. You can skip questions or stop participation at any time. You may experience weight loss and lowered blood pressure or blood sugar by implementing the recommended dietary changes. This may cause a risk if medications are not adjusted accordingly. To decrease the impact of the risks, make sure your blood pressure and blood sugar are monitored closely and you discuss any changes with your healthcare provider. Do not stop taking your medications or decrease doses without consulting your healthcare provider.

Confidentiality:

The information you provide will be kept confidential to the extent allowable by law. Some steps I will take to keep your identity confidential are I will use numbers to identify you.

I will be the only one with access to your information. The Institutional Review Board may also review my research and view your information.

I will secure your information with these steps: By using codes to identify you and your information. The data collected would be discussed in a collective form with no identifiable information used.

I will keep your data for 7 years. Then, I will delete electronic data and destroy paper data.

Contact Information:

Informed Consent Form

If you have questions for me, you can contact me at: Saraho@southern.edu.

My dissertation chair's name is Dr Kristina Hall. She works at Southern Adventist University and is supervising me on the research. You can contact her at: Knelson@southern.edu.

If you contact us, you will be giving us information like your phone number or email address. This information will not be linked to your responses.

If you have questions about your rights in the research, or if a problem has occurred, or if you are injured during your participation, please contact the Institutional Review Board at: irb@southern.edu or 423-236-2285.

Compensation/Incentives:

To thank you for your willingness to participate, you will be given $10 Visa gift card electronically at the completion of **all** elements of the study. The Visa gift card will be sent to you through your email address.

Voluntary Participation:

Your participation is voluntary. If you decide not to participate, or if you stop participation after you start, there will be no penalty to you. You will not lose any benefit to which you are otherwise entitled. Your healthcare would not be affected in any way.

Future Research:

Any information collected from you during this research may **not** be used for other research in the future, even if identifying information is removed.

Signature:

A signature indicates your understanding of this consent form. You will be given a copy of the form for your information.

Participant Signature	Printed Name	Date
_____	_____	_____
Researcher Signature	Printed Name	Date
_____	_____	_____

Informed Consent for Healthcare Providers

INFORMED CONSENT FORM

Introduction:

My name is Sarah Omodele. I am a doctoral student at Southern Adventist University. I am conducting a research study to determine if a culturally tailored web-based nutrition intervention will increase the consumption of a whole food plant-based diet in African Americans with cardiometabolic syndrome. As part of this research, I am seeking to understand why individuals choose to participate in web-based lifestyle education, and how COVID-19 has affected that decision. Your participation is completely voluntary. I am seeking your consent to involve you and your information in this study. I am here to address your questions or concerns during the informed consent process.

PRIVATE INFORMATION

Private information will not be obtained during this interview process.

Activities:

If you participate in this research, you will be asked to:

> Participate in a conversational interview exploring patient recruitment for lifestyle education research during COVID-19. Interviews may be recorded.

Eligibility:

You are eligible to participate in this research if you are:

- A healthcare provider and
- Previously participated in the recruitment for the study "Culturally-tailored Web-based Nutrition Intervention for African Americans with Cardiometabolic Syndrome."

You are not eligible to participate in this research if you:

- Did not participate in recruitment of participants for the study "Culturally-tailored Web-based Nutrition Intervention for African Americans with Cardiometabolic Syndrome."
- Are unable to give informed consent.

I hope to include all provider-recruiters participating in the research study "Culturally-tailored Web-based Nutrition Intervention for African Americans with Cardiometabolic Syndrome."

Risks:

There are minimal risks in this study. There is a risk of feeling uncomfortable when discussing the health and clinical care provided within your office. You can skip questions or stop participation at any time.

Confidentiality:

The information you provide will be kept confidential to the extent allowable by law. Some steps I will take to keep your identity confidential are I will use pseudonym to identify providers and use no identifiable markers to identify your practice. Audio recordings will be kept apart from any identifiable information and on a password protected computer. No specific patient information will be discussed.

I will be the only one with access to your information. The Institutional Review Board may also review my research and view your answers to research questions.

I will secure your information with these steps: By using a pseudonym to identify you and your information. While direct quotations may be used in discussing the data, no identifiable modifiers will be used making it possible to identify your name or office location.

I will keep your data for 7 years. Then, I will delete electronic data and destroy paper data.

Contact Information:

If you have questions for me, you can contact me at: Saraho@southern.edu.

My dissertation chair's name is Dr Kristina Hall. She works at Southern Adventist University and is supervising me on the research. You can contact her at: Knelson@southern.edu.

If you contact us, you will be giving us information like your phone number or email address. This information will not be linked to your responses.

If you have questions about your rights in the research, or if a problem has occurred, or if you are injured during your participation, please contact the Institutional Review Board at: irb@southern.edu or 423-236-2285.

Voluntary Participation:

Your participation is voluntary. If you decide not to participate, or if you stop participation after you start, there will be no penalty to you. You will not lose any benefit to which you are otherwise entitled.

Future Research:

Any information collected from you during this research may **not** be used for other research in the future, even if identifying information is removed.

Signature:

A signature indicates your understanding of this consent form. You will be given a copy of the form for your information.

Participant Signature	Printed Name	Date
_____	_____	_____
Researcher Signature	Printed Name	Date
_____	_____	_____

Appendix G

Participants Handouts

FOOD FOR LIFE
The Power of Food for Health

How to Read Food Labels

Nutrition labels can help you make wise food choices. Most packaged foods in the grocery store list nutrition information on the package in a section called the Nutrition Facts. The Nutrition Facts tell you the serving size and the amount of various nutrients, such as total fat, saturated fat, cholesterol, sodium, and fiber.

Ingredients are listed in order, starting with those found in the largest amounts, by weight, and progressing to those present in the smallest amounts. Here you can find out if a food contains eggs, milk, sugar, oils, or whatever else you want to avoid eating.

Serving Size - This reflects the amount that an average person eats at one helping.

Servings per Package - The next line tells you how many servings the package contains. Multiply this number by the serving size and it should equal, or come close to, the total volume of the package.

Total Fat - This line tells you how many grams of fat are in one serving. If a product is labeled low-fat, it will have 3 grams or less per serving. Aim for 2-3 grams per serving, or 20-30 grams of fat per day.

Cholesterol - Only animal products have cholesterol. If there is any cholesterol (anything other than 0 grams) you can assume the food has some sort of animal product in it.

Fiber - Look for minimally processed, high-fiber foods. Aim for 40 or more grams of fiber per day, 3 or more grams per serving.

Sugar - "Low sugar" is 6 grams of sugar or less. Useful for breakfast cereals.

Nutrition Facts
Serving Size 1 potato (148g/5.3oz)

Amount Per Serving	
Calories 100	Calories from Fat 0
	% Daily Value*
Total Fat 0g	**0%**
Saturated Fat 0g	**0%**
Cholesterol 0mg	**0%**
Sodium 0mg	**0%**
Potassium 720mg	**21%**
Total Carbohydrate 26g	**9%**
Dietary Fiber 3g	**12%**
Sugars 3g	
Protein 4g	

Vitamin A 0%	• Vitamin C 45%
Calcium 2%	• Iron 6%
Thiamin 8%	• Riboflavin 2%
Niacin 8%	• Vitamin B_6 10%
Folate 6%	• Phosphorous 6%
Zinc 2%	• Magnesium 6%

*Percent Daily Values are based on a 2,000 calorie diet.

Important:

- Casein, caseinate, lactalbumin, whey or whey solids, milk solids or low-fat milk solids are all derived from cow's milk.
- Albumin comes from eggs.
- Corn syrup, high-fructose corn syrup, fruit juice concentrate, maltose, dextrose, sucrose, honey, brown sugar, maple syrup, cane juice, and evaporated cane juice are all forms of sugar.
- Cane sugar is sometimes whitened using animal bones.

Avoid:

- **All animal products**
- **Fats** including all lard, shortening, butter, and limit/avoid oils
- **Carbohydrates** that raise blood sugar, such as sugar and honey; cold cereals that are mostly sugar, white flour, and have less than 3 grams of fiber per serving; white and most wheat breads

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TEL: 202-686-2210 | FAX: 202-686-2216 | PHYSICIANSCOMMITTEE.ORG

RECIPE

From Oldways' *A Taste of African Heritage* class series

Cold Black-Eyed Pea Salad

Black-eyed peas have long been symbolic in African American culture and cuisine. This salad requires no cooking, and its crisp, bright flavor will liven up any table. For a milder salad, omit the ground cayenne pepper and jalapeño pepper, or add in smaller amounts to taste.

Time: 20 minutes **Serves: 6**

For the vinaigrette:

- 2 tablespoons apple cider vinegar
- Juice of 1 lime
- 1 teaspoon Dijon mustard
- 1 teaspoon honey or agave nectar
- ¼ cup extra-virgin olive oil
- Half of a small shallot, finely diced (optional)
- ½ teaspoon ground cumin
- ½ teaspoon ground cayenne pepper (optional)
- Salt and ground black pepper

For the salad:

- 2 (15-ounce) cans no- or low-sodium black-eyed peas, rinsed
- 1 cup diced cucumber
- 1 cup diced red bell pepper
- 2 tablespoons diced jalapeño pepper, seeds removed (optional)
- 2 tablespoons fresh chopped cilantro (optional)

1. To make the vinaigrette: in a small bowl, combine and whisk together the vinegar, lime juice, mustard, and honey. Gradually drizzle in the olive oil, whisking to combine. Add in the shallot (if using), cumin, cayenne, and salt and pepper to taste, whisking to combine.
2. In a medium to large bowl, combine the black-eyed peas, cucumber, peppers, and cilantro (if using). Add the vinaigrette to the black-eyed pea mixture, stirring to coat. Refrigerate to chill before serving. Garnish with additional cilantro if desired.

Nutritional Information

Calories: 200
Total Fat: 10g
Saturated Fat: 1.5g
Sodium: 50mg
Carbohydrates: 22g
Total Sugars: 4g
Fiber: 5g
Protein: 7g

Hungry for more?

You can find a wide range of African Heritage Diet recipes and resources at: OldwaysPT.org

To see if there is an upcoming *A Taste of African Heritage* class series near you, visit the Class Directory at OldwaysPT.org/ATOAH

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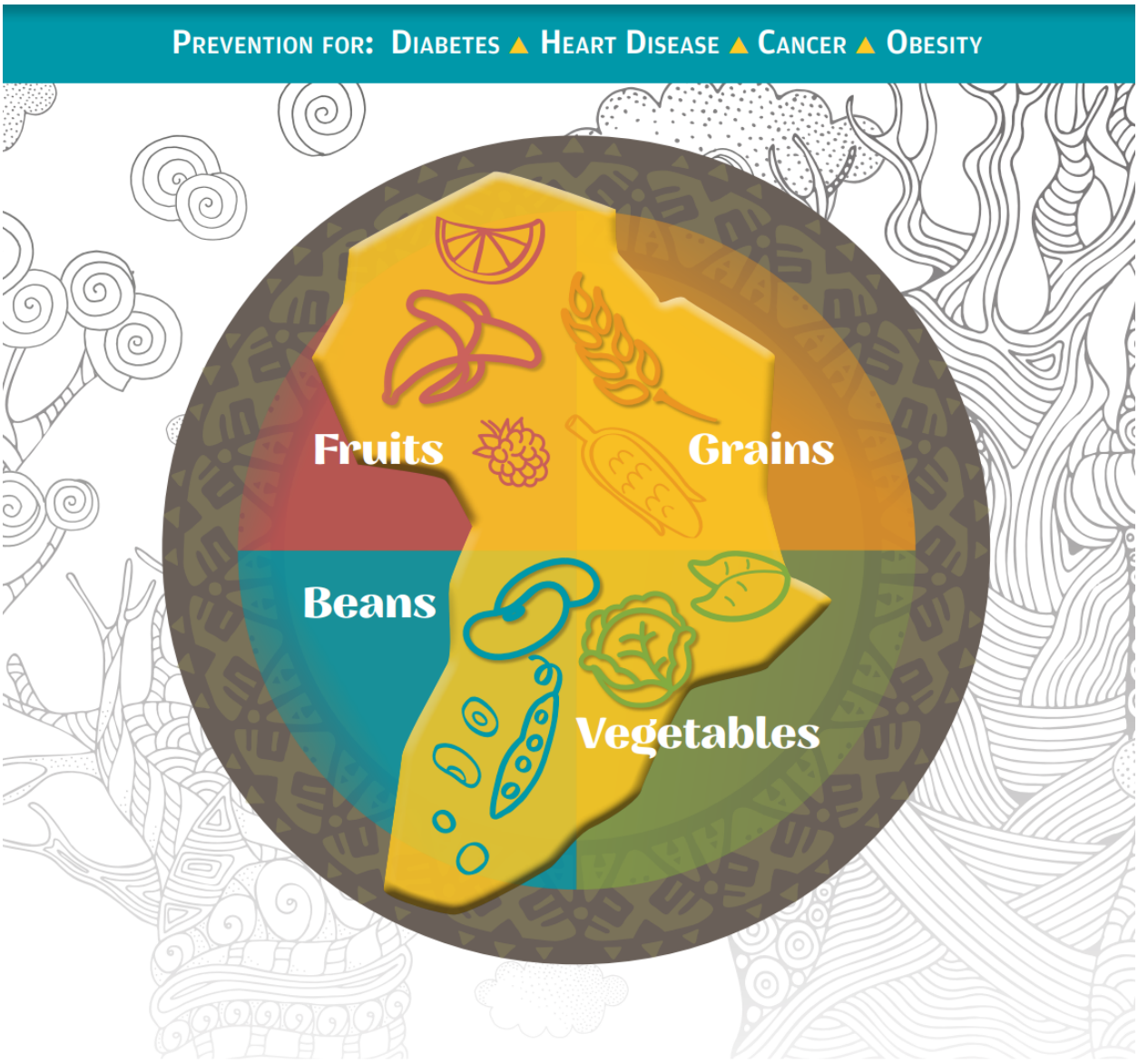
THE AFRICAN HERITAGE
POWER PLATE



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Try the African Heritage Power Plate and enjoy health through heritage!

The African Heritage Power Plate

The Four Powerful Food Groups

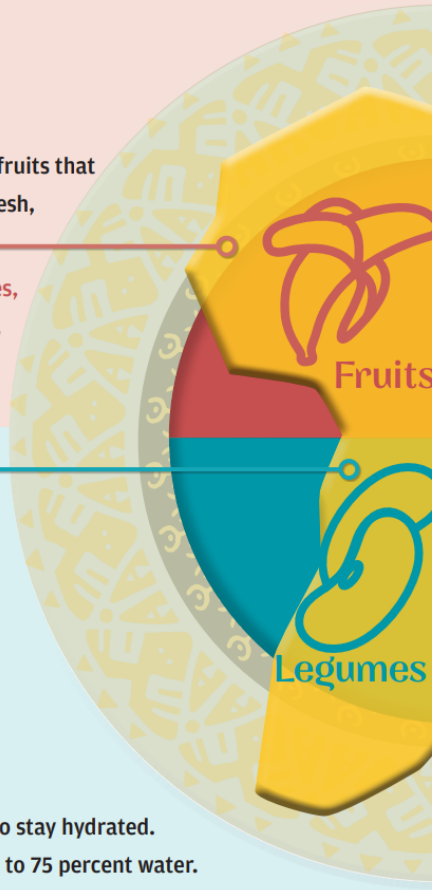
The African Heritage Power Plate is based on Oldways' African Heritage Diet Pyramid and programming and the Physicians Committee's Power Plate. This plant-based way of eating is inspired by healthful food traditions from across the African diaspora. This Power Plate relies on four major food groups that were staples in traditional African diets: fruits, vegetables, whole grains, and legumes, with the addition of a source of vitamin B12. It is free of animal products, including meat, dairy, and eggs, and it minimizes added salt, sugar, and fats.

Foods that feed the soul. This plate is naturally rich in fiber, vitamins, and minerals, low in saturated fat and calories, and free of cholesterol. A plant-based diet with the addition of vitamin B12 provides all the necessary nutrients at all stages of life. It is not only preventive, but it can also help reduce complications from chronic diseases that you may already have.

Fruits

Fruits are rich in fiber, carbohydrates, vitamins, and beta-carotene. Citrus fruits that are high in vitamin C include oranges, tangerines, limes, and more. Choose fresh, dried, canned, and frozen fruits over fruit juices.

banana, mango, berries, watermelon, apple, peaches, plantains, plums, dates, grapefruit, tamarind, horned melon, pineapple, papaya, figs, pomegranates, jicama, guava, lemons, limes, oranges



Beans

Legumes—including beans, peas, and lentils—are a great source of protein. They are also rich in fiber, iron, calcium, zinc, and B vitamins. This group includes nuts, seeds, and baked and refried beans.

black beans, black-eyed peas, chickpeas, fava beans, great northern beans, kidney beans, lentils, lima beans, pigeon peas, red beans, navy beans, pinto beans

Water

Drink plenty of water daily to stay hydrated. The human body is about 65 to 75 percent water.

Things To Know About Nutrition

Protein is an important nutrient that helps build, maintain, and repair body tissue. Protein is widely available in beans, vegetables, and grains. You will easily get enough protein by eating a variety of plant foods in sufficient quantities to maintain a healthy weight. On the African Heritage Power Plate, protein sources include beans, peas, lentils, nuts, and seeds.

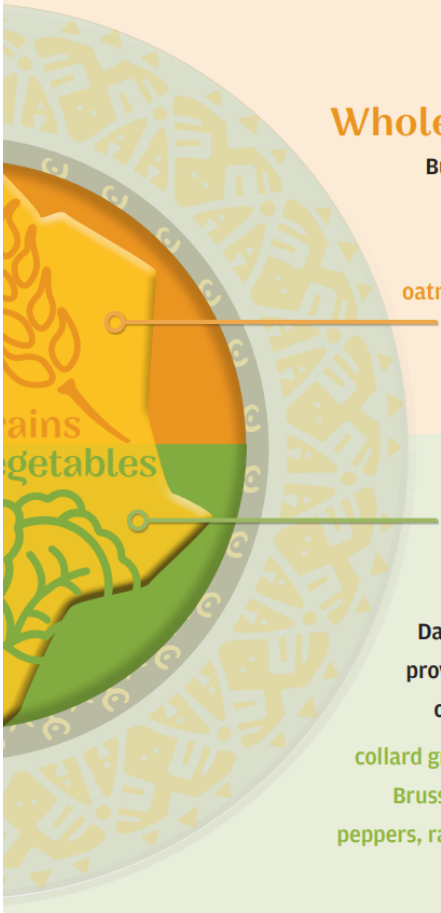
Calcium strengthens our bones and teeth. Dark leafy greens, fortified plant milks, and beans are all sources of calcium.

Vitamin D is important for maintaining healthy bones. The natural source of vitamin D is sunlight. Check the label on fortified cereals, grains, bread, and plant milks to find foods that supply vitamin D.

Vitamin B12 is essential for maintaining healthy nerves and blood. Taking a supplement is the easiest way to ensure you are getting adequate amounts of this nutrient.

Iron is abundant in the African Heritage Power Plate. Whole grains or fortified breads and cereals, dark green vegetables, dried fruits, assorted beans, nuts, and seeds all contain plenty of iron.

Omega-3 (Fatty Acids) are essential fats that can help support heart health, brain health, and healthy development. Walnuts, flaxseeds, and chia seeds all contain plant-based omega-3 fatty acids.



Whole Grains

Build your meals around a hearty grain. Grains are rich in fiber, complex carbohydrates, protein, vitamins (such as riboflavin), and minerals (such as potassium).

oatmeal, brown rice, whole corn/ cornmeal, millet, whole-wheat couscous, amaranth, barley, fonio, sorghum, teff, kamut®, whole-grain grits, whole-grain pasta, quinoa, whole-grain breads, wild rice

Vegetables

Vegetables are packed with nutrients, including beta-carotene, riboflavin, iron, calcium, and fiber. Dark green leafy vegetables—including collard greens, chard, and kale—are a good source of calcium and iron. Dark yellow and orange vegetables—such as yams, squash, and pumpkin—provide extra beta-carotene. The light colored vegetables—including onion, carrots, and ginger—are not only nutritious, but add flavor to your meal.

collard greens, curly kale, lacinato kale, spinach, turnip greens, mustard greens, Brussels sprouts, cabbage, carrots, cucumbers, eggplant, green beans, okra, peppers, radishes, squash, tomatoes, zucchini, watercress, chard, potatoes, sweet potatoes, yams, yucca, cassava, asparagus, pumpkin

Your Healthy Heritage

The ancestors of black people/African Americans brought many wonderful food traditions to parts of the Caribbean, South America, and the southern United States. Over the generations, many of these food traditions have been lost with the influences of Western dietary habits.

Breaking the Cycle

African Americans experience disproportionately higher rates of diabetes, heart disease, high blood pressure, obesity, and cancer compared to white people and other groups. African Americans are also more likely to experience complications and death from those chronic diseases. We can work to break the cycle by changing the way we eat!

Ditch the Dairy

It is estimated that up to 80 percent of African Americans are lactose intolerant,[1] which can cause diarrhea, nausea, vomiting, abdominal cramps, bloating, and/or gas due to inability to digest the milk sugars. Dairy products are the top source of saturated fat in the American diet, contributing to heart disease, type 2 diabetes, and Alzheimer's disease. Luckily, the nutrients found in milk (like calcium and vitamin D) can be found in the plant-based foods throughout the African Heritage Power Plate.

Note that red and processed meats may also pose health risks. Just one hot dog or a few strips of bacon consumed daily increases cancer risk by 18 percent.[2]

Feeling Empowered

You can use the foods of this plate, flavored with familiar herbs and spices, to create delicious, healthful, and familiar foods. Cooking can connect us with each other and also to our roots, health, and creativity. Many people of African descent are embracing a plant-based diet from their own background and in their own unique way. Feel empowered to take control over your food choices for a healthier you!

Make Every Meal an African Heritage Power Plate Meal

Hoppin' John Salad

Makes 8 servings

INGREDIENTS

For the dressing:

3 tablespoons white distilled vinegar
1 teaspoon paprika
1 teaspoon garlic powder
1 teaspoon black pepper
1 teaspoon of salt

For the salad:

1/2 bunch kale, chopped, with tough stems removed
2 (15-ounce) cans of no- or low-sodium black-eyed peas, rinsed
2 cups quinoa or amaranth, cooked
1 medium onion, chopped
1 orange bell pepper, chopped
1 yellow bell pepper, chopped

INSTRUCTIONS

Whisk together the vinegar, paprika, garlic, black pepper, and salt in a small bowl.

Combine the kale, black-eyed peas, quinoa, onion, bell peppers, and dressing in a bowl. Refrigerate to chill before serving.

Per serving: Calories: 123; Fat: 1.3 g; Carbohydrate: 22.5 g; Protein: 6.1 g; Fat: 9.5%; Beta-Carotene: 505 mcg; Calcium: 36 mg; Sodium: 396 mg; Potassium: 325 mg

Source: Recipes inspired by and adapted from OldwaysPT.org.

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Sweet Potato Pumpkin Seed Casserole

Makes 10 servings

INGREDIENTS

3 pounds sweet potatoes
1 tablespoon maple syrup
3 tablespoons orange juice
1/2 teaspoon ground cinnamon
1/2 teaspoon ground ginger
1/2 teaspoon ground allspice
1/2 teaspoon orange zest
1/3 cup chopped unsweetened apricots
1/4 cup chopped pumpkin seeds, raw or roasted
3 tablespoons thinly sliced green onions (green and/or white parts)

INSTRUCTIONS

Preheat the oven to 400 F. Pierce the potatoes several times with a fork and bake in a baking dish for 50 to 60 minutes, until the potatoes are tender to the touch.

Remove the potatoes from the oven and let them cool for 10 minutes. Scoop the flesh from the sweet potatoes into a mixing bowl, discarding the peels. Gently mash with a potato masher until smooth yet slightly lumpy.

Add the syrup, orange juice, cinnamon, ginger, allspice, orange zest, and apricots to the sweet potatoes and stir. Transfer the mixture into a casserole dish or 9-by-13-inch baking dish and sprinkle with the pumpkin seeds. Bake for about 20 minutes, until the seeds are golden. Remove the dish from the oven and sprinkle with the sliced green onions. Serve immediately.

Per serving: Calories: 145; Fat: 1.6 g; Carbohydrate: 30.6 g; Protein: 3.2 g; Fat: 9%; Cholesterol: 0 mg; Fiber: 4.5 g; Beta-Carotene: 11,664 mcg; Calcium: 49 mg; Sodium: 76 mg; Potassium: 518 mg



Jollof Rice and Beans

Makes 8 servings

INGREDIENTS

1 (15-ounce) can low-sodium diced tomatoes, drained (save liquid)
2 cups liquid (water + juice from can)
1 cup uncooked brown rice
1 large onion, chopped
2-3 garlic cloves, minced
1 large carrot, chopped
1/4 head of green cabbage, chopped
2 tablespoons tomato paste
1 (15-ounce) can, low-sodium red beans, drained and rinsed
1 teaspoon turmeric
1 teaspoon thyme
1/2 teaspoon red pepper flakes
parsley (optional)

INSTRUCTIONS

Drain liquid from diced tomatoes. Add enough water to equal 2 cups of liquid total. Put in pot with the brown rice and cook until rice is done.

Saute onions and garlic in water or veggie broth until onion is soft and pale. Add carrots, cabbage, tomato paste, tomatoes, black-eyed peas, and spices. Simmer with the lid on until the vegetables are done to your taste.

Combine the rice with the veggies and beans or serve the rice with everything else on top. Garnish with a little parsley (optional). Serve with your favorite roasted vegetable and collard greens!

Per serving: Calories: 174; Fat: 1.4 g; Carbohydrate: 35.2 g; Protein: 6.4 g; Fat: 6.8%; Cholesterol: 0 mg; Fiber: 5.8 g; Beta-Carotene: 1,129 mcg; Calcium: 68 mg; Sodium: 26 mg; Potassium: 430 mg

Yuca Fries

Makes 8 servings

INGREDIENTS

2 medium yuca roots, peeled
salt, to taste
ground black pepper, to taste
dried or fresh thyme, to taste

INSTRUCTIONS

Preheat the oven to 375 F.

Peel the waxy brown skin from the yuca roots and chop each one in half, widthwise at the middle, to make 4 pieces.

Place yuca in a medium pot or saucepan, cover with water, and bring to a boil with a pinch of salt. Cook the yuca until you can pierce it with a fork (about 20-25 minutes).

When cooked, drain the water and place the yuca on a paper towel.

When cool enough, pat the yuca dry and chop the pieces into “french fry” sticks. Place the fries on a baking sheet with parchment or light cooking spray. Season with sea salt, pepper, and thyme to taste. Use as much thyme as needed to dust each fry.

Bake the fries in the oven for 20 minutes, until golden, turning once.

Per serving: Calories: 161; Fat: 0.3 g; Carbohydrate: 38 g; Protein: 1.4 g; Fat: 1.5%; Cholesterol 0 mg; Fiber: 1.8 g; Beta-Carotene: 7 mcg; Calcium: 15 mg; Sodium: 14 mg; Potassium: 245 mg

African Heritage Spicy Chickpeas

Makes 8 servings

INGREDIENTS

1 medium yellow onion
1 teaspoon ginger
1/4 teaspoon allspice
1 pinch cayenne pepper
1 teaspoon curry powder
1 (15-ounce) can diced tomatoes, no salt added
2 (15-ounce) cans chickpeas, no salt added, or thoroughly rinsed and drained
salt (optional)

INSTRUCTIONS

In a deep pan, shallow pot, or Dutch oven, saute the onion in water on medium heat. Let it simmer in its juices, stirring just a couple of times, until it is translucent (about 4 minutes).

Add the ginger, allspice, cayenne pepper, and curry powder to the onions, stirring for about 2 minutes, until the spices are incorporated and fragrant.

Add the diced tomatoes, with their liquid, and cook for another 2 minutes.

Add the two cans of chickpeas and toss to cover. Let them simmer on medium-low for 7-10 minutes, stirring occasionally.

Add a pinch of salt to taste, if desired.

Per serving: Calories: 221; Fat: 4.2 g; Carbohydrate: 37.6 g; Protein: 10.4 g; Fat: 15.8%; Cholesterol: 0 mg; Fiber: 11.5 g; Beta-Carotene: 314 mcg; Calcium: 107 mg; Sodium: 22 mg; Potassium: 429 mg

Source: Recipes inspired by and adapted from OldwaysPT.org.



Jerk Lentils

Makes 6 servings

INGREDIENTS

1 red onion
1/2-inch cube of ginger, minced
3 sprigs of thyme
2 spring onions, sliced
4 cloves of garlic, minced
1 tablespoon maple syrup
1 1/2 tablespoons jerk seasoning
2 cups chopped tomatoes
2 1/2 cups low-sodium vegetable stock
1 3/4 cups dried green lentils
salt and black pepper, to taste

INSTRUCTIONS

Saute red onions, spring onions, ginger, and garlic in water. Add jerk seasoning. Once soft, add lentils, tomatoes, and vegetable stock.

Add salt, pepper, and maple syrup. Bring to a boil. Cook until lentils are desired texture.

Per serving: Calories: 228; Fat: 1 g; Carbohydrate: 42 g; Protein: 16 g; Fat: 3.5%; Cholesterol: 0 mg; Fiber: 11 g; Beta-Carotene: 532 mcg; Calcium: 68 mg; Sodium: 66 mg; Potassium: 841 mg

Source: Recipe inspired by and adapted from RachelAma.com.

Mango and Papaya After-Chop

Makes 1 serving

INGREDIENTS

1/2 of a papaya or 1 peach, chopped into cubes
1 mango, skin peeled and chopped into cubes
1 tablespoon coconut milk
1/2 teaspoon maple syrup
1 tablespoon chopped peanuts

INSTRUCTIONS

Cut open the papaya. Scoop out the black seeds in the center. Slice the skin with a serrated knife. Slice lengthwise into quarters and chop into bite-size cubes.

Peel the mango with your knife or a peeler. Slice the fruit from the pit and chop the mango chunks into bite-size cubes.

Place the fruit in a bowl. Drizzle the coconut milk, maple syrup, and peanuts over the fruit. Stir to coat.

Per serving: Calories: 88; Fat: 2.2 g; Carbohydrate: 17.8 g; Protein: 1.5 g; Fat: 21%; Cholesterol: 0 mg; Fiber: 2.2 g; Beta-Carotene: 762 mcg; Calcium: 20 mg; Sodium: 5 mg; Potassium: 235 mg

Source: Recipe inspired by and adapted from OldwaysPT.org.

Cornbread

Makes 10 servings

INGREDIENTS

1 cup yellow corn grits or cornmeal
1 cup whole-wheat flour
3 teaspoons baking powder
1 teaspoon sea salt
6 teaspoons sugar
1 cup soy milk
1/4 cup unsweetened applesauce

INSTRUCTIONS

Preheat the oven to 400 F.

In a medium bowl, mix dry ingredients.

In a separate bowl, combine soy milk and applesauce.

Pour wet mixture into dry ingredients and stir. Do not overmix.

Pour into an 8-by-8-inch square baking dish that is nonstick or lined with parchment paper. Bake for 20 minutes.

Per serving: Calories: 145; Fat: 1.6 g; Carbohydrate: 30.6 g; Protein: 3.2 g; Fat: 9%; Cholesterol: 0 mg; Fiber: 4.5 g; Beta-Carotene: 11,664 mcg; Calcium: 49 mg; Sodium: 76 mg; Potassium: 518 mg

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Fruit is great to snack on during the day or to have before or after a meal!

Be sure to have a reliable source of vitamin B12 such as fortified foods, a vitamin B12 supplement, or a multivitamin.

The content of the African Heritage Power Plate was developed in partnership with Oldways and with the following contributors:

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SARAH OMODELE
6/17/2021

Southern Adventist University
School of Nursing
DNP Scholarly Project EOP SLO Synthesis

PICO/Research question:

Hypothesis- Why do African Americans with cardiometabolic syndrome choose to participate in culturally adapted, web-based lifestyle education, and how has COVID-19 affected that decision?

1. Cultural Competence:
   Mentor Christian responsiveness and caring to global culture through sensitivity and competence for patient traditions and values.

   Discuss how your proposed Scholarly Project could demonstrate Cultural Competence?

My project was focused on the African American population because this group tends to experience some form of health disparities. These problems could be due to mistrust of the healthcare system, poverty, lack of education, and lack of resources, to mention a few. My passion is to reach out to this population by showing them compassion, love and making them feel that their lives matter. COVID-19 revealed the health inequalities in the country, and this population has been affected significantly. This study explained how the pandemic had affected their lifestyle choices concerning health, both positively or negatively. My project fulfilled this competency by developing a culturally adapted, web-based lifestyle education program.

2. Evidence-Based Practice:
   Translate quality research findings and outcomes to solve problems for quality personalized results.

   Discuss how your proposed Scholarly Project could demonstrate Evidence-Based Practice?

The internet has been known as a source to obtain easy, fast, and accessible information. Many often seek medical information and healthy lifestyle information, and the pandemic resulted in a surge of this behavior. The desire to make more beneficial lifestyle changes to mitigate the adverse effects of the COVID-19 virus was at a high locally and worldwide. The CDC reported that many hospitalizations and mortality cases were due to individuals with co-morbidities such as diabetes, hypertension, obesity, and heart disease. A large percentage of AA seem to be at risk or have one of two of these co-morbidities.

Multiple scientific types of research have shown evidence that a whole food plant-based diet can prevent, delay progress, and reverse CAD, the leading cause of death in the United States. Cardiometabolic syndrome increases the risk of developing heart disease. A WFPBD improves patients' biometrics with a cardiometabolic disease, such as improved cholesterol levels, hemoglobin A1C levels, promoting weight loss, and decreased blood pressure. My study introduced

patients to the WFPB diet through a web-based education program. The program provided information based on EBP on the benefits of a plant-based diet. The project looked at how different theoretical models can contribute to how healthy behavioral changes can occur due to increased external stressors like the pandemic.

3. Health Promotion:
   Propose evidence-based methods that prevent disease and promote human flourishing by utilizing a holistic framework to educate and empower healthy lifestyle choices.

   Discuss how your proposed Scholarly Project could demonstrate Health Promotion?
   Health promotion can occur by educating the patients on a plant-based diet, discussing the health benefits, and discussing the impact of an unhealthy diet on the cardiovascular system. I believe this project would impact the patients and their families, friends, and the community. It could produce a ripple effect by reaching one person at a time.

4. Patient-Centered Care:
   Facilitate inter/intra professional healthcare to achieve personalized, compassionate, and coordinated whole-person care.

   Discuss how your proposed Scholarly Project could demonstrate Patient-Centered Care?

The goal of my project was to understand why African Americans participate in culturally adapted, web-based lifestyle education and how has COVID-19 affected that decision. The project tried to understand the health-seeking behavior of these populations from the different healthcare providers' perspectives and individuals in this population. **The project's plan and goals were discussed with the healthcare providers with clear direction. There was a collaboration between the healthcare providers, the program participants.**

5. Quality and Safety:
   Evaluate current evidence and outcomes of practice in health care systems to ensure a just culture that minimizes the risk of harm and promotes safety and quality of care.

   Discuss how your proposed Scholarly Project could demonstrate Quality & Safety?
   What are the quality and safety concerns with your project?
   Safety concerns would be making sure patients' information would be kept safe and confidential. Participants' medical information was not accessed during the study. Participants were identified with codes and numbers to maintain confidentiality.

6. Informatics and Innovation:
   Analyze healthcare outcomes using knowledge of nursing, computer, and information sciences to ethically and innovatively manage data, information, and technology.

Discuss how your proposed Scholarly Project could demonstrate Informatics and Innovation?
What technology would be helpful to you?
The was no direct use of EMR during the study. The study used online programs to develop demographic data forms, online surveys for program evaluations, and dietary assessments. Microsoft word documents were used to write and save the information and SPSS for data analysis.

7. Teamwork and Collaboration:
   Organize effective inter/intra professional teams to promote quality health outcomes and reduce risk.

   Discuss how your proposed Scholarly Project could demonstrate Teamwork and Collaboration?
   Who are the team members that you think would be helping you with the implementation of the project?
   Teamwork was demonstrated by discussing the goal/vision of the project and making sure each member was aware of the study's progress. The meeting occurred with the healthcare providers and food instructors before and during the study.

8. Professionalism:
   Advocate for Christ-centered excellence in nursing roles and professional behaviors throughout the inter/intra professional team.

   Discuss how your proposed Scholarly Project could demonstrate professionalism?
   My professionalism was demonstrated by treat patients and team members with respect, maintaining an open communication policy, wearing appropriate professional attire, providing EBP scientific information for the patients, healthcare providers, and program participants. Meetings were scheduled and conducted promptly, and appoints were keep without delays.