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Improving Measurements and Self-Management Skills of Cardiovascular Disease by Incorporating a Healthy Lifestyle in Hispanic adults: A Promotoras Led Program

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July 11, 2022
Abstract

Hispanic community members face unique challenges related to language barriers, culture, access to care, and trust in healthcare providers. Hispanic community members have a higher incidence of cardiovascular diseases and diabetes than their non-Hispanic counterparts. Hispanic males were most likely to die of cardiovascular disease in 2017 (CDC, n.d.a), and for females, death from cardiovascular disease was only second to cancer (CDC, n.d.b). Hispanics are 70% more likely to be diagnosed with diabetes than non-Hispanics (Office of Minority Health, nd.) Promotoras are trusted members of the Hispanic community who can assist healthcare providers in providing disease prevention education and self-management skills to community members. A program designed specifically for the Hispanic community recognizes the unique attributes and needs of the Hispanic community. Through dedicated Promotoras, a program designed specifically for the Hispanic community hopes to increase self-management and prevention skills of cardiovascular diseases and diabetes. The project aimed to evaluate if a cardiovascular disease education program provided to the Hispanic community of Washington County taught by Promotoras will increase participant knowledge of cardiovascular diseases and improve self-management skills.

Keywords: Promotoras, community health workers or CHW, Cardiovascular, heart-heathy, wellness education, Hispanic OR Latinos/Latinas, cardiovascular diseases or CVD
Improving Measurements and Self-Management Skills of Cardiovascular Disease by Incorporating a Healthy Lifestyle in Hispanic adults: A Promotoras Lead Program

In the United States, heart disease has continued to burden population health year after year, ranking as the leading cause of death in 2020 (Murphy et al., 2021), 2019, and 2018 (Kochanek et al., 2020). One ethnic group burdened by this has been Hispanics. In 2017, in the Hispanic male population in the United States, cardiovascular disease (CVD) ranked as the number one cause of death (20.3%) (Centers for Disease Control and Prevention [CDC], n.d.a), and in the female Hispanic population (CDC, n.d.b) the second leading cause (19.6%), behind cancer (22%). In addition to heart disease, in 2018, Hispanics were 1.3 times more likely to die from diabetes than non-Hispanics (Office of Minority Health, n.d.). They were 70% more likely than non-Hispanics to be diagnosed with diabetes by a physician (Office of Minority Health, n.d.). Diagnosed cases of diabetes in 2018 for adults over 18 were 14.3% for Hispanic males and 12.4% for Hispanic females (CDC, 2021).

The recognition of diseases impacting the United States, specifically the Hispanic culture, is amplified by the growing numbers of Hispanics in the United States, approximately 62 million people in 2021 (World Population Review, 2021). In addition to the growth nationally, so have the numbers in Maryland (10% of the population) (World Population Review, 2021) and Washington County (6% in 2019, up from 4.78% in 2018) (United States Census Bureau, 2019).

According to the Maryland Vital Statistics Annual Report (2019), heart disease was ranked #1 and diabetes #4 in the leading causes of death in the Hispanic population in Maryland. In Washington County, Maryland data specifically related to the Hispanic population and cardiovascular diseases and diabetes has lacked reportable data in recent years. Overall,
Washington County tied for #3 in the state for the highest prevalence of diabetes at 14.5% (Data USA, n.d.)

**Identification of the Problem**

In 2019, a Community Health Needs Assessment (CHNA), led by the Washington County Health Department and Meritus Health, was conducted, the last CHNA being in 2016. The overall goal of the CHNA is "to complete a comprehensive assessment of the health status and healthcare access needs of residents living in the Washington County healthcare region" (Washington County Health Department, 2019). The six focus areas included: substance abuse/mental health, wellness/nutrition, weight status, diabetes, heart disease, and hypertension (Washington County Health Department, 2019). These aligned with the 2021 County Health Rankings Data for Washington County. Adult obesity has risen from 23% in 2004 to 36% in 2016 (County Health Rankings, 2021a). Physical inactivity has remained consistent at 27% since 2004 (County Health Rankings, 2021a). These were the same modifiable risk factors that Johns Hopkins University (2022) identified as decreasing the risk of cardiovascular diseases and diabetes (weight, diet, and physical activity).

In 2014, the American Heart Association (AHA) identified the burden of CVD in the Hispanic population. It issued a scientific statement identifying multiple ways to help address this issue (Rodriguez et al., 2014). One of those suggestions was culturally tailored education for the Hispanic population focusing on decreasing cardiovascular disease risk (Rodriguez et al., 2014). In 2019, the Office of Minority Health acknowledged that "Hispanic health is often shaped by factors such as language/cultural barriers and lack of access to preventive care. Which, in turn, increases the risk for obesity, diabetes, and other health issues within this population" (Office of Minority Health, 2019).
The information gathered from the Community Health Needs Assessment and the data related to health statistics in Washington County led to the formation of a multi-organizational group called Healthy Washington County and the creation of a county-wide initiative called "Go for Bold," which kicked off in October 2020. Go for Bold is a 10-year journey to lose 1 million community pounds by 2030 through three key aspects of wellness: focus on increasing physical activity through fun and engaging community-wide events, incorporate mindfulness and stress reduction techniques into daily activities, and offer nutrition tips and healthy recipes that focus on fresh fruits and vegetables (Healthy Washington County, 2022).

In addition to looking at the community's overall health, there was importance on the ethnic backgrounds that make up the community and how diseases impact those specific communities. One such area looked at was the population breakdown of Hispanics in Washington County due to insufficient data for this population.

The Community Health nurses at Meritus Medical Center identified that the Hispanic population's cardiovascular disease and diabetes prevention and wellness education was not occurring. Key stakeholders who work with the Hispanic community through Bester Community of Hope identified health education as a need within the Hispanic population. As of 2020, Meritus Medical Center had no bilingual community health educators or bilingual patient advocates. Dr. Douglas Spotts, Vice President and Chief Health Officer, and Allen Twigg, Executive Director, Behavioral and Community Health at Meritus Medical Center, supported the need for prevention education within the Hispanic community. The lack of data explicitly looking at the health needs and outcomes of the Hispanic population in Washington County provided support and importance for this program. Population-specific health education was not implemented or trialed in Washington County, Maryland, as of this project's initiation.
For this manuscript, the term Hispanic will be used to describe anyone who identifies as "Hispanic," "Latino/Latina," or has a primary language of Spanish. Spanish is the official language of 21 countries, including Spain, Mexico, Peru, Argentina, Puerto Rico, and Cuba (Why not Spanish, 2021). Identifying "Hispanic" does not reference a person from a particular geographic region.

**Literature Review and Synthesis**

The framework for the quality improvement project was the Rosswurm and Larrabee Model for EBP Change. Washington County has never done this type of quality improvement project. It is being trialed within the community to provide information on the importance of tailored education to different ethnic backgrounds. Rosswurm and Larabee's Model is a six-step process: assess, link, synthesize, design, implement and evaluate and integrate and maintain (White et al., 2016). In this process, the six steps are: assess the local and national Hispanic data on cardiovascular diseases and diabetes, link cardiovascular problems to outcome-based interventions, synthesize the literature, design a quality improvement project, and implement and evaluate the plan for determining the intended results, integrate and maintain the project for future use in our community.

A literature search conducted through Duquesne's Gumberg Library used search terms: "Promotoras," "community health workers OR CHW," "Hispanic OR Latinos/Latinas," "cardiovascular," "community education," "heart-healthy," "wellness education," "cardiovascular diseases OR CVD." The initial search identified various study types, which concluded with similar themes of biometrics pre and post-intervention, participant commitment to a program when led by a trusted community member, and knowledge improvement at the end of the interventions. Exclusion criteria included programs held exclusively at a healthcare organization,
programs that did not use a promotora, programs that targeted children, programs of poor quality, and programs solely conducted outside the United States.

Koniak-Griffin et al. (2015) used a randomized controlled trial (RCT) to evaluate the effectiveness of a lifestyle behavior intervention presented by a Promotora to immigrant Hispanics in Southern California. Koniak-Griffin et al. (2015) were the only one of two identified RCT-type studies using a Promotora in community education. One element of this study was using the National Heart, Lung, and Blood Institute's "Your Heart, Your Life" program, which is also the basis for this quality improvement project. The study found dietary habits, waist circumference, and physical activity improvements. This study further validated the importance of using a Promotora in Hispanic community education and gathering pre and post-program biometrics.

Romero et al. (2016) utilized a pilot validation study in Massachusetts to assess CVD knowledge associated with adverse CVD health outcomes. This study used a community-based, culturally tailored education program, "Vivir Con un Corazon Saludable," or "Live with a Healthy Heart." This program was modeled from the National Heart, Lung, and Blood Institute's "Your Heart, Your Life" program and taught by a bilingual educator. The primary outcomes of this study focused on knowledge improvement of CVD epidemiology, dietary knowledge, medical information, risk factors, and heart attack symptoms (Romero et al., 2016). Knowledge increased across all five domain areas by the completion of the program. While knowledge surrounding CVD improved, behavioral changes are an area that challenges disease prevention within the Hispanic community. These factors include "cultural beliefs, perceived ideal bodyweight, intimate ties between Hispanics' dietary consumption-all highly influential sociocultural factors." This study also identified knowledge deficits related to emergency
recognition of cardiac emergencies and the importance of education related to identifiable preventative themes in nutrition and medical prevention and staying away from higher complexity topics in these areas (Romero et al., 2016). The researchers assimilated this to be less likely to impact lifestyle changes but perhaps also be related to limited English proficiency related to CVD knowledge.

Understanding participant perception of using a Promotora in leading a lifestyle behavior intervention program is vital as this is one of the leading elements of the program used for this quality improvement project. Albarran et al. (2014) completed a qualitative study following the RCT study by Koniak-Griffin et al. (2015) that used Promotoras. Through individual and group interviews of participants in the Koniak-Griffin et al. (2015) study, there was full support for Promotoras in leading behavior intervention programs focused on Hispanics. The three themes that emerged from the study were tools, support, and knowledge that participants felt the Promotoras impacted their willingness to change behaviors to lead a healthier lifestyle. Additionally, participants found emotional and social support connections with the Promotoras equally important and positively impactful in their emotional and psychological health (Albarran et al., 2014). This study found and validated support for Promotoras in Hispanic community education and will help guide future research that uses Promotoras.

The study by Seguin et al. (2019) examined the feasibility and efficacy of an adopted program. This study was different from others in that it took an English-created program called "Strong Women-Healthy Hearts" and translated it into a culturally salient program for Hispanics. This process took a year to adapt and make the program culturally relevant. The interest of the researchers in this topic revolved around an increasing Hispanic population in the United States and the need for culturally adapted programs to help address the health disparities of Hispanics.
Seguin et al. (2019). This study is pertinent to the project because the researchers and this quality improvement project are looking to see if the programs work. Determining this was through evaluating biometric and knowledge improvements and surveys to determine overall satisfaction with the program (paper and focus group evaluations). Like Promotoras in the other studies, Bilingual staff members led these classes. The researchers found study strength in biometrics and knowledge of participants and reached a hard-to-reach population, despite the small participant number and recruitment challenges.

Carvajal et al. (2018) examined two chronic disease education program interventions in Mexico and the US. The US intervention used Pasos Adelante, "Steps Forward," and the Mexico program used Meta Salud, or "Goal Health." Pasos Adelante was adopted from the NHLBI’s program, "Your Heart, Your Life." Meta Salud from Pasos Adelante. The minor adjustments to the Meta Salud program had to do with the different requirements of Mexico related to the study. This study aimed to compare outcomes in two sister curriculums in sistering countries. Both groups found positive behavioral and subjective health improvements in the participants. Carvajal et al.’s (2018) study was the only study to compare programs across borders and further understand the impact of disease prevention initiatives with public health mobilizations along the US-Mexico border. This study was the first to attempt to understand the gender makeup of the participants. This insight was helpful for the quality improvement project recruitment.

Krantz et al. (2017) looked at reducing CVD risk in Hispanic participants with an intervention that linked clinical care and community education. The participants in the study received appointments with practitioners at the clinic. They received routine laboratory testing and medication initiation and management during these appointments. The participants also received a community education element, which took place in a faith-based organization led by
community health workers. This study had many participants (1,099) and stretched over four years. The program used in this study was adapted from Carvajal et al. (2018)’s program “Pasos Adelante.” The program had success as the intervention decreased the risk of cardiovascular diseases. Notable limitations in this study are that the annual income of participants was <$20,000 annually. Thus, the results may not be generalizable to participants with higher incomes and younger ages (participant eligibility age of 45 or older for this study). This study identified the benefit of having an education program located outside the medical facility and the need for other studies to assess annual income as a data point for future analysis of study outcomes.

Han et al.’s (2018) study presented a unique element not assessed in other studies. In addition to focusing on hypertension interventions for the Hispanic population, their study assessed health literacy. The 19 participants were all female. Han et al. (2018) used an HBP-Health literacy scale to assess health literacy, a 30-item, validated (correct/incorrect) reading test. The use of the tool not being based on phonetics (which the Spanish language is) attributed to the minimal health literacy improvements. Future recommendations include incorporating health literacy into a study using a reading comprehension via task-oriented test as a better indicator.

Soto Mas et al.’s (2018) study came out at a similar time to Han et al.’s in 2018, where both looked at a component of health literacy. This study was a randomized control study and only the second RCT study related to the topic of interest for this literature review. The intervention group received a health literacy intervention and the ELS curriculum, which both the control and the intervention group received. The tool used for measuring health literacy in this study was the test of functional health literacy in adults (TOFHLA), which looks at reading comprehension and numerical ability. Participants took the TOFHLA in English. The
improving measurements and self-management skills

The intervention group showed significant improvement in the TOFHLA score post-intervention compared to the control group. The study also found a positive effect on cardiovascular behaviors in the intervention group, leading future research to recognize the importance of health literacy and community programming for Hispanic members related to CVD.

The manuscript by Balfour et al. (2016) looked at all CVD elements (epidemiological evidence, risk factor prevalence, and evaluation of the breadth and quality of the data) and how they relate to Hispanics in the United States. This review is vital to community educational programs specifically for the Hispanic population as it gives the backstory and helps to understand challenges with data. CVD studies from an epidemiological standpoint often come from extensive studies sponsored by the National Heart, Lung, and Blood Institute (NHLBI). The 1948 Framingham Heart study (sponsored by NHLBI) was the first to focus on Hispanics. Since then, the studies occurring for current reviews (less than five years old) can be hard to find. Many studies focusing on CVD and the Hispanic population in the United States are much smaller because of population-based studies' complexities. Individual elements under the umbrella of CVD analyzed for study findings were: coronary heart disease, heart failure, peripheral vascular disease, and stroke. Concurrent with extensive studies being outdated, so are many studies on individual diseases related to Hispanics. The recent research focuses on the CVD risk factors of Hispanics (body mass index and physical activity, smoking, cholesterol, diabetes, and hypertension). They coincide with much of the research studies used for this quality improvement project. These studies focus on how people can work to self-improve health and wellness. This manuscript discussed the impact of psychosocial factors on CVD risk and health behaviors, including discrimination, acculturation, and social integration and support networks. The manuscript concluded by recognizing the importance of studying CVD in the
Hispanic population. Additional studies to further understand and improve the public health burden of CVD in the United States should continue in future research topics.

**Synthesis of Research**

Each of the studies above provided value in understanding the previous research that has been done on this DNP topic and provided a more robust understanding of the successes, challenges, and opportunities for this project and future research. The following paragraphs will summarize the themes that came from the literature search.

First, the National Heart, Lung, and Blood Institutes, "Your Heart, Your Life program" was the recurrent backbone of the programs delivered in the studies, often modified for the researchers’ needs and use. Koniak-Griffin et al. (2015), Romero et al. (2016), Carvajal et al. (2018), and Krantz et al. (2017) all used some form of this program. Only Seguin et al. (2019) used a different program, Strong Women-Healthy Heart, the only program created in English and then culturally and linguistically translated into Spanish.

The similarities followed with all programs offering elements tailored to the Hispanic culture. Promotoras were seen throughout the studies and noted as important. Albarran et al. (2014) was the only study that looked at the impact of Promotoras on participants and found all participants to speak to the importance of this element of the program. In instances of programming adjustments from the baseline "Your Heart, Your Life" program, none of the studies altered or veered away from the use of Promotoras to educate (Koniak-Griffin et al., 2015; Romero et al., 2016; Carvajal et al., 2018; Krantz et al., 2017). Additionally, while using a different program, Seguin et al. (2019) also used a Promotora to deliver the education.

Two studies noted health literacy and provided important information about incorporating health literacy into culturally salient programs. While Han et al. (2018) and Soto Mas et al. (2018) used two different tools to assess literacy, the TOFHLA tool appeared to be more
effective when assessing a primarily Spanish-speaking person's health literacy. In addition, Han et al. (2018), Soto Mas et al. (2018), and Romero et al. (2016) noted low English proficiency, bringing to fruition the need for future studies that focus both on health literacy and English proficiency within health promotion programs.

Intervention locations mainly occurred outside the healthcare setting in the studies (Soto Mas et al., 2018; Seguin et al., 2019; Krantz et al., 2017; Han et al., 2018). Krantz et al. (2017) noted poor attendance at the clinic locations of their project, while the faith-based locations had good attendance. Many of the studies failed to state where the classes occurred (Koniak-Griffin et al., 2015; Romero et al., 2016; Albarran et al., 2014; Carvajel et al., 2018), providing strong evidence for future researchers to identify study locations and recommendations for future community educational offers to take place in locations where participants feel comfortable.

A recurring theme in all of these studies was participant recruitment. Some studies had stringent inclusion criteria, and some specifically sought only female participants. In contrast, other studies did not specify this in the inclusion criteria; however, only females participated in almost all of these studies (Table 1).

### Table 1

**Female Participation in Literature Search Studies**

<table>
<thead>
<tr>
<th>Study authors</th>
<th>Total participants</th>
<th>Female participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Koniak-Griffin et al. (2015)</td>
<td>223</td>
<td>223</td>
</tr>
<tr>
<td>Romero et al. (2016)</td>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td>Krantz et al. (2017)</td>
<td>1,099</td>
<td>799</td>
</tr>
<tr>
<td>Albarran et al. (2014)</td>
<td>18</td>
<td>18</td>
</tr>
</tbody>
</table>
Carvajal et al. (2018) was the only study to clarify possible reasons. Carvajal et al. (2018) noted that women in Mexico are traditionally more involved in community affairs and social participation and that there is a stronger connection between women and Promotoras. Women's involvement in such activities can have a more significant impact on their families and peer networks. It is significant because while men are at high risk for cardiovascular diseases and diabetes, the woman brings home the knowledge and promotes lifestyle changes. Engaging males continues to be a challenging public health issue, with no solid ideas for improvement. This information confirmed that it should not be surprising to have low male participation in the project and that women play impactful roles in family health changes.

**Description of Project**

The project aimed to implement a 4-week program that utilized the ideas of Pender's Health Promotion Theory to impact the behavioral outcomes of participants to lead a healthier lifestyle (Petiprin, 2016). This project intended for the participants to feel empowered to make healthy lifestyle changes that positively impact their overall health. They would also act as an influence in their interpersonal relationships with family members and community members. Madeleine Leininger's Transcultural Nursing Theory and Sunrise model are also crucial to this project. Leininger looks at culture as an essential aspect of providing care and understanding patients from a multifactorial approach, using the sunrise model to demonstrate this (Gonzalo, A, 2021). This theory was critical in this project as nurses need to consider all of the cultural and social structure dimensions that impact the members of the Hispanic population and the way healthcare delivers care. The project PICOT question is, "In Hispanic adults, does the
implementation of a Promotoras lead heart-healthy program improve cardiovascular disease measurements and self-management skills compared to the baseline measurements over a 2-month period?" This project utilizes a portion of the National Heart, Lung, and Blood Institute’s (NHLBI) (2014) program "Your Heart, Your Life," created specifically for underrepresented groups. One is Hispanic/Latino (other variations of this program include American Indians/Alaska Natives, Asian Americans/Native Hawaiians/Other Pacific Islanders, and African Americans).

**Project Aims/Objectives**

Aim 1: Establish baseline biometric data for the Hispanic population program participants in Washington County, MD, and surrounding areas

Objective: Record and document baseline weight, height, waist circumference, and body mass index (BMI)

Objective: Accurately measure systolic and diastolic blood pressure readings

Objective: Accurately measure and record resting heart rate

Objective: Accurately measure one random blood glucose

Aim 2: Establish weekly Promotora-led educational sessions

Objective: Participant attendance will be at 90% or greater for three or more of the classes

Objective: Participants will state three reasons why a healthy weight and blood pressure are important in cardiovascular health.

Objective: Participants will state if their blood pressure is normal, pre-hypertensive, or high

Objective: Participants will be able to identify if their weight is normal, overweight, or obese

Objective: Participants will establish at least one weight-related goal to work on by one-month post-program

Aim 3: Improve diabetes knowledge among program participants
Objective: Participants will be able to identify three symptoms of diabetes
Objective: Participants will be able to identify three medical complications as a result of having diabetes
Objective: Participants will be able to identify if a fasting glucose level of 126 mg/dl or higher is considered diabetes.

Aim 4: Improve physical activity and healthy eating habits among program participants
Objective: Participants' physical activity will increase from week two to week four by 10 minutes a day on five of seven days of the week in 75% of participants
Objective: Participants will be able to make a list of three physical activities they enjoy and two they wish to incorporate into their lifestyle each day
Objective: Participants will identify three new healthy foods they plan to try in the next month

Aim 5: Evaluate participant's biometrics and perception of benefits from the program
Objective: Administer a post-course survey of the Promotora-led program to document two strengths, two weaknesses, and two ways to improve the program
Objective: Administer a post-course survey that will demonstrate that 80% of participants found the Promotora to be a vital component of the program
Objective: Measure post-course biometrics (height, weight, waist circumference, BMI, and random glucose reading) compared to baseline

Community Assessment

Washington County, Maryland, is one of 24 counties in Maryland (County Health Rankings, 2021a) and is in Western Maryland's geographical location. The population of Washington County is just over 151,000 people out of the total 6 million people living in Maryland (United States Census Bureau, n.d.). Washington County is the 11th most populated county in Maryland and is the most populated of the three counties that make up Western Maryland (United States Census Bureau, n.d.). Of the total population living in Washington County, 5% are foreign-born, live close to downtown Hagerstown and speak primarily Spanish
(Live Stories, n.d.a). 6% of Washington County's population is uninsured, slightly below the state average of 7% (County Health Rankings, 2022b). Persons living in poverty in Washington County is 12.3% compared to the Maryland average of 9.2% in 2019 (Maryland State Archives, 2021).

The overall health in Washington County shows an increase in health disparities and a decrease in overall community wellness. Adult obesity has steadily climbed in Washington County since 2004, going from 23% to 36% in 2016 (County Health Rankings, 2021a). Physical inactivity has remained at 27% since 2004 (County Health Rankings, 2021a). Heart disease accounts for a quarter of all deaths (Healthy Washington County, 2021). The obesity rate in Washington County is 36% (Healthy Washington County, 2021) and remains higher than the Maryland rate of 31% (County Health Rankings, 2021b). The hypertension rate (31%) in Washington County (County Health Rankings, 2021b) lies close to the state hypertension rate of 34% (United Health Foundation, 2022).

Along with health disparities, other wellness data reflects a less than healthy Washington County. The physical inactivity rate of Washington County is 27% compared to the state rate of 22% (County Health Rankings, 2021b). Even though Washington County has a higher number, the county and state rates are consistent with 20-30%, which are the national inactivity values (Centers for Disease Control and Prevention, 2020). Additionally, when looking at access to exercise opportunities, Washington County falls short at 75%, while the state average is 92% (County Health Ranking, 2021b). In addition, accessibility to healthy foods was worse in Washington County at 6% than 3% in Maryland in 2015 (County Health Rankings, 2020). The healthy food index was also lower in Washington County at 8.1 compared to Maryland's 9.0 (10 being the best) (County Health Rankings, 2022a).
All the information gathered supported a community health education program focusing on increasing disease prevention knowledge, increasing physical activity, and improving nutrition. The data supported an emphasis on a program taught in Spanish. The community assessment data further supported the curriculum used for this project.

**Overview of Methodology**

This project utilized a Plan-Do-Study-Act (PDSA) cycle. The benefit of using a PDSA cycle is that it uses a prescribed four-step process to test an implemented change by thinking in steps: evaluating the outcome, improving it, and testing again (Agency for Healthcare Research and Quality, 2020). This program was new in our county. Thus, it made sense to utilize a PDSA cycle to determine if it would be a good fit for our community before putting financial and personal resources into the complete program. The 4-week program is the first cycle of the PDSA (Figure 1).

- **Plan:** Recruit and train the promotoras, secure class location, schedule the class, promote the class, and register participants
- **Do:** Lead the four selected weeks of the program, obtain pre and post-program knowledge and biometrics
- **Study:** Review the data collection tools for analysis and synthesis
- **Act:** Provide recommendations for the next PDSA cycle
The goal was to recruit 50 participants who were adult members of the Hispanic community, participated within the Washington County community, and were interested in learning about heart disease prevention. All participants were voluntary and had the option of registering via email or a QR code on the program flyer. Multiple measures to study the process and outcomes of the interventions chosen. During the first and fourth classes, the participants completed pre and post-program questionnaires to determine baseline knowledge about the program's four areas (heart disease, diabetes, healthy eating, and moving more). The information gathered used closed, multiple-choice, and open-ended questions. The reasoning for these questions was that they were part of the program package, which ensured the validity and reliability of the questions. Demographic information was collected to include age, gender, and race. Biometric quantitative data was gathered pre and post for in-person participants and some who attended virtually. These measurements were all completed by the doctoral student to ensure...
reliability. A spreadsheet for documenting attendance data, the promotoras asked open-ended questions during the one-month follow-up and then thematic analysis.

**Implementation**

The following flowchart (Figure 2) summarizes the program timeline from start to finish.

**Figure 2**

*Timeline flowchart*

The detailed outline of the timeline is as follows.

Fall 2020- The DNP program started, and the project planning began. A literature search was conducted for program selection. The "Your Heart, Your Life" program for the project was selected. Meritus Health stakeholders agreed to support the project.

Spring 2021- Washington County United Way agrees to support the project financially.

December 2021- Locations, dates, and times were secured, and the program flyer was created.

February 2022- Initiation of participant recruitment and decision to offer the program via Zoom and allow any member of the Hispanic community to participate.

March 2022- The program classes were conducted.
April 2022 (end) - A data analyst from Meritus Health is secured for data analysis. The one-month follow-up phone calls took place with participants.

Both promotoras were walked through the program during in-person sessions to ensure that they would teach the same program sections. This goal was to ensure that the program would look and feel the same if a participant had to go from one session to another because of scheduling changes and to ensure analysis continuity. The two promotoras and this writer regularly met in person, via Zoom, or chat message as updates occurred to the schedule before implementation. Working with the United Way of Washington County and Aetna provided resources for providing each participant with a "thank you gift." These items looked to support the topics covered throughout the program. Each participant received a water bottle, pedometer, beachball to support physical activity, dark chocolate, black coffee, and fruit for healthy nutrition. We utilized two local businesses to obtain the chocolate and coffee, which supported the idea of community partnerships and engagement, all elements of the work of Meritus Health, United Way of Washington County, and Aetna. Meritus Health provided all of the printed materials for the program, including a color-printed recipe book. A spice recipe sample (provided to all participants) and a meal demonstration of fruit parfait and salsa came from the recipe book. It was important for the participants to see the ease of making healthy food options. Each participant received handouts of the materials covered to have them as a resource and share with others.

**Broad Range Data Collection**

Broad range data was beneficial to the project and categorized by existing data within an organization, public data, and third-party data sources. Two federally funded health centers in Washington County have indicated a growth over four years of care provided to the Hispanic
population of Washington County. The Tri-State Community Health Center in Hancock, Maryland, which lies on the westernmost and least populated portion of Washington County, has seen a significant increase in Hispanic patients (63 in 2016 to 121 in 2020) (Health Resources and Services Administration, n.d.a). The Walnut Street Community Health Center in Hagerstown, Maryland, centrally located in downtown Hagerstown, also saw an increase in Hispanic patients from 717 in 2016 to 806 in 2020 (Health Resources and Services Administration, n.d.b). The only hospital in Washington County, Maryland, Meritus Health, saw 8,086 Hispanic patients in the Emergency Room during FY 2021, equating to 5% of the total patients seen and 391, or 3% of total hospitalizations (Meritus Health, 2022).

The 2019 Community Health Needs Assessment identified focus on heart disease and diabetes as two key focus areas of health (Washington County Health Department, 2019). Hispanics have many challenges accessing care, including social determinants of health, access to high-quality healthcare, and environmental and community conditions (Centers for Disease Control and Prevention, n.d.c). The number of patients seen in the federally funded health centers and the hospital does not fully reflect the number of Hispanics living within Washington County, Maryland. One example is limited services available in Washington County, Maryland, for an undocumented immigrant to receive medical care. Both federally funded clinics require identification (i.e., Social Security number, pay stub) to receive care, even at a sliding scale fee. Additionally, though some Hispanics are insured, they are three times more likely to be uninsured than non-Hispanic whites (The Commonwealth Fund, 2020).

Next are public data sources. This information comes from the United States Census Bureau, Centers for Diseases Control and Prevention, American Heart Association, and the Chesapeake Regional Information Systems for our Patients [CRISP]. CRISP (2020) is a unique
way of exchanging health information in Maryland across various healthcare centers (hospitals, labs, radiology centers, and others) to provide the best possible coordinated care for patients, additionally providing data about social determinants of health and populations. Essential to this DNP project is the data from CRISP that notes the heart disease of Hispanics living in Maryland is 14.5 per 1000 and 23.64 per 1000 in Washington County, Maryland (Maryland Department of Health, n.d.a). Hispanics with hypertension in Maryland are 65.42 per 1000 compared to 130.63 per 1000 in Washington County, Maryland (Maryland Department of Health, n.d.b). The data from these sources view diseases and population health from the county, state, or national levels. The data from these sources are more extensive and used throughout the project to validate the need for Hispanic disease education as a community-level intervention. From these sources, data related to obesity, pre-diabetes and diabetes, hypertension, and physical activity were compared to data collected during the pre and post-assessments. Last is third-party sources. One such source is Live Stories (n.d.b). This fee-based US company creates easy-to-read dashboards and data summaries from various data sources to allow for discoverable insights about various needs of the individual requesting the data. Another data source is Statista (n.d), which provides a variety of free and fee-based data reports for this project data about Hispanics and health issues. Statista is a source for obtaining obesity rates and leading causes of death. Challenges with third-party data tools are the costs of receiving them. All three sources of data have facts and data that support the work of the DNP project.

**Data Collection**

Multiple steps took place to collect data and to meet validity and reliability. Each participant completed a pre and post-program knowledge paper assessment. This data collection method followed the recommendations in the *Your Heart, Your Life: A Community Health*"
Worker's Manual for participant assessment collection (National Heart, Lung, and Blood Institute [NHLBI] 2014, p.358). The assessments are part of the "Your Heart, Your Life" program (NHLBI, 2014). Adjustments were made to the questionnaires to reflect the four sessions taught (information related to sessions not taught-removed) and the addition of questions to reflect elements that the hospital diabetes team asked. The clinical measures form, also part of the "Your Heart, Your Life" program (NHLBI, 2014), sought to obtain information about the patient's status of high cholesterol, hypertension, and diabetes and biometrics. The scale, blood glucose monitor, and electronic measuring tape were the same tools for the pre and post-measurement assessments. This information was compared within each participant and then used as aggregate data for all participants in the project. Only this writer saw the individual answers to ensure confidentiality of the participant answers as names were on the pre and post-program and clinical measures forms to allow for correct individual comparison. For the few questions requiring written answers, the answers were blinded to the Promotoras to ensure confidentiality as they interpreted the Spanish answers.

Additionally, a spreadsheet tracked attendance to determine the outcome of the attendance objective. At one-month post-program, both Promotoras made follow-up phone calls to the participants in their groups. They used the same questions and recorded their answers. This information was returned and analyzed for themes. The validity and reliability of the clinical measures and pre and post-program questions came directly from the "Your Heart, Your Life" program. The additional questions added to the questionnaire have no validity or reliability testing. The pre-program questionnaires sought to learn participants' baseline knowledge and then were compared with the post-program questionnaire to identify knowledge gain and
lifestyle behavior changes. One-month follow-up phone calls sought to learn if behaviors have changed since the completion of the program.

The Data Management Table (Appendix) is a physical demonstration of the Aims/Objectives of the project, along with data collection by type, source, timeline, and analysis approach

Data Analysis

After the program, individual participant data was entered into a spreadsheet and analyzed for knowledge gained and any personal changes in biometrics. Entering the collected data from the forms into a computer is another recommendation from the Your Heart, Your Life: A Community Health Worker’s Manual (NHLBI, 2014, p.359). Some of the objectives were determined using nominal quantitative data. For example, "did the participant identify three new healthy foods they plan to try in the next month?"

Since more participants wished to participate online, this was an essential data analysis element for the next PDSA cycle. Thematic analysis of the one-month post-program phone call, with the notes taken by the Promotoras, was used. The attendance objective utilized the attendance spreadsheet to determine success. Each project objective was determined using data analysis.

In summary, data collection from various data sources: organizational, public, and third-party, supported this project. Collecting data from various sources allows for validation and support of an issue. The purpose of data collection during a project is to evaluate objectives after the project. Combining a broad range of data and project data collection allows for a more robust synthesis to provide future project and study recommendations.
Results

Twenty-nine participants enrolled in the program and completed the pre-program survey. Twenty-two participants participated in initial biometrics. Twenty-nine participants completed the post-program survey, and 13 participants completed biometrics. During the one-month post-program follow phone calls with the promotoras, 14 participants participated. Of the patients enrolled, 23 were female, and six were male, with a mean age of 47 (Table 2). 38% (11/29) of the participants had a diagnosis of prehypertension or hypertension, and 31% (9/29) are currently on antihypertensives. 52% (15/29) of the participants had a diagnosis of pre-diabetes or diabetes, and 10% (3/29) are currently on diabetes medications.

Table 2

Population Characteristics (n=29)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>N=6 (21%)</td>
</tr>
<tr>
<td>Female</td>
<td>N=23 (79%)</td>
</tr>
<tr>
<td>Age</td>
<td>Mean = 47 years (range 24-67)</td>
</tr>
</tbody>
</table>

Pre-biometric screening occurred during the first class. Twenty-four heights, 22 weights and BMIs, 20 heart rates and blood pressures, 18 waist measurements, and random blood glucose levels were recorded. Obtaining biometrics met all of the objectives for Aim 1 (Figure 3).
Participant attendance was 93%, exceeding the goal of 90% for three or more classes.

Understanding the importance of a healthy weight and blood pressure in cardiovascular health was an end-program outcome objective, and 79% (11 of 14) of the respondents were able to identify three reasons why this is important. An additional 14% (2 of 14) were able to identify two reasons. A knowledge question sought to determine if participants understood where their blood pressure and weights fell based on national standards during the pre and post-survey.

Participants correctly identified their blood pressure as normal, pre-hypertensive, or hypertensive on the pre-test 30% (6 of 20 participants) of the time; on the post-test, 18% (2 of 11 participants). 35% (7/20 participants) correctly identified their weight as normal, overweight, or obese on the pre-test, and on the post-test, 18% (2 out of 11 participants). Establishing a weight-related goal encouraged participants to take control of weight loss, and 52% (15 of 29 participants) completed this activity. Most participants set goals of losing between 2 and 20 pounds by the one-month follow-up phone calls, 50% (2/4) who answered achieved their goal. Aim 2 was met.

Aim 3 looked to evaluate knowledge related to diabetes. Identification of three symptoms of
diabetes was a knowledge question in the pre and post-survey. 45% (13/29 participants) identified three, while an additional 14% (4/29) were able to identify one or two symptoms on the pre-test. 62% (18/29) identified three symptoms, and an additional 6% (2/29) identified one or two symptoms on the post-test. One aspect of diabetes education is understanding the importance of a glucose level related to potential diabetes indications. On the pre-test, 26% (8/29) and on the post-test, 31% (9/29) correctly answered this question. Aim 3 was met. Aim 4 looked at incorporating healthy lifestyle activities. Only two participants completed the physical activity log; documentation revealed that their physical activity went down from the second to fourth week. This objective was not met. Participants were encouraged to think about the physical activities that they enjoy and activities they would incorporate into their life. During the one-month post-program interview, only 21% (3/14) identified three activities they currently enjoy; combined with those who listed two (10/14) activities, there was a total 93% response rate. 29% (4/14) identified three activities they would like to incorporate, and 79% (7/14) identified two activities (Figure 4).

Figure 4

*Physical Activities: Current and Wanting to Try*
Along with thinking about physical activity was nutrition. Identifying three new foods to try in the next month was a vital brainstorming question for participants as they thought about ways to improve healthy eating. The pre and post-test survey asked this question and totals combined. 84% (21/29) identified three foods, and an additional 16% (4/29) identified one or two foods to try (Figure 5). 75% of the objectives for Aim 4 were met.

Figure 5

New Healthy Foods to Try
Aim 5 looked at the post-evaluation obtainment of the participant's biometrics and perceived benefits from the program. Identifying two strengths, two weaknesses, and two ways to improve the program on the post-course survey were essential data elements for determining if the participants benefitted from this program. Eleven participants answered this question. Strengths identified: "the teachers, provided materials, referencing my culture, respecting my traditions, physical activity, and cardiac health, reducing sodium, amazing facilitators, the cookbook and physical chart with examples in class, flexibility, and adaptability, fun."

Weaknesses identified by the participants of the program included, "dumb down language, times inconvenient, questions are a bit difficult, hard to understand and follow, time on zoom might be too long, hard to participate online with the class, the content was hard to understand, more activities," and lastly suggestions for improving the program were "making the language easier, better zoom times, more time to learn about cholesterol, change the language into more mundane, easy to understand language, more classes on diabetes, use of common language, virtual language." During the one-month follow-up interview, 100% (14/14) of respondents felt that a promotora was a vital component of the program; this was a 20% increase over the goal. 38% (11/29) of participants completed post-program biometrics. Aim 5 was met.

Upon completion of the project, the promotoras reflected on their experiences with the program. The answers provided by the promotoras were combined and shared the same themes. The promotoras found the program's strengths to be the adaptability to the Hispanic culture and increased awareness of the difference in culinary needs—additionally, the recipe book and activities to engage the participants were valuable elements of the program. The next question focused on the weaknesses and challenges of the curriculum. The overall themes were that the context used medical terms unfamiliar to the participants. The promotoras had to use other words
to explain the content in a common language that the participants would understand—this required extra time in preparing the material to ensure participant comprehension of each lesson's concepts. The promotoras, while appreciating the cultural aspect of the program, found that it did not reflect a universal language to ensure comprehension. Another weakness and challenge of the program was the length of the surveys; the time it took and the words used in the surveys made it hard for participants with low literacy to comprehend. Suggested changes for future programming would be to preview the program better and engage the community about the program beforehand to increase participants. The verbal and written language should be changed to accommodate all literacy levels. Making these changes to normalize the language would take significant time.

Additionally, a simple pre and post-survey would allow for more complete responses by participants and less class time to complete. Throughout the work with the participants, the promotoras received feedback from students that they enjoyed the cooking demonstration and activities. The participants were overall grateful for the opportunity to access needed health education in a way adaptable to their daily lives and respectful to their cultural identity.

Unexpected challenges the promotoras shared included going from planned all-in-person program delivery to a virtual format that required extra planning time.

Lastly, the promotoras shared general thoughts of information they thought would be helpful moving forward.

"I want Kelly and other providers to continue holding spaces that affirm the cultural identity of our residents. We seldom find learning opportunities, especially health-related, that honor tradition and are responsive to specific communities. The program offered access to knowledge that otherwise would not have been able to be accessed in other ways. The future promotoras will need to be aware of common and not-so-common barriers of access as well as the underlying reality some communities experience and eliminate the barriers hindering their access to education and medical needs being met."

"This program offers a platform for larger conversations regarding medical and cultural
responsiveness from the systems at large. The 5% reflected in community data only shows the part of the community that can comfortably join the large society but misses all the other portions that, for whatever reason, remain in hiding. It is not our job to determine why or the reason "they" choose to remain removed moreso we are called to self-reflect and identify possible solutions to provide spaces that are safe and affirming to all residents in our county regardless of origin or documentation status.

The consensus was that overall, the program was good, but it could be better if the language had been more focused on those with low literacy; this was a theme among both participants and the promotoras.

Throughout the program, there was missing data. The program offered both in-person and virtually resulted in some biometrics not being collected at the beginning and end of the program. Asking participants to track fitness activity and turn in the completed log appeared futile in the program, with only two participants doing so. During the one-month post-phone call, contacting participants resulted in few people answering the phone to discuss the program. Participants were told during the last class to expect a one-month phone call from the promotoras.

Barriers

There were several barriers to this project. The biometrics were compared for four weeks, not providing significant time for biometric changes. Over ten weeks, the comparison would have allowed for more time to compare pre and post-biometrics. Additionally, not all program participants participated in the one-month post-program follow-up phone call activity.

Recruitment efforts were one of this project's most significant challenges and learning events. Initially, the program was designed for in-person, understanding that a backup plan due to COVID would require going virtual with the program. Offering classes in a hybrid format occurred when word of mouth, flyer distribution, and social media posts proved unsuccessful for in-person classes. Participant registration remained low despite utilizing every possible resource
to share about the upcoming program. Daily, the promotoras and this writer discussed how to recruit participants. The week before classes began, this writer connected with the pastor at the church for the Friday night location. He invited this writer to speak at the church service on Sunday. We also decided to speak with previously established Spanish-speaking wellness group members to seek their participation virtually. The virtual class was on Tuesday and Thursday, and the Friday group was in person with a few virtual participants.

The lessons learned from recruiting were that members of the Hispanic community were only willing to participate in this project if they knew the Promotora, were already connected to them or saw buy-in from a respected member of the community (in the case of the pastor at the Friday night class). Participants were not willing to attend in person. Hopefully, with the next PDSA cycle and as we move away from COVID times, more people will want to reunite in person.

Despite the social media presence, this was least effective in recruitment. Recruitment for upcoming programs may take hours to attend events and speaking engagements to educate community members about this program.

The next barrier was the health literacy level of the questionaries. The language (in Spanish) was often challenging for participants, and they needed clarification of the questions. The Promotoras could only do this. One example shared with this writer was that one participant did not know the word "diabetes," which was explained as "sugar in the blood," by the Promotora, which then made sense to the participant. The response of the health literacy level of the program reflected the use of the Plain Language Initiative (started in 1994) and the material review of subject matter experts and other NHLBI staff (NHLBI Center for Health Information, personal communication, March 28, 2022)

Ethical considerations
One ethical dilemma that could have arisen in the project was the mishandling of patient data—for participant comparison, knowing which post-test data went with what pre-test questionnaire was essential. All tools were kept by this writer and secured. The promotoras received participant names and numbers for the 1-month phone call. This writer de-identified the participant's surveys while entering the information into the Excel spreadsheet to use that information to compare and contrast with the pre and post-questionnaires.

Summary

In summary, there is overwhelming recognition of the importance of the role of the promotora in community wellness education programs. This finding further supported previous studies and projects which suggested the promotora to be a vital component of community wellness education within the Hispanic population. Additionally, the initial BMI of the participants who participated in the biometric screenings were overweight (n=8) and obese (n=11), and only three participants had normal BMIs. The BMIs provided additional support for this program and programs aimed at improving the self-management skills of Hispanics to reduce cardiovascular diseases.

One strength of the program was in the gender makeup of the participants. Five of the six studies described during the literature search had an overwhelming presence of female participants and little male representation. This program had a 21% male representation and was close to only one study with 27% male representation. This gender makeup for the program was an unexpected strength as the gender mix was more proportionate than in the majority of the studies previously. Another strength of this program was the support of the promotoras in helping recruit participants to the program. Both promotoras worked within their circles of influence and established relationships to recruit the participants. Community partnerships played a valuable role throughout this project. Partnerships helped gain funding for the program.
and advertise the project. The strength of this project that was of most value was the global and personal understanding of the challenges Hispanic community members face socially and in healthcare. This project was an eye-opening learning experience on the vast opportunities healthcare providers have to impact population health.

**Interpretation**

In reviewing the purpose of this project, "to provide cardiovascular disease education to the underserved Hispanic/Latino community of Washington County to increase their knowledge of cardiovascular diseases and self-management," the project was successful. A group of Hispanics gathered, educated, and found benefits of the program. While initially focused on cardiovascular disease, this program also had elements of diabetes prevention education. It ultimately focused on elements of education that would improve overall wellness, regardless of direct disease impact.

The results, generally, mirrored the studies referenced in this manuscript and those reviewed and not reflected in this manuscript. The results consistently showed promotoras to be essential and culture-influencing programs to be impactful for Hispanic community members. The challenging direct results of the program were due to a lack of post-program evaluations. However, there were enough positive elements from the program that led to similarities of success of other studies looking at elements presented in this program: nutrition, physical activity, promotora use, and literacy.

The impact of the project on people and systems was multifaceted. The project allowed this writer to deeply understand the Hispanic community and the challenges and obstacles they face, from access to care to fear for many reasons. This writer was able to dive deeply into the struggles of being a Hispanic living in our local community and country. This impact was huge on this writer but also allowed for growing conversations with others to understand this from a
social standpoint better—additionally, this project allowed for conversations to develop among community and healthcare stakeholders. Where there are challenges with providing care and services to the Hispanic community, this writer would hope that the impact of this project will be that healthcare influences change and redefine how we provide services and outreach to the Hispanic community and all minority populations in the local community.

The project met most outcomes as written; however, because of the lack of participants that participated in the post-program evaluation and one-month follow-up, the impact of the outcomes was less than expected. Reasons for this could have been the online format for those who participated that way, instead of in person. Community angst at the end of the pandemic may also have impacted these outcomes, not ready to gather or be fully committed to a program.

**Funding**

Funding for this project came from various organizations and in various forms. Meritus Health provided all the printing needs for recruitment flyers, assessment forms, participant handouts, and color-printed cookbooks for all participants and some of the items distributed throughout the program. Additionally, Meritus provided staff hours to assist with formatting program documents and brainstorming recruitment, project preceptors, and connections to employees willing to volunteer time for data analysis. Aetna provided water bottles and pedometers for all participants as one incentive for participating in the program. Bester Community of Hope provided staff to teach the program and a location for Promotora training of the curriculum and location for the Tuesday classes. The United Way of Washington County provided funding and networking of other community businesses to offset the costs of items in the "swag bag," which included River Bottom Coffee Roaster coffee 2.5 oz coffee bags for each participant and Brooke's House chocolates. We focused importance on using community
businesses for these items. There are costs associated with hosting this program if donations cannot be secured, in a full ten-week, in-person format. The costs to a healthcare organization or community organization would be minimal compared to the amount of money saved by participants improving their nutrition and physical activity to decrease disease care costs of cardiovascular diseases and diabetes.

**Limitations and Recommendations**

The limitation of this project was that it occurred in one community. The need for this programming in this community cannot be generalized to the needs of other communities. Additionally, the challenges with engaging the Hispanic community in this community may not be the same in other communities. The project challenges were also possibly related to the COVID pandemic for participation. These challenges may not be the same in other communities or even this community. Factors that might have been limiting throughout the project are measurement tools, surveys, biometric data, program length, and program delivery method.

Additionally, the objectives of the program did not fully correlate to the goal of assessing the program itself, but more so the learning that took place with the participants. Efforts to seek participation in the program using many social media streams and networking connections were challenging. The survey was used with limited adjustments to keep it the same as in the program manual; however, this was one of the challenges of the survey tool. Lastly, a recommendation would be to send out mail or email reminders to participants the week before the one-month follow-up phone calls to remind them they would be getting them.

**Conclusions**

This project validated that promotoras are essential to educational offerings within the Hispanic population. Additionally, a program valuing culture in program delivery and education
was further validated. This project provided a basis for utilizing this program with modifications or creating a program that focuses on the importance of culture in educating populations on health topics. The sustainability of the continuation of this program in this community will rely heavily on the ability of the lead agency presenting this program to recruit participants to the program. Sustainability will be dependent upon community member buy-in of the program, physician recommendation for the program, and funding for the program. This program validated the importance of culturally focused programming. This idea offers future programming for additional populations such as Ukraine refugees and growing minority populations within a community. Implications for practice gained from this project include the importance of culture-centered education for community participants and other minority cultures.

Additionally, studies should focus on the impact of culture as a means of connecting healthcare goals and initiatives to community members. The use of promotoras has been an essential aspect of this project and other studies. Future recommendations are to utilize promotoras in physician practices and community clinics to facilitate healthy behaviors and understanding disease prevention among underserved and underrepresented populations. Suggested next steps include adjusting the program's wording for a lower health literacy level, leading the program in person, and offering the entire 10-week program to assess improvements in healthy behaviors and knowledge improvement. Additionally, the following steps should include strengthening community partnerships and decreasing the survey lengths.
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Appendix

**Data Management Table**

**Improving Measurements and Self-Management Skills of Cardiovascular Disease by Incorporating a Healthy Lifestyle in Hispanic adults: A Promotoras Lead Program**

**Data Management Plan**

<table>
<thead>
<tr>
<th>Aim/Objectives</th>
<th>Project Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establish baseline biometric data for the Hispanic population program participants in Washington County, MD, and surrounding areas</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
<th>Type</th>
<th>Source</th>
<th>Timeline</th>
<th>Analysis</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record and document baseline weight, height, waist circumference, and body mass index (BMI)</td>
<td>Quantitative</td>
<td>Project biometric reading</td>
<td>During week one of the program</td>
<td># of height, weight, and BMI obtained</td>
<td>Baseline biometric chart</td>
</tr>
<tr>
<td>1.1 Accurately measure systolic and diastolic blood pressure readings</td>
<td>Quantitative</td>
<td>Project biometric reading</td>
<td>During week one of the program</td>
<td># of blood pressures obtained</td>
<td>Baseline biometric chart</td>
</tr>
<tr>
<td>1.2 Accurately measure and record resting heart rate</td>
<td>Quantitative</td>
<td>Project biometric reading</td>
<td>During week one of the program</td>
<td># of heart rates obtained</td>
<td>Baseline biometric chart</td>
</tr>
<tr>
<td>1.3 Accurately measure one random blood glucose</td>
<td>Quantitative</td>
<td>Project biometric reading</td>
<td>During week one</td>
<td># of random blood glucose readings</td>
<td>Baseline biometric chart</td>
</tr>
</tbody>
</table>
Establish weekly Promotora-led educational sessions

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Type</th>
<th>Source</th>
<th>Timeline</th>
<th>Analysis</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Participant attendance will be at 90% or greater for three or more of the classes</td>
<td>Quantitative</td>
<td>Attendance spreadsheet</td>
<td>Weekly recording</td>
<td>% of participants attending greater than three or more classes</td>
<td>Pie Chart</td>
</tr>
<tr>
<td></td>
<td>Participants will state three reasons why a healthy weight and blood pressure are important in cardiovascular health</td>
<td>Qualitative and quantitative</td>
<td>Pre and post questionnaire</td>
<td>Week one and week four questionnaires</td>
<td># of participants able to state three reasons on pre and post and record statements</td>
<td>Word cloud based on themes and bar graph for comparison</td>
</tr>
<tr>
<td>2.2</td>
<td>Participants will state if their blood pressure is normal, pre-hypertensive, or high</td>
<td>Quantitative</td>
<td>Pre and post questionnaire</td>
<td>Week one and week four questionnaires</td>
<td># of participants accurate during week one and week four</td>
<td>Bar graph</td>
</tr>
<tr>
<td></td>
<td>Participants will be able to identify if their weight is normal, overweight, or obese</td>
<td>Quantitative</td>
<td>Pre and post questionnaire</td>
<td>Week one and week four questionnaires</td>
<td># of participants accurate during week one and week four</td>
<td>Bar graph</td>
</tr>
<tr>
<td>2.4</td>
<td>Participants will establish at least one weight-related goal to work on by one-month post-program</td>
<td>Quantitative</td>
<td>Pre and post questionnaire</td>
<td>Week four</td>
<td># of participants listing a one-month goal</td>
<td>Data table</td>
</tr>
<tr>
<td>2.5</td>
<td></td>
<td>Qualitative</td>
<td>Post questionnaire</td>
<td>Week four</td>
<td></td>
<td></td>
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</tbody>
</table>
### Improve diabetes knowledge among program participants

<table>
<thead>
<tr>
<th>Description</th>
<th>Type</th>
<th>Source</th>
<th>Timeline</th>
<th>Analysis</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants will be able to identify three symptoms of diabetes</td>
<td>Quantitative</td>
<td>Pre and post questionnaire</td>
<td>Week one and week four questionnaires</td>
<td># of participants accurate during week one and week four</td>
<td>Word cloud based on themes and bar graph for comparison</td>
</tr>
<tr>
<td>Participants will be able to identify three medical complications as a result of having diabetes</td>
<td>Quantitative</td>
<td>Pre and post questionnaire</td>
<td>Week one and week four questionnaires</td>
<td># of participants accurate during week one and week four</td>
<td>Word cloud based on themes and bar graph for comparison</td>
</tr>
<tr>
<td>Participants will be able to identify a fasting glucose level as normal, pre-diabetic, or diabetic</td>
<td>Quantitative</td>
<td>Pre and post questionnaire</td>
<td>Week one and week four questionnaires</td>
<td># of participants accurate during week one and week four</td>
<td>Bar graph comparing week one and week four</td>
</tr>
</tbody>
</table>

### Improve physical activity and healthy eating habits among program participants

<table>
<thead>
<tr>
<th>Description</th>
<th>Type</th>
<th>Source</th>
<th>Timeline</th>
<th>Analysis</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants' physical activity will increase from week two to week four by 10 minutes a day on five of seven days of the week in 75% of participants</td>
<td>Quantitative</td>
<td>Physical activity log</td>
<td>Collect from participants during week four</td>
<td># of participants who increased on five of seven days</td>
<td>Bar graph</td>
</tr>
</tbody>
</table>
### 4.2 Participants will be able to make a list of three physical activities they enjoy and two they wish to incorporate into their lifestyle each day

<table>
<thead>
<tr>
<th>Description</th>
<th>Type</th>
<th>Source</th>
<th>Timeline</th>
<th>Analysis</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantitative and qualitative post questionnaire</td>
<td></td>
<td></td>
<td>Week four</td>
<td></td>
<td></td>
</tr>
<tr>
<td># of participants who stated three physical activities they enjoy and two they wish to incorporate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Word cloud for enjoy and word cloud for wanting to add and pie chart showing # of participants who answered this question fully

### 4.3 Participants will identify three new healthy foods they plan to try in the next month

<table>
<thead>
<tr>
<th>Description</th>
<th>Type</th>
<th>Source</th>
<th>Timeline</th>
<th>Analysis</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantitative and qualitative post questionnaire</td>
<td></td>
<td></td>
<td>Week four</td>
<td></td>
<td></td>
</tr>
<tr>
<td># of participants who stated three foods and what those foods were</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Evaluate participant's biometrics and perception of benefits from the program
### Improving Measurements and Self-Management Skills

**5.1** Administer a post-course survey of the Promotora led program to document two strengths, two weaknesses, and two knowledge needs identified through teaching the program. Table showing each section: strengths, weaknesses, and needs along with what was said by participants.

<table>
<thead>
<tr>
<th>Quantitative and Qualitative</th>
<th>Post Questionnaire</th>
<th>Week Four of the Program</th>
</tr>
</thead>
<tbody>
<tr>
<td># of participants who answered each part completely, thematic analysis of each part of the question</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**5.2** Administer a post-course survey that will demonstrate that 80% of participants found the Promotora to be a vital component of the program. Pie Chart for the importance of promotoras.

<table>
<thead>
<tr>
<th>Quantitative</th>
<th>Post Questionnaire</th>
<th>Week Four of the Program</th>
</tr>
</thead>
<tbody>
<tr>
<td># of participants who concurred with this statement</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**5.3** Measure post-course biometrics (height, weight, waist circumference, BMI, and random glucose reading) compared to baseline. Table showing a comparison.

<table>
<thead>
<tr>
<th>Quantitative</th>
<th>Post Questionnaire</th>
<th>Week Four of the Program</th>
</tr>
</thead>
<tbody>
<tr>
<td># of participants who had post-biometric completed and compared to pre-program biometric readings</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>