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Implementing a Culturally Sensitive Intervention for Haitian Patients Non-Adhering to Hypertensive Medications

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IMPLEMENTING A CULTURALLY SENSITIVE INTERVENTION FOR HAITIAN PATIENTS NON-ADHERING TO HYPERTENSIVE MEDICATIONS

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This project, written by Guilaine Gabriel-Percinthe under direction of Dr. Nicole Laing, Project Chair, and approved by members of the project committee, has been presented and accepted in partial fulfillment of requirements for the degree of

DOCTOR OF NURSING PRACTICE

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Certification

We hereby certify that this capstone project, submitted by Guilaine Gabriel-Percinthe, conforms to acceptable standards and is fully adequate in scope and quality to fulfill the project requirement for the Doctor of Nursing Practice degree.

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Abstract

Background: The pervasiveness of hypertension (HTN), morbidity, and mortality in Haitians immigrants are frightening. Nonadherence with hypertensive medications, disease management, lifestyle modifications, and cultural and spiritual beliefs, including prayer; faith healing; use of herbal teas; and a diet that is deficient in potassium, rich in sodium, high in fat, cholesterol, and carbohydrates result in increased prevalence of HTN and disability in the Haitian community.

Purpose: The purpose of this quality improvement project was to examine the existing system for adherence to hypertensive medications, standardized clinical practice guidelines, identify patients at risk for nonadherence to hypertensive medications, disease management, medical follow-up, and incorporate standardized clinical guidelines into existing medical practice at a primary care office.

Theoretical Framework: Theory of transnationalism was used. The transnationalism theoretical framework presents the impact of migration and transnational activities on the health of immigrants.

Methods: The mixed model research with exploratory design was used.

Results: The implementation of the resource guide was effective as evidenced by improved blood pressure readings and increase adherence to hypertensive medications as well as follow-up appointments.

Conclusion: The prevalence of HTN in Haitian immigrants necessitate a different approach to health care delivery. Health care providers need to be aware of Haitian culture to deliver culturally competent care to improve health outcomes in Haitian immigrants.

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Chapter 1: Nature of Project and Problem Identification

Hypertension (HTN) is labeled a silent killer. Evidence showed that noncompliance with hypertensive medications and inefficient disease management result in increased morbidity and mortality (Yoon, Gillespie, George, & Wall, 2012). HTN is a notable causative factor for cardiovascular disease. Data from the World Health Organization (WHO, 2013) showed that there were 18% of deaths reported with 51% of those deaths related to cerebral vascular accident (CVA), 45% of ischemic heart disease, and 7% of disabilities worldwide are associated with HTN.

Natural Disease History and Background of Hypertension

HTN is a chronic disease that can be traced to Indian Ayurvedic and Chinese medicine (Saklayen & Deshpande, 2016). In ancient Chinese and Ayurvedic medicine, HTN was described as a hard a pulse until 1628 when William Harvey proposed the theory of circulation and explicitly stated that the hard pulse was a pressure wave originating from the heart (Cameron & Hicks, 1996). The probability that increase arterial pressure could result in cardiovascular damage was common knowledge without adequate scientific evidence until the invention of the ophthalmoscope and the ensuing integration of the ophthalmoscope in clinical practice, which enables physicians to perform ocular exam to detect ocular changes due to HTN (Cameron & Hicks, 1996).

Doctor Frederick Akbar Mahomed described the term for the disease presently know as essential HTN in the 19th century as well as the deleterious consequences of the disease. Dr. Akbar Mohamed suggested it is possible for healthy individuals to have high arterial blood pressure (HABP); the incidence HABP increase with age; and HABP may

result in heart, brain, and renal damage (Cameron & Hicks, 1996; Saklayen & Deshpande, 2016). In addition, Dr. Akbar Mohamed identified and described the three stages of HTN as follow. Stage one was described as the functional stage in which arterial blood pressure is elevated without renal or cardiovascular damage, stage two as elevated arterial blood pressure with chronic renal and cardiovascular changes, and stage three as chronic elevation of arterial blood pressure with cardiovascular disease and albuminuria with acute or chronic nephritis (Cameron & Hicks, 1996).

The importance of arterial blood pressure (ABP) measurement was evident. However, the inability to have an accurate device to measure ABP was a problem for health providers until 1905 when Dr. Korotkoff advised health professional to place a stethoscope in the antecubital area below the Riva-Rocci cuff to record systolic and diastolic blood pressure (Booth, 1977). From 1940 to 1970, HTN remained untreated as many physicians disagreed on the morbidity and mortality associated with HTN. The discovery of hypertensive medications in 1960 did not improve medical management of HTH because health providers remained skeptical of their use until 1977 when results from numerous clinical trials confirmed the dangers of untreated HTN and the benefits and efficacy of hypertensive medications (Moser, 2006). Consequently, the first recommendations about HTN management from the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC1) was published (Moser, 2006).

In the 21st century, HTN is clearly defined with numerous clinical management guidelines from various professional organizations and governmental health agencies for target blood pressure control for patients with diabetes mellitus (DM), chronic kidney

disease (CKD), heart failure, and secondary stroke prevention (Whelton et al., 2017). In addition, patient education, prevention, early diagnosis, and treatment to prevent end target organ damage (TOD) are key elements of for effective management of HTN in the 21st century (Saklayen & Deshpande, 2016; Whelton et al., 2017).

Economic Burden of Hypertension

Ischemic heart disease and stroke are the number one and two leading cause of death, respectively, and 80% of those death occur in low- and middle-income countries (WHO, 2013). The global cost of HTN is estimated to be $370 billion annually with an annual $100 billion in savings with effective management of HTN (Frieden & Jaffe, 2018). In addition, 2% to 4% of gross national income in low- and middle-income countries (LIMC) are spent on CVD. The economic burden of HTN in the United States (US) is higher than any other disease. It estimated that health care services, medications, absenteeism, and employers cost associated with HTN was $48.6 billion, and the cost of HTN is projected to increase to $274 billion in 2030 (Mozaffarian et al., 2016).

Disease Patterns, Dynamics, and Analysis

There is no explicit cause of HTN. A combination of environmental and genetic factors is postulated for the disease. Numerous modifiable and non-modifiable risks factors for HTN are evidenced in the literature. Stress; smoking; alcohol abuse; obesity; excessive salt intake; and inadequate dietary intake of calcium, magnesium, and potassium are amenable risk factors associated with primary HTN in addition to the unchanging risks factors of age, race, ethnicity, gender, and family history. Secondary HTN can occur as a result of primary diseases and or medications that increase cardiac output or peripheral vascular resistance. Secondary HTN is less common than primary

HTN and occurs in individual younger than 30 or older than 50 years of age with a sudden onset blood pressure (BP) of 180/110 mm Hg or higher, and significant target organ damage (TOD) at diagnosis (Dunphy, Winland-Brown, Porter, & Thomas, 2015).

HTN can be described as malignant HTN (MHTN), masked HTN, or white coat HTN (WCH). Also known as a hypertensive emergency, MHTN is defined as BP higher than 180/110 mm Hg with acute TOD that frequently includes cardiac, neurologic, and renal manifestations. MHTN BP is normal in the office and consistently elevated at home. Conversely, in WCH, blood pressure is elevated in the office setting while BP is normal at home.

Globally, the prevalence of HTN has shifted from high-income countries (HIC) to LIMC with limited resources. Analysis of disease pattern has confirmed that obesity increased the risk of HTN. Evidence showed that HTN, dyslipidemia, and insulin resistance, which make up the metabolic syndrome triad, are often found together (Dunphy et al., 2015; Mozaffarian et al., 2016; Whelton et al., 2017; WHO, 2013; Zhou et al., 2017). Obesity is rapidly increasing in Asia and evidence showed that 15% of the world's obesity reside in China and India, followed by the United States at 13% (Ng et al., 2014). Data from the International Diabetes Federation (IDF) showed that China has the highest rate of diabetes in the world with 142.7 million cases of diabetes, followed by India 109 million, and the United States with 29.7 million, resulting in a high rate of HTN in the Asian continent (Guariguata et al., 2014).

Data from the US was used to confirm that HTN is more prevalent in the Southern US with the highest prevalence in West Virginia (WV) at 42.7%, Mississippi (MS) 42.4%, Alabama (AL) 40.4% (Trust for America's Health and the Robert Wood

Johnson Foundation [TAH & RWJF], 2015). The states with the highest rate of HTN also have the highest rate of obesity (TAH & RWJF, 2016). Obesity is increasing in Haiti, and Haitian women tend to be heavier than men. Kenerson (2014) showed that Haitians are physically active, and only 3.2% Haitians had an excess body mass index (BMI) with a prevalence for diabetes estimated at 7.2%. Haitian immigrants in Miami showed increased BMI, 88% rate of HTN, and 33% prevalence of diabetes (Rosen, Sharpe, Rosen, Doddard, & Abad, 2007; Vimalanandqa, Rosenzweig, Cabral, David, & Lasser, 2011).

The Global Challenge of Hypertension

HTN is a principal contributing factor of cardiovascular disease, renal disease, most common reason for seeking medical care, and most common use of prescription medications (Merai et al., 2016; WHO, 2013; Zhou et al., 2017). Data showed that the number of adults with HTN increased around the world from 594 million in 1975 to 1.13 billion in 2015, consisting of 529 million women and 597 million men (Zhou et al., 2017). Evidence showed that nearly half of the hypertensive adults in the world are in Asia. Worldwide, more than 18 million deaths or one third of global deaths are from CVD with 10 million of those deaths from HTN and 57 million disabilities (Frieden & Jaffe, 2018; WHO, 2018).

Data from the US showed that 32.6% of the U.S. adult population older than 20 years of age have HTN, one out of every three Americans have prehypertension (PHTN), and one out every five adults are unaware of having HTN (Centers for Disease Control and Prevention [CDC], n.d.; Mozaffarian et al., 2016). HTN is more prevalent in the US with the highest prevalence in West Virginia (WV) at 42.7%, Mississippi (MS) 42.4%,

Alabama (AL) 40.4%, and the lowest prevalence in Utah at 23.6% (TAH & RWJF, 2015). Consequently, the death rate and the number of deaths associated with HTN have increased to 8.2% and 34.7%, respectively (Mozaffarian et al., 2016). Data from the CDC showed that more than 410, 000 Americans died each year from HTN or more than 1,100 deaths each day (CDC, n.d.). African-Americans have the highest incidence of HTN (Mozaffarian et al., 2016). The rate of HTN is significantly higher in African-American women at 45.7 % and African-American males at 43% (CDC, n.d.).

Moreover, the prevalence of HTN and the concomitant complications associated with the disease, blood pressure control is inadequate in most hypertensive patients. Furthermore, HTN is a significant health problem for patients of African descent and Afro-Caribbean individuals like Haitian immigrants are at an increased risk of HTN and the deleterious effects associated with the disease.

Compared with Caucasians, patients of African descent with prehypertension tend to progress to HTN more quickly. Thus, HTN has a propensity to manifest earlier in life and is more severe in Black patients. Consequently, the pervasiveness and the rate of renal and cardiovascular complications as well as the risk of stroke are higher in Blacks than any other ethnic group (Egan, 2016). There is evidence that individuals of African ancestry have an increased risk of sodium sensitive HTN and low renin levels, resulting in low renin HTN as evidenced by low serum potassium levels (Kenerson, 2014; Rayner & Spence, 2017). Furthermore, hypertensive patients of African ancestry tend to retain sodium, which leads to water retention resulting in increased incidence of resistant hypertension and target organ damage (Rayner & Spence, 2017).

The affliction of HTN is extensive in geographical regions where resources are scarce. The commonness and the morbidity associated with HTN in Blacks from the Caribbean nations are even worse. It is estimated that one half of the Caribbean population age 60 and older have high blood pressure (Bidulescu et al., 2015). HTN is a major health crisis as well as a leading cause of death and disabilities in the Caribbean and Afro-Caribbean immigrants residing in the United States (Bidulescu et al., 2015).

As Haitians immigrate to the US, their risk for HTN does not decrease. Haitians are the second largest group of French speaking Afro-Caribbean immigrants in the United States and are at increased risk of developing HTN. The prevalence and extensiveness of HTN in Haiti is alarming. The occurrence of HTN is 67.2% of men and 69.1% of Haitian women 40 years of age and older who have HTN with an average age of 43 years at time of diagnosis (Jean-Charles, 2016; Mangat et al., 2015). The prevalence of HTN in Haitian women of reproductive age results in a high rate of eclampsia, maternal death, and fetal demise (Pierce et al., 2014).

HTN is the leading cause of cerebral vascular infarction of small vessels, cerebral vascular accident, and heart failure in Haitians (Sanon, 2013). Haiti has the highest rate of stroke in North America at 176/100,000 and is the seventh highest rate of stroke in the world at 180.6/100,000 and a 20% death rate from HTN. Thus, as Haitians populate the United States, HTN and the negative outcomes associated with the disease become more apparent (Sanon, 2013). Data from Miami show that Haitian immigrants have an 88% rate of HTN (Mazzeo, 2013). Compared with African-Americans, Haitians immigrants have the highest rate of HTN, they are most likely to have untreated HTN, and Haitian women are most likely to have low birth weight babies (Park & Jang, 2015).

Nonadherence to hypertensive medications, disease management, lifestyle modifications, and cultural and spiritual beliefs, such as prayer; faith healing; use of herbal teas; and a diet that is low in potassium, high in sodium, high in fat, high in cholesterol, and high in carbohydrates results in increased incidence of HTN, deaths, and disabilities in Haitian immigrants. Therefore, it is imperative that health providers be well-informed about the risk and causative factors of HTN in this immigrant group as well as cultural practices contributing to the high incidence of HTN in Haitians.

Problem Statement

Currently, more than 50% of Haitians immigrants diagnosed with HTN do not adhere to hypertensive medication regimen at a primary care center.

Purpose Statement

The purpose of this quality improvement project was to examine the existing system for adherence to hypertensive medications, standardized clinical guidelines, identify patient at risk for nonadherence to hypertensive medications, disease management, medical follow-up, and incorporate standardized clinical guidelines into existing clinal practice at a primary care office.

Project Objectives

The following were the objectives of the Doctor of Nursing Practice (DNP) quality improvement project (QIP):

1. Examine the existing system for adherence to hypertensive medications and medical follow-up 1 week after approval from the Nova Southeastern University Institutional Review Board (NSUIRB).

2. Create a resource guide (RG) for hypertensive patients, providers with patients non-adhered to hypertensive regimen, and standardized clinical practice guidelines to medical follow-up and adherence to hypertensive medications at Week 3.
3. Implement standardized clinical guidelines and the RG into existing medical practice.
4. Evaluate the effectiveness of the RG. Re-evaluate patient adherence to medications, disease management, and medical follow-up through a prospective chart review 3 weeks after implementation of the DNPQI project.

Theoretical Foundation

The theoretical framework used to guide the DNPQI project was the global social theory of theory of transnationalism. The transnationalism theoretical framework is used to encourage cultural diversity and to emphasize the effects of transborder behaviors on health. According to Rosemberg, Boutain, and Mohammed (2016), the theory is helpful to broaden nursing science through evidence-based research in care delivery, quality and health outcomes, health promotion, prevention of diseases, and disease management, and identifying cultural factors contributing to nonadherence to medical treatment and hypertensive medications.

Explanation of the Framework

The transnationalism theory has addressed the impact of migration on health in addition to the financial, spiritual, and social impact on immigrants and their families. Based on the transnationalism theory, immigrants with transnational ties to their country of origin are called transmigrants, and the term social field is used to describe the

numerous networks and social relationships transmigrants used to share their ideas and maintain a strong relation with country of origin (Sanon, Mohammed, & McCullagh, 2014).

Transmigrants used their social relationship and networking skills to stay abreast of the news in both their native and adopted country. Transmigrants requested medications, foods, and other cultural items from their native country and send money and other goods to their country regularly also known as remittance to support their relatives. Oftentimes remittance is the only source of income for the transmigrant family. Consequently, the family dynamics have changed, resulting in a transnational family because the transmigrant is able to successfully maintain familial relationship across geographical distances (Sinatti, 2014).

Structure

The transnationalism theoretical framework is based on six fundamental ideas: (a) social concepts and culture may restrict research from recognition and understanding prior to the investigation of the experience of transnationalism; (b) transmigrant experiences are correlated with worldwide capitalism and must be investigated in a global context; (c) transnationalism is grounded in the lives, activities, and social connection of immigrants; (d) transmigrants live multifaceted and complicated lives that compel them to face challenges by altering their ethnic, racial, and national identities; (e) the challenging lives of transmigrants compel society to reconceptualize the different characteristics of transnationalism to increase understanding of social class and culture; (f) transmigrants encounter and deal with national and global issues that influence

cultural hegemony and contribute to restructuring of cultural hegemony through resistance (Schiller, Basch, & Blanc-Szanton, 1992).

Process

The processes of the transnationalism framework were focused on the transnational activities of Haitian transmigrants residing in the US and their country of origin. In addition, these processes had a significant impact on health beliefs and adherence to medications, disease management, and health maintenance. Transmigrants opted to keep their cultural identities and cultural practices while integrating American cultural values and system to enrich their lives. Technological advances have destroyed geographical boundaries, resulting in the transnational movement in which individuals are able to travel back and forth between their country of origin and their adoptive county.

The commonness of cellular phones, improved communication technologies, and social media applications, such as Facebook, WhatsApp, and Imo, have allowed instantaneous communications to take place, sharing of medical advice, request for natural remedies, and purchase of medications are made easier. Thus, immigrants no longer felt the need to abandon their cultural values, belief systems, and language to embrace the American life. Money was another significant process of the transnationalism framework. Remittance was used for transmigrants to financially support their families. Consequently, transmigrants are in a powerful financial position in their families, which facilitates and contributes to non-adherence because family members do not want to upset their leader/provider. Using the transnationalism theoretical framework has enabled health providers to identify specific transnational

activities, contributing to non-adherence and develop effective strategies to address nonadherence.

Outcomes

The outcomes were positive or negative based on the identified causative transnational activities or challenges. In addition, transitional barriers to adherence were identified and patient care individualized because all transmigrants did not have the same problems. The DNPQI project affected nursing practice in a significant way by increasing knowledge and understanding of cultural factors that promotes nonadherence, dietary practices, and cultural beliefs. Furthermore, the DNPQI project improved nursing practice by empowering nurses to provide culturally competent care. The impact on health care outcome was evident by increase adherence to hypertensive medications. Health care was delivered in a culturally sensitive and congruent manner. Health care policy was changed to reflect the cultural needs of Haitian patients at the primary care clinic because Haitian culture itself was the biggest contributing factor to non-adherence.

Application of Theory

The theory of transnationalism identified transnational beliefs, challenges, and activities that promoted and contributed to nonadherence. The transnationalism theoretical framework was useful in the quality improvement project on HTN management for the following reasons:

1. Haitians are strongly attached to their homeland, cultural values, and practices, which affected the management of HTN in the Haitian population. Secondly, many Haitian believed that HTN is related to the stress of the fast-paced American life, and all the bills that must be payed to live in the US

2. Many Haitians reported decreased stress levels and normal blood pressure when living in Haiti. Conversely, many Haitians reported uncontrolled BP requiring three or more medications for adequate BP control when residing in the US due to increase stress. Consequently, many Haitians have decided to spend half of the year in Haiti without taking any medication or keep up with their medical appointments unless necessary.
3. The transfer of funds and other goods to families back in Haiti have a significant impact on the health of many Haitians. Many immigrants worked two jobs or overtime to meet the financial needs of their family in Haiti. In addition, the perpetual transfer of money prevents transmigrants from going to their medical appointments and purchasing medications because the money intended for medical care is spent on relatives in Haiti (Sanon, 2013).
4. Haitian immigrants believed in herbalism and assumed the American health system as way to enrich physicians and pharmaceutical companies. Thus, the erroneous belief that health care providers were making people sick and giving them diseases. As a result, many Haitians used traditional Haitian herbal medications and various homemade remedies to manage diseases like HTN, heart failure, diabetes, and asthma (Sanon et al., 2014). Haitians immigrants obtained these medications and herbs from Haiti and brought them to the US or purchased them at Haitian own supermarkets and other Caribbean stores.

Immigrants no longer feel isolated from their country of origin. Technology has allowed immigrants to stay abreast of the news in their country and maintained social

relationships across geographical barriers. Thus, understanding and incorporating the transnationalism framework in this evidence-based QI project was used to enhance understanding of Haitian cultural practices, health behaviors, and transnational activities contributing to nonadherence to hypertensive therapy.

Significance of the Project

The DNPQIP has assisted health providers when screening patients for use of alternative medications as well as identifying patient at risk for non-adherence. In addition, the RG has helped patients identify places where medical services are provided for free or at reduced cost and educated hypertensive Haitians about the importance of HTN management as well as the deleterious effects of untreated and uncontrolled HTN.

Nursing Practice

This RG has supported health providers as well as patients. The implementation of the DNPQIP has changed the way HTN is manage in Haitians immigrants and may increase adherence to hypertensive medications. Hypertensive patients were assessed for cultural practices, such as folkloric medicine, herbs, and other complementary therapies, utilized in the management of HTN at time of diagnosis. Patients at risk for noncompliance were identified for appropriate education, dietary management, and understanding of medications.

Hypertensive participants were instructed to monitor their BP daily and at least 1 to 2 weeks prior to their appointment. Patients have learned to take their blood pressure in the morning as soon as they wake up and at bedtime for optimal medical management. This method has allowed providers to review the need to either decrease medications, increase medications, or keep the medications dosage the same based on data provided by

the patients. This protocol has enabled the patients to play an active role in their care, promote medication adherence, and increased understanding the importance of medications in hypertensive management.

Health Care Outcomes

The outcomes of this project have affected health care outcomes by improving adherence to hypertensive medications in Haitian immigrants. Improving adherence to hypertensive medications has significantly decrease the negative health outcomes associated with nonadherence. In addition, simplifying the treatment and decreasing the number of pills that must be taken by utilizing medication combinations have improved adherence (Potthoff & Vonend, 2017).

Using the mnemonic SIMPSE that stands for (a) Simplifying medication regimen, (b) Information on disease process, (c) Modifying patient attitude and beliefs, (d) Patient provider communication, (e) Letting go of bias, and (f) Evaluating for Non-adherence using the Morisky Eight-Item Medication Adherence Scale (MMAS). Taking multiple medications is worrisome to many Haitians because they associate the number of pills they take to the severity of their illness. Therefore, simplifying treatment regimens has increased understanding and cooperation between Haitian patients and their health providers.

Health Care Delivery

The impact of the DNPQIP quality on health care delivery was significant because health care was delivered using a multidisciplinary approach in conjunction with the chronic care model (CCM). CCM is a patient-focused, population, and evidenced-based approach to improve health care quality and delivery. When used appropriately and

effectively, CCM will integrate preventive health measures and disease management to reduce morbidity, mortality, and complications associated with HTN, and improve treatment outcomes and coordination of care, increased competence of primary care providers, and encourage patients to take an active role in their care (Patel et al., 2016).

HTN management was done according to establish clinical guidelines. Providing cultural congruent care is crucial for effective health care delivery. Most of the patients at the primary care office were uninsured, had a low socioeconomic status, and were unable to afford their hypertensive medications. A list of effective and affordable medications from pharmacies in the surrounding area was created to help the provider at this office as well as the patients. In addition, a list of free preventative services was created to help patients with their medical needs.

Health Care Policy

Adherence to hypertensive medications to maintain target blood pressure is essential to prevent target organ damage and minimize the negative outcomes associated with HTN, which is a challenge at this primary care office. Effective control of HTN and maintaining target blood pressure necessitates judicious medication and blood pressure monitoring as well monitoring patients for noncompliance and adverse side effects from hypertensive medications. The impact of the DNPQIP has established guidelines for disease management in newly diagnosed and existing hypertensive patients. Newly diagnosed patients were seen at the office 2 weeks after initiating hypertensive medication, then 1 month later until BP is stabilized, then ultimately every 3 months. Patients would be educated on the dangers of HTN, diet, the role and importance of

lifestyle modifications in HTN management, and the importance of home blood pressure monitoring.

Patients were instructed to take their blood pressure at home in the morning before getting out of bed and before going to bed 2 weeks prior to their next appointment and brought the journal to the office. This method has provided data that health providers used to monitor patient's response to therapy and titrate medications as necessary. This approach has increase health expense as it requires patients to make more frequent visit to the office until blood pressure is controlled.

Summary

Hypertension is a chronic disease described as a silent killer because most individuals with HTN are often asymptomatic. The prevalence, morbidity, and mortality of HTN in Haitian immigrants in the US were exacerbated by nonadherence to hypertensive medications as well as cultural beliefs and health practices in addition to transnational activities of Haitian transmigrants.

The distrust of many Haitians in the American health care system resulted in Haitians transmigrants using herbal remedies to manage HTN rather than traditional hypertensive medications. Consequently, Haitians have the worse negative outcomes of high blood pressure because of nonadherence to hypertensive medications and uncontrolled HTN (Egan, 2016). Effective HTN management in Haitians necessitated a different approach to health care that included an understanding of Haitians health beliefs and cultural practices.

Chapter 2

Review of the Literature

Hypertension is a worldwide health challenge, affecting nearly 1.4 billion individuals around the world (Mills et al., 2016). It is estimated that 80 million individuals in the US are diagnosed with HTN, creating a $46 billion financial burden for health care services provided to patients with HTN, including lost wages due to HTN-related illnesses (Merai et al., 2016; Mozaffarian et al., 2016).

HTN is a serious problem for patients of African descent. Data from the World Health Organization showed that the African continent has the highest rate of HTN at 46% (Mangat et al., 2015; WHO, 2013). In the US, the HTN rate is highest among African Americans at 41% and 44% for men and women, respectively. The incidence and the devastating consequences of HTN in individuals of African ancestry are difficult to control due to factors associated with race, cultural beliefs, and access to quality care.

Search of the Literature

A thorough investigation of the literature for information related to HTN in Haitian immigrants was completed using the Ulrich Periodical Directory, Cumulative Index to Nursing and Allied Health Literature (CINAHL), MEDLINE, and PubMed from the National Library of Medicine, using Medical Subject Headings terms. Inclusion criteria for the search were English and French languages, article publication dates from 2013 to 2018, adult age group, and peer-reviewed.

The principal keywords used during the literature exploration were Haitian Americans, Haitian immigrants, medication adherence, herbalism, and hypertension.

Grouping of these terms using the Boolean operator AND were performed in Ulrich, CINAHL, PubMed, and Medline databases. The initial search yielded over 44,000 studies about HTN, and 19 studies when the word Haitian was included. A total of 15 articles were selected for review, and seven articles were chosen after careful evaluation and relevance of the information to the DNP project. The publication date of 5 years restricted the number of articles selected for the review.

There is a paucity of literature about management of Haitian patients with HTN, cultural belief about HTN, and adherence to hypertensive regimen. Seven articles were selected for the literature review. Out of the seven articles chosen for this review, four of the articles had a contributor of Haitian descent. For four out of the seven articles, the lead researcher was Haitian and was fluent in reading and writing Haitian Creole. Concepts that must be considered for this potential DNP projects are lack of knowledge about HTN and hypertensive medications, cultural and spiritual practices that leads to nonadherence, type of employment, health literacy, and the impact of transnationalism on HTN management.

Lack of Knowledge about HTN and Hypertensive Medications

Appraisal of the literature showed that Haitians have a high risk for HTN, and Haitians do not have sufficient knowledge about hypertension and the role of hypertensive medications in HTN management (Kelch, Wehbe-Alamah, & McFarland, 2015; Polsinelli, Satchidanand, Singh, Holmes, & Izzo, 2017; Pierce et al., 2014). HTN is known as *tansyon* in the Haitian community, and many Haitians believed that *tansyon* is part of growing old and not an illness (Sanon et al., 2014). Furthermore, many Haitians believed that living in the US is the cause of their HTN, and returning to Haiti will cure

their HTN (Sanon, 2013). The erroneous belief that living in the US is a causative factor for HTN was not supported in the literature.

Cultural and Spiritual Practices

The Haitian diet is rich in sodium and deficient in potassium (Kenerson, 2014). Evidence showed that Haitians consumed approximately 30 grams to 35 grams of salt per day (Jean-Charles, 2016). Maggi Bouillon, a common seasoning in Haitian cuisine contains 2,400 mg per cube and the used of salted fish to add flavor to many Haitian dishes are culinary practices that are difficult for many Haitian to abandon (Jean-Charles, 2016; Kelch et al., 2015; Kenerson, 2014). The excessive salt intake by Haitians and in other Black populations is well documented in the literature. However, the toxic effects of salt and insufficient amount of potassium in hypertensive patients were not common knowledge.

Herbalism is a common practice in Haitian culture. Haitian beliefs in natural medicine have contributed to nonadherence to prescribe medications. Consequently, many Haitians used cultural herbs, such as cinnamon (kannel); aloe (la loi); garlic (lay); almond leaf (fez zanman); and other medicinal leaves, such as hibiscus leaf (fey choublack), miracle plant leaf (fey lougawou), and papaya leaf (fey papaya) teas, to treat various ailments, including HTN. In addition, many Haitians believe that God will cure their HTN if they pray hard enough, thus spiritual practices contribute to nonadherence (Sanon 2013; Sanon et al., 2014; Sanon, Spinger, & McCullagh, 2016).

Influence of Work on HTN Management

Sanon (2013) showed that working in the hospitality industry is a significant factor for uncontrolled HTN in a study of Haitian housekeepers in Miami. The HTN rate

is higher in Haitian women as documented in the literature (Jean-Charles, 2016; Kelch et al., 2015; Kenerson, 2014; Mangat et al., 2015; Polsinelli et al., 2017). Many Haitian women work as housekeepers, thus doubling their risk of HTN.

The idea that work-related stress can contribute to high blood pressure and other cardiovascular disease is well documented in the literature (Mazzeo, 2013; Sanon, 2013; Piepoli et al., 2016). Piepoli et al. (2016) showed that working with high physiologic stress, unfair work practices, a hostile work environment, and working long hours are associated with increased risk of cardiovascular disease and a poor prognosis. Consequently, assessing patient for work-related stress is part of The Sixth Joint Task Force of the European Society of Cardiology, Other Societies on Cardiovascular Disease Prevention in Clinical Practice, and the European Association for Cardiovascular Prevention and Rehabilitation guidelines (Piepoli et al., 2016).

Health Literacy

Many Haitian immigrants have a low education level, and most either do not speak or speak very little English, resulting in educational and language barriers in this population (Kenerson, 2014; Sanon et al., 2016). In a study of Haitian Immigrants in New York, Lubetkin et al. (2015) showed that Haitians with low health literacy score (LHLC) were more than likely to trust their family, friends, neighbors, and spiritual leaders for health information rather than health professionals. In addition, many older Haitians are not technologically inclined and are less likely to access health information on the Internet.

Transnationalism and HTN Management

The transnational framework is not specific to Haitians and is applicable to other immigrants of various countries and cultures. Transnationalism theory is used to evaluate the impact of migration on immigrants and their families. Immigrants who maintained successful ties with their country of origin are called transmigrants (Sanon et al., 2014; Sanon et al., 2016). The remittance system is another significant factor causing many Haitians to work overtime to send money back home. The remittance system caused many Haitians to use the money intended for their health care needs to meet the financial needs of their family back home and at times forced Haitian immigrants to take better care of their health in order to take care of their family back home (Sanon et al., 2014; Sanon et al., 2016).

The impact of transnational activities, including the remittance system, are well supported by the literature. Research investigations conducted for Haitians immigrants living in the United States and the Bahamas have confirmed that transnational activities and the remittance system can have a positive or negative impact on health (Mazzeo, 2013; Sanon, 2013; Sanon et al., 2014; Sanon et al., 2016).

Gaps Identified in the Literature

The management of HTN in the Haitian population was insufficiently addressed regarding medications and medical follow-up. In the initial study of Haitian hospitality workers, Kenerson, (2014) did not establish if the research participants had a family history of HTN or other predisposing factors to HTN beside a stressful job. Recommendations for providers of Haitian patients with HTN were scarce. The erroneous Haitian belief that salt has therapeutic and healing properties (Kenerson, 2014)

needs to be addressed to curb the rise of HTN and heart disease. Excessive salt is a cardiac toxin (Kenerson, 2014) and that information needs to reach the hypertensive Haitians who are unaware of that adverse effect.

Herbalism was not satisfactorily discussed in the literature. The preference of natural remedies instead of medically proven medications to lower HTN and prevent the deleterious effects of HTN in this population needs to be researched because uncontrolled blood pressure is the leading cause of stroke and coronary artery disease (Abel, Contino, Jain, & Roy, 2015).

Summary

HTN is multifaceted problem that requires multidimensional solutions. Hypertension and nonadherence to hypertensive medication regimen are a serious threat to the health of Haitians. It is apparent that the Haitian diet and cultural and spiritual beliefs have a significant impact on the health of Haitian immigrants. Consequently, it is essential for health providers to understand cultural and religious practices that encourage nonadherence to medications and medical management in their Haitian patients. In addition, health care services need to be provided with a holistic manner that is compatible with Haitian cultural practices.

Chapter 3: Methods

Hypertension is the leading cause of small vessel vascular infarction and cerebral vascular incident in Haitians (Sanon, 2013). Mangat et al. (2015) showed that 67.2 % Haitian men and 69.1% of Haitian women age 40 and older have HTN. Nonadherence to hypertensive regimen and the use of cultural remedies to manage HTN are prevalent in hypertensive Haitians. This chapter includes the project design, research setting, inclusion and exclusion criteria, and recruitment methods. In addition, this chapter includes ethical considerations; informed consent; projects objectives and phases; timeline; and resources, budget, and outcome measures for the DNPQIP.

Project Design

A mixed method (MM) descriptive study research with exploratory design was used for the DNP project. MM research is the calculated combination of qualitative and quantitative data and frequently uses a questionnaire containing both closed-ended and open-ended questions for data collection, interviews, and observations (Zohrabi, 2013). There are numerous advantages to the MM research, such as the added value of numeric data from stories and pictures, increased credibility, generation of data, and establishment of cause and effect relationships (Terry, 2017). The goal of qualitative research in mixed research design is to enhance awareness; increase understanding; and discover, explain, and question the erroneous beliefs concerning the uniqueness of the human experience (Melnyk & Fineout-Overholt, 2014).

The exploratory design was used to understand Haitian social and cultural phenomena in Haitian immigrants in the US. The exploratory design method helped develop the quantitative method and identify variables for quantitative analysis. The

exploratory design started with the qualitative phase to explore the incidence of HTN and proceeded to the second phase using quantitative data with the value of qualitative data being more significant. Data obtained from the MM research questionnaire were analyzed and the outcomes were integrated resulting in meta-inferences.

Purposive sampling is frequently use for identifying and selecting knowledgeable participants in qualitative research (Palinkas et al., 2015). The recruitment of participants for the quality improvement project was conducted in two phases. The first phase was to educate prospective participants about the quality improvement project. The second phase was the referral process. During the referral process, the physician referred all hypertensive Haitian patients to the project coordinator for screening. Using the purposive sampling method, 25 hypertensive Haitians patients were selected to participate in the project. Participation in the project was voluntary and no financial incentives were provided to the participants.

Setting

The setting was a private primary care family practice in New Jersey. The clinical site was ideal for the DNPQIP because of the many Haitian immigrants' patients in the practice. The setting was a private primary care family practice in New Jersey. Realizing the need for Haitians to receive health care from a health provider who was knowledgeable about Haitian culture and fluent in Haitian Creole, French, and English, a primary care provider of Haitian descent was recruited to the area by Haitian community faith leaders. The office had one provider and two office staff. The practice opened late at night from 4:30 P.M to as late as midnight five days a week except Friday and Sunday nights.

The patients at the office were mostly immigrants from the Caribbean and Mexico without health insurance. The practice accepts cash only and patients must pay a fee of $40 or more to see the doctor. In addition, certain patients at the primary care office did have health insurance, yet they choose to come to the clinic and pay out of pocket to see the doctor only because he is Haitian. The level of trust and confidence the patients had in this doctor was unmatched. The Haitian patients at the office received health services from other health care providers in the area as well at this office to make sure that heath care services provided by non-Haitian health providers were accurate and had no negative effect on their health. The doctor understood the need of his Haitians patients to see other health care providers. Moreover, there were many hypertensive Haitian patients in the practice, and the health provider was very knowledgeable and understood the social, cultural, and spiritual needs of his Haitian patients and the actions needed to improve health outcomes in the Haitian population.

Inclusion Criteria

The inclusion criteria for this DNPQIP were Haitian adults between 25 to 80 years of age diagnosed with HTN for at least 3 years, taking at least two hypertensive medications, have close relatives in Haiti, and strong transnational ties between the US and Haiti.

Exclusion Criteria

The exclusion criteria for the DNPQIP were non-Haitians, Haitians without a diagnosis of HTN, patients on monotherapy, patients with a diagnosis of HTN for less than 3 years, participants younger than 25 and older than 80 years of age, and participants

without close relative living in Haiti or strong transnational activities between the US and Haiti.

Ethical Considerations

This project directly involved human subjects and obtaining approval from the Nova Southeastern University Institutional Review Board (NSUIRB) was a requirement. IRBs are ordinarily located in academic institutions to oversee research investigations and prevent ethical problems during the research process (McEvenue, Stefan, Lista, & Ahmad, 2016). Institutional review boards are vital to protect research participants from unethical research practices. Ethical consideration for the DNP project were confidentiality, anonymity, and trust, which are paramount in research.

The ethical principle of confidentiality necessitates researchers to protect participants' information from unlawful use, unauthorized access, alteration, inappropriate release, and theft (Government of Canada Panel on Research Ethics, 2016). Many Haitians are not comfortable with sharing their health information with non-relatives or friends. Confidentiality was assured by meeting with prospective participants away from the patient care area at the office. Participants' addresses, social security numbers, and email addresses were not collected. Study codes were created to identify the participants. The participants' information was de-identified and kept safe on a digital journal on the investigator's computer. The principal investigator (PI) was the sole user of the computer, which is password protected and programmed to log off after 2 minutes of inactivity.

Informed Consent

Obtaining an informed consent before the start of any research project is an essential requirement in medical research and is required by the World Medical Association's (WMA) Declaration of Helsinki (Kaye et al., 2015). Participants in medical research must have adequate knowledge about the purpose, processes, source of funding for the research as well as any potential conflict of interest, potential risk and benefits, and institutional affiliations (WMA, 2013). Before obtaining informed consent, participants were provided with a clear explanation of the project objectives, their rights in research, potential risk as well as how they met the inclusion criteria to participate in the project. In addition, prospective participants were made aware that participation in the DNP project was voluntary and participants were able to withdraw from the study at any time without retaliation or denial of heath care services from the health provider or office staffs.

Project Objectives and Phases

This project was carried out in several phases to meet each objective.

Objective 1

Examine the existing system for patients' adherence to hypertensive medications and follow up through a retrospective chart review one week after approval from Nova Southeastern University Institutional Review Board.

Phase 1. Obtain approval from the NSUIRB.

Phase 2. Conduct and complete the retrospective chart review.

Phase 3. Identify potential research participants and obtain informed consent.

This objective was met after approval from NUSIRB was granted in April 2018. A retrospective chart review was completed, potential research participants were identified, and informed consent obtained from the participants.

Objective 2

Create a resource guide for providers with patients who were non-adherent to hypertensive regimen, standardize clinical practice guidelines for HTN treatment, medical follow-up, and medication adherence at Week 3.

Phase 1. Create a collaborative partnership with the primary care office to identify patients at risks for non-adherence to hypertensive medications.

Phase 2. Assess cultural factors and transnational activities that promote non-adherence.

Phase 3. Standardize the resource guide.

This objective was met by creating a collaborative partnership with the office to assess for adherence. A pre-implementation survey was conducted to assess the provider and patients use and knowledge of available community resources. In addition, a chart review was conducted to assess the pervasiveness of noncompliance to hypertensive medications, lifestyle modifications, and medical follow-up.

Objective 3

Implement the standardized clinical guidelines and the RG in clinical practice. This objective was met during the implementation phase of the DNP from May to August 2018.

Objective 4

Evaluate the effectiveness of the resource guide. Re-evaluate patient adherence to medications, disease management, and medical follow-up through a prospective chart review 4 weeks after project implementation.

This objective was met during the evaluation phase of the project from August to December 2018. A post-implementation survey was done to evaluate knowledge and utilization of appropriate resources. A prospective chart review was conducted to evaluate adherence to hypertensive medication, lifestyle modifications, and medical follow-up.

Timeline

The planning stage of the DNPQIP started on August 21, 2017, and ended on December 10, 2017. The IRB approval process was lengthy, and the implementation was not started until approval was granted from the NSUIRB. The implementation phase of the project started in May 7, 2018, and was completed on August 12, 2018. The evaluation phase started on August 20, 2018, and ended on December 9, 2018.

Resources and Budget

The implementation of the DNPQIP was inexpensive. The cost of the project was estimated at $600.00 as shown in Table 1, and only $377.66 was spent. The PI was financially responsible for transportation costs for participants who were unable to drive. Parking was an issue at the clinical site because there is no free parking in the area. Consequently, parking costs were also paid by the PI. Additional resources for this project included the project team, which consisted of a physician, social worker, pharmacist, dietician, a case manager, and a minister.

Table 1
Project Resources and Budget

Activity	Description	Quantity	Total
Printing	Copies of proposal Consent forms Educational materials	4 30	$150.00
Food	Snacks and miscellaneous items	X12 weeks	$150.00
Traveling expenses	Parking and taxi costs	unknown	$300.00
Total costs			600.00

Outcome Measures

The outcomes of the DNPQIP were evaluated using the methods recorded below.

Objective 1

The existing system was examined for patients' adherence to hypertensive medications and follow-up 1 week after approval from NSUIRB.

This objective was met when approval was granted from NUSIRB in February 2018. A retrospective chart review was completed, potential research participants were identified, and informed consent obtained from the project participants before the implementation phase.

Objective 2

Create a resource guide for providers with patients who were non-adherent to hypertensive regimen, standardize clinical practice guidelines for HTN treatment, medical follow-up, and medication adherence at Week 3.

The RG was created after completing a retrospective chart review and results of the provider and patient pre-implementation survey results. A collaborative partnership was established with an internal medicine physician at a primary care clinic. Clinical guidelines were standardized and integrated in the management of HTN in hypertensive Haitian patients.

Objective 3

Implement standardized clinical guidelines and the provider's resource guide into existing medical practice

This objective was met when the resource guide was integrated in clinical practice during the implementation phase of the DNP project. Patients were assessed for barriers to adherence to hypertensive regimen and referred to appropriate community resource based on identified needs. A list of available community resources, including telephone numbers and addresses, were available for the office staff and the physician.

Objective 4

Evaluate the effectiveness of the resource guide. Re-evaluate patient adherence to medications, disease management, and medical follow-up through a prospective chart review 4 weeks after project implementation.

This objective was measured using a prospective chart review 3 weeks after implementation of the DNP project. The chart review was focus on improved blood pressure readings of less than 140/90 mm Hg for patients with comorbid conditions, such as diabetes and congestive heart failure and less than 150/90 mm Hg for older patients and those without any concomitant health problems.

Summary

Selecting the most appropriate and precise data collections tools to describe the research topic is a fundamental and indispensable for developing the research proposal (Dunemn, Roehrs, & Wilson, 2017). According to Bourke (2014), the qualitative research framework was endorsed by the researcher as the data collection tool. Therefore, it is possible that social, cultural, political, and educational beliefs of the researcher will affect the investigational process. Thus, it is crucial that researchers utilize valid and accurate data collection instruments methods to acquire reliable data.

The definition and consequences of HTN are not well defined or understood by Haitian patients. Thus, many Haitian immigrants do not adhere to prescribed hypertensive regimen. The implementation of the resource guide or provider for non-adhering patients resulted in improved health outcomes for the participants. Health outcomes were improved by simplifying treatment regimen, prescribing appropriate medication dosages, and addressing cultural practices effect on health as well as assessing patient for non-adherence at each visit are effective measures that are useful to improve health outcomes in hypertensive Haitian patients.

The implementation of the RG in the management of hypertensive Haitians was necessary to increase adherence to hypertensive medications. Most of the patients had multiple health issues and socioeconomic challenges that contributed to nonadherence and benefited from the free services that were identified in the RG. The DNP quality improvement project demonstrated the need for a cultural approach to HTN management to increase adherence, decrease nonadherence to hypertensive medications, and decrease mortality and morbidity in Haitian immigrants.

Chapter 4: Results and Discussion

The goal of the DNPQIP was to create an RG for providers with hypertensive Haitians patients, patients and their families, increase adherence to hypertensive medications, and identify community resources where health services are available for free or at reduced cost. A reliability test was conducted to assess internal reliability of the RG survey. Frequency distribution tables were used to explain the age at diagnosis of HTN, systolic blood pressure (SBP), and diastolic blood pressure (DBP) readings for Week 1 and Week 10. Descriptive statistics were used to assess the objectives of the QIP and compare SBP and DBP readings from Week 1 and Week 10. Included in this chapter is data evaluation, collection, and analysis process in addition to discussion of project findings, data results, strengths, limitations, implication of the DNP project, and future research recommendations.

Results

Evaluation of Data Collection

Data were collected over a 14-week period. A 20-item questionnaire was used to assess for adherence and factors contributing to non-adherence. A prospective chart review was conducted 3 weeks after the implementation to evaluate the effectiveness of the RG and to assess the quality of the health care delivery to determine if HTN was managed according to recommended guidelines. In addition, participants' blood pressure was measured weekly for 10 weeks. A spreadsheet was created in Excel to record the number of patients who had their yearly eye exam, electrocardiogram (EKG), which pharmacy the participants used, comorbidities, the frequency of medical follow-up, blood

pressure readings, BMI, level of transnational activities, education level, and spiritual and cultural practices.

Findings of the Project

A 20-item questionnaire was used to measure non-adherence to hypertensive medications and understanding of HTN. The questionnaire was a modified version of the critical care model questionnaire (CCM) because the original questionnaire did not include a cultural component. Participants were asked if they were taking their medications as prescribed, taking herbal medications, or both to manage their HTN management. Most specifically, participants were asked why they were prevented from taking their medications or following up with their medical visits and if they believed that herbal medications were superior to prescribed medications.

When asked if they were taking medications as prescribed all participants (n = 25) admitted to not taking medications as prescribed. Thirty-two percent (n = 8) reported not taking any medications, 48% (n = 12) taking medications occasionally and oftentimes after experiencing symptoms not relieved by herbal medications, and 20% (n = 5) reported taking some medications daily or not all because the participants felt that taking all these medications were harmful. Participants were asked which herbal remedies they were using to manage their HTN. The participants admitted to using multiple herbal remedies to manage HTN. All participants (n = 25) admitted taking garlic by itself or in conjuction with traditional medications and or other herbal products. Forty percent (n = 10) used garlic and cinnamon, 32% (n = 8) used garlic and ginger, and 28% (n = 7) used garlic with other herbal remedies for HTN management. In addition, 88% (n = 22) stated that herbal medications were more efficacious than prescribed medication.

Sixty-eight percent (n = 68) reported that work, financial responsibilities, and lack of insurance prevented them from following up on recommended medical appointments as well as taking or purchasing their medications. Eighty-eight percent (n = 22) admitted not taking their medication because living in the US is the cause of their HTN and going to Haiti will cure their disease. Twelve percent (n = 3) admitted not taking their medications because they do not feel sick. A five-question survey was conducted 2 weeks after implementation, and a retrospective chart review was conducted 3 weeks later to assess the effectiveness and suitability of the HTN RG in improving adherence to HTN management. When asked about the cause of hypertension 3 weeks after implementation, 88% (n = 22) stated there were no specific causes for HTN and that living in the US is not the cause of their blood pressure, and 12% (n = 3) believed that HTN is due to increased age.

However, all participants (n = 25) stated life in the US is stressful and contributes in worsening HTN. After implementation, 80% (n = 20) of participants reported taking their medications as instructed, 100% (n = 25) reported information of low-price hypertensive medications, access to low-cost health services at the community health center (CHC), and education about HTN were most beneficial. Furthermore, 92% (n = 23) reported that their health had improved, and 80% (n = 20) reported adhering to dietary recommendations, exercise, weight loss, and medical follow-up.

A statistical test for reliability was conducted using Cronbach alpha statistical test. The Cronbach alpha is valuable test to ascertain the suitability of research instruments in scientific studies (Taber, 2017). Table 1 displays the Cronbach's alpha result for the

effectiveness of the HTN Resource Guide Survey. The result was significant and internal reliability was shown with a Cronbach alpha value of 0.893.

Table 2
Reliability Test

Cronbach's alpha	Number of items
0.892726002 = 0.893	5

Descriptive Statistics

Descriptive statistics were used to describe and summarize data. Range defines the highest and lowest data, mean is a measure of central tendency, and percentage is a proportion that has been multiplied by 100 (Friis, 2018; Gray, Grove, & Sutherland, 2017). Range, mean, and percentages were used to evaluate the age of project participants at time of diagnosis as depicted in Table 2, number of participants with comorbidities, and use of herbal products. In addition, mean SBP and DBP were calculated from Week 1 to Week 10 and the result of SBP and DBP readings from Week 1 and Week 10 were compared to evaluate for improvement in BP readings.

The number of participants for the quality improvement project (QIP) was 25 (N = 25). Sixty percent (n = 15) of the participants were women and 40% (n = 10) were men. The average age of HTN diagnosis for the participants was 46.3 years. In terms of gender, the average age at HTN diagnosis for men and women were 50.8 years and 40.5, years respectively as illustrated in Table 2.

Table 3
Average Age at HTN Diagnosis

Participants	Years
Population	46.3
Men	50.8
Women	40.5

The age at HTN diagnosis for men and women, education level, and BMI of project participants were calculated. The earliest age at diagnosis for women was 22 and 29 years of age for men. Oldest age at diagnosis was close to 59 and 58 years of age for men and women, respectively. There is evidence to suggest that the median age for HTN diagnosis was 43 years (Jean-Charles, 2016). In addition, Haitian women were noted to be at increased risk for HTN and were diagnosed earlier with HTN compared with men (Jean-Charles, 2016; Polsinelli et al., 2017). In terms of level of education, 28% (n = 7) never attended school, 36% (*n* = 9) had an elementary education, 16% (*n* = 4) attended high school, and 20% (*n* = 5) graduated from high school and college, respectively. The number of project participants with a college degree was high because only 1% of Haitians completed college, 22% completed elementary education courses, and 40% have more than a 7th grade education (Stephenson & Zanotti, 2017).

Obesity was a modifiable contributing factor of HTN, and treatment plans must include weight loss and exercise for a successful outcome. Twelve percent (*n* = 3) of participants had a BMI greater than 40, 36% (*n* = 9) with a BMI less than 25, 16% (*n* = 4) had a BMI of 25, 32% (*n* = 8) had BMI between 26 and 30, and 4% (*n* = 1) had a BMI between 30 and 35. Thus, 48% (*n* = 12) of the participants were either overweight or obese. Participants' education level did not have any impact on the use of herbal medications because 100% (*n* = 25) admitted to taking cultural herbal remedies, and 76% (*n* = 19) used prayer, fasting, and anointing for HTN management. Eight percent (*n* = 2) of project participants were taking two hypertensive medications, 72% (*n* = 18) used three medications, and 20% (*n* = 5) used four or more medications for effective management of HTN. Eighty-eight percent (*n* = 22) have families at home who depend

on them for their livelihood, causing many participants to work more than one job, resulting in lack of sleep and increased stress level (Sanon, 2013; Sanon et al., 2014; Sanon et al., 2016). Twelve percent (*n* = 3) had extended families, churches, and organization that they supported financially.

Participants' blood pressure was measured weekly to monitor if there were any improvement in their knowledge related to the disease management and adherence to medications. Twelve participants (*n* = 12) had an SBP between 130 mm Hg to 159 mm Hg, 11 participants (*n* = 11) had extremely elevated SBP, ranging from 160 mm Hg to 199 mm Hg, and two participants had hypertensive crisis with SBP ranging from 200 mm Hg to 219 mm Hg in the first week as shown in Figure 1.

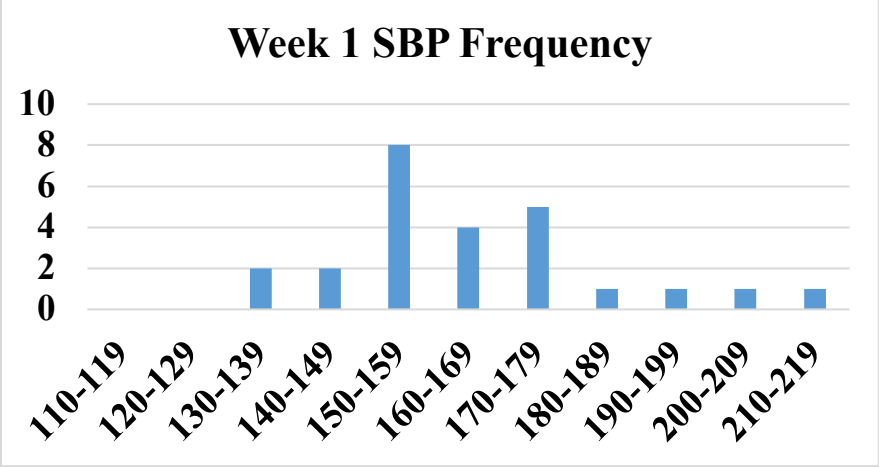

Figure 1. Week 1 SBP frequency.

As shown in Figure 2, the participants' DBP was significantly increased. Analysis of DBP in Week 1 showed that the lowest DBP ranges from 90 mm Hg to 99 mm Hg. Eighteen participants (*n* = 18) had DBP reading between 100 mm Hg to 119 mm Hg, and the DBP readings from four participants (n = 4) were between 120 mm Hg to129 mm Hg.

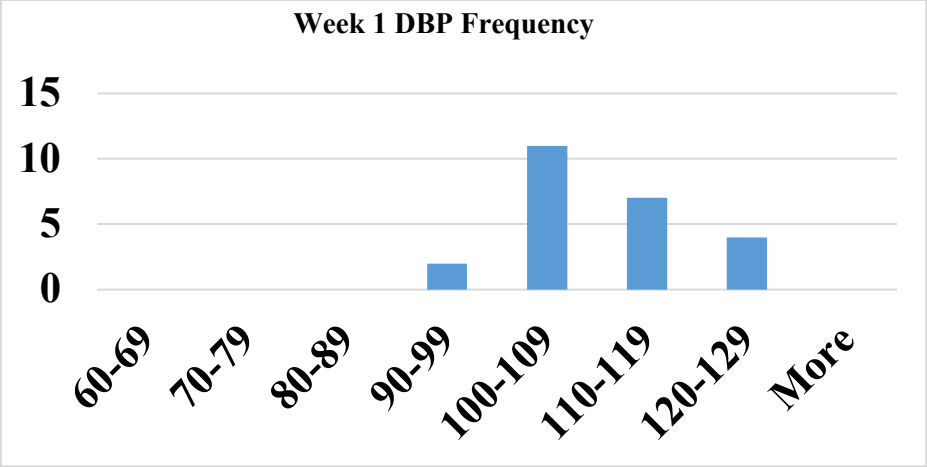

Figure 2. Week 1 DBP frequency.

Blood pressure readings improved at each visit as evidenced by SBP and DBP readings from Week 10 and illustrated on Figure 2. Fifteen participants (n = 15) had SBP readings from 110 mm Hg to129 mm Hg and two participants (n = 2) with SBP readings of 150 mm Hg to159 mm Hg.

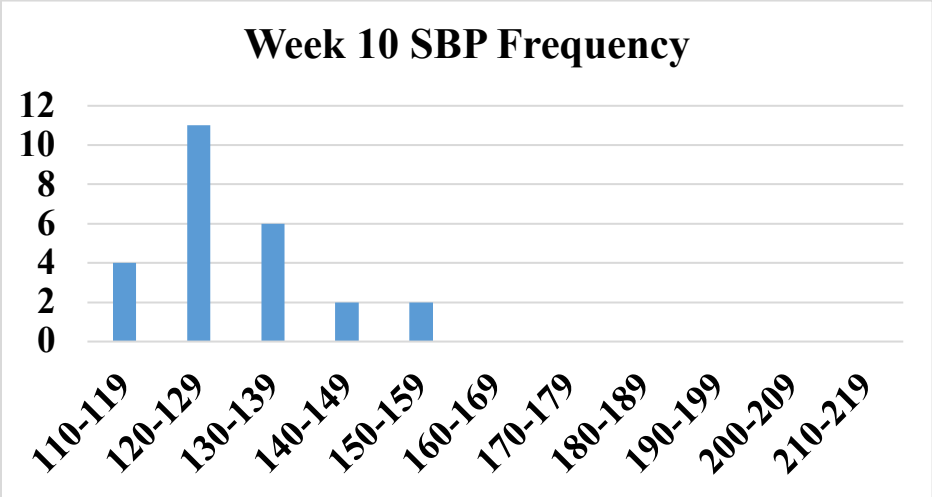

Figure 3. Week 10 SBP frequency

As shown in Figure 4, DBP in all participants improved by Week 10 with DPB reading from ranging from a low of 60 mm Hg to 69 mm Hg and the highest reading ranging from 90 mm Hg to 99 mm Hg.

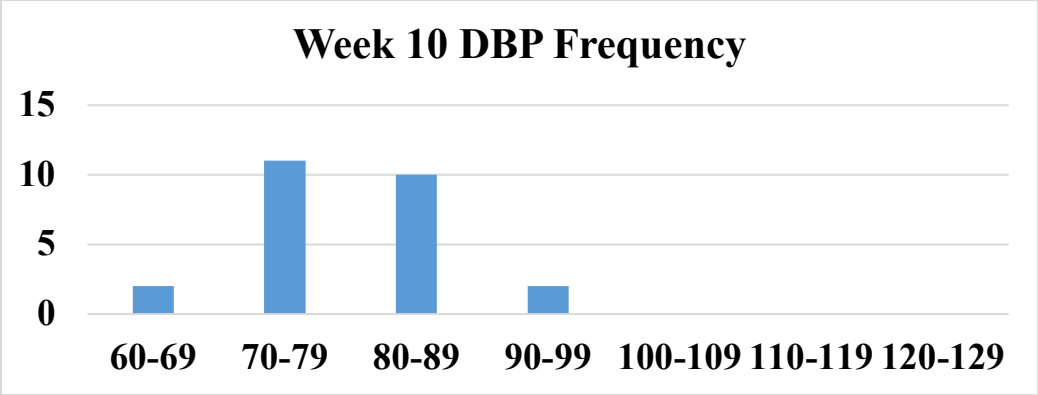

Figure 4. Week 10 DBP frequency.

Finally, a two-sample assuming equal variances *t* test was done to evaluate statistical significance of SBP and DBP improvement. The result showed that SBP and DBP improved significantly in Week 10 with the participants having lower SBP and DBP in Week 10 compared with Week 1. In addition, the *p* value for Week 1 and Week 10 for SBP as well as DBP readings were 0.24 and 0.36 as depicted in tables 7 and 8 resulted in the rejection of the null hypothesis.

Table 4
T Test for Two-Sample Assuming Equal Variances

	Week 1 SBP	Week 10 SBP
Mean	165.8	127.68
Variance	397.8333333	66.97666667
Observations	25	25
Pooled Variance	232.405	
Hypothesized Mean Difference	0	
df	48	
p value	.24290262	
t stat	8.840669696	
P(T ≤ *t*) one-tail	6.09107E-12	

t critical one-tail	1.677224196
P(T ≤ *t*) two-tail	1.21821E-11
t critical two-tail	2.010634758

Table 5
T test for DBP Two-Sample Assuming Equal Variances

	Week 1 DPB	Week 10 DBP
Mean	102.4	79.2
Variance	92.41666667	49.5
Observations	25	25
Pooled Variance	70.95833333	
Hypothesized Mean Difference	0	
df	48	
p value	.36206798	
t stat	9.737361383	
P(T ≤ *t*) one-tail	3.00476E-13	
t critical one-tail	1.677224196	
P(T ≤ *t*) two-tail	6.00951E-13	
t critical two-tail	2.010634758	

Objectives Measures

The project was carried out in several phases to meet the four objectives.

Objective 1. To examine the existing system for patients' adherence to hypertensive medications and follow-up. This objective had three phases. A prospective chart review was conducted and more than 50% of Haitians patients at a primary care office were found to be nonadherent to hypertensive medications and did not follow up

clinical appointments as recommended. Project approval was obtained from NSUIRB in Phase 1. Project participants were identified and selected, and informed consent was obtained. The purpose of Objective 1 was met by conducting a prospective chart review to evaluate patients' adherence to medications and medical follow-up, identifying project participants, obtaining approval from the NSUIRB, and obtaining participants' consent.

Objective 2. Create a resource guide for providers with patient non-adherence to a hypertensive regimen as well as standardized clinical practice guidelines for medical follow-up and adherence to medications. Objective 2 had three phases. Collaborative partnership was established in Phase 1. The level of transnational activities and contributing factors to non-adherence were assessed in Phase 2. Standardization of the resource guide took place in Phase 3.

One hundred percent (n = 25) of project participants used some type of herbal medications to control their blood pressure. Eighty-eight percent (n = 22) of participants had very strong transnational activities in Haiti that prevented them from following up with their medical visits, resulting in worsening their HTN. The objective was met by identifying patients at risk for non-adherence and assessing the level of transactional activities, cultural, social, and spiritual factors contributing to poor adherence. In addition, the resource guide was created and standardized at the office through a collaborative partnership between the primary investigator, the primary care provider, and the office staff.

Objective 3. Implement standardized clinical guidelines and resource guide into existing medical practice. Weekly education session, monitoring, and recording of blood pressure were conducted. In addition, patients' medications were reviewed, and

recommendations were made to the primary care provider. Patients who are unable to read or understand directions in English were transferred to a local community pharmacy where medication could be packaged and color coded to improve adherence. Objective 3 was met over a 12-week period with the implementation of the resource guide in clinical practice. Participants were educated about the consequences of uncontrolled HTN, non-adherence, and lifestyle modifications to improve health outcomes.

Objective 4. Evaluate the effectiveness of the resource guide. Re-evaluate patient adherence to medications, disease management, and medical follow-up through a retrospective chart review at Week 12 of the project implementation. Objective 4 was met by conducting a retrospective chart review 3 weeks after the implementation of the resource guide. Sixty-four percent (n = 16) of the participants now receive primary care services at the local community health center. Thirty-six percent (n = 9) of the participants going to the CHC have had their comprehensive eye exam at no cost at the monthly free eye exam clinic. Furthermore, participants were referred to two local community pharmacies where they were able to purchase their medications at lower prices. Consequently, one of the local pharmacies has hired a Creole-speaking pharmacy technician to meet the needs of the Haitian customers. Participants who were not eligible for Medicaid were eligible to receive health services, including routine laboratory tests due to the availability of various sliding fee programs at the CHC.

Expected and Unexpected Findings

Expected findings were non-adherence to hypertensive medications, inadequate medical follow-up, high salt diet, and lack of education about HTN, and these findings were supported by the literature. Non-adherence is multifactorial and results in increased

mortality and morbidity in Haitian immigrants. In addition, most of the participants associated elevated blood pressure with headaches and or neck pain that was not relieved with herbal tea and or other cultural practices, which reflect the lack of knowledge and understanding about HTN in this population. Inadequate medical follow-up, lack of medications, inappropriate medication administration, and the erroneous belief that hypertensive medications are not as effective as herbal medications. Thus, it is not surprising that Haitians have the worse outcomes of the HTN (Jean-Charles, 2016; Sanon et al., 2016).

The high rate of Type 2 diabetes (T2DM), chronic kidney disease, and the sharing of medications were unexpected. T2DM was the most common comorbidity in the participants. Eight-four percent (n = 21) of project participants reported a strong family history of HTN, 16% (n = 4) reported a family history of diabetes, and no family history of kidney disease was reported by the participants. Yamamoto-Honda et al. (2016) suggested that family history of HTN and blood pressure reading that is on the higher normal range are associated with insulin resistance (IR). Consequently, individuals diagnosed with pre-hypertension and HTN are at increased risk of T2DM, and they are diagnosed with T2DM at an earlier age than individuals without pre-hypertension or HTN (Yamamoto-Honda et al., 2017).

Data about kidney disease in Haiti are lacking. However, studies conducted in individuals of African descent showed an increased risk for kidney disease in that population (Burkhalter, Sannon, Mayr, Dickenmann, & Ernst, 2014). HTN and DM are the two leading contributors of CKD and the rate of HTN in Haitians adults is 47% and DM 10% (Burkhalter et al., 2014). Data analysis of the DNP project showed 56% (n =

14) of the participants had Type 2 diabetes, 20% (*n* = 5) had prediabetes, 20% (*n* = 5) had Stage 3 CKD, and 52% (*n* = 13) had Stage 2 CKD. There is a high prevalence of CKD in Haiti due to the commonness of HTN in Haiti as a result of racial, genetic factors, and diet because most Haitian now eat a western diet instead of the traditional diet of fresh fruits, vegetables, and whole grains (Burkhalter et al., 2014). In addition, participants admitted to taking medications not prescribed to them and sharing medications with other family members. The sharing of antibiotics is a common practice among Haitians; however, the sharing of hypertensive medications is new and not documented in the literature.

Strengths and Limitations

Strength

Having participants from the Haitian community with strong transnational activities in Haiti was a significant strength of the project. Even though the participants are living in the US, they would travel often to Haiti for natural medications, cleansing, and stress relief as well as requesting various herbs from Haiti to the US to control their blood pressure. Having a primary provider; office staff; team project members and primary investigator of Haitian descent who are fluent in Haitian Creole; and understanding the spiritual, social, and cultural practices and beliefs was instrumental in the successful implementation of the project.

Limitations

The sample for the DNP project was small and focused on a specific population, which may affect generalization of project findings to larger populations and other ethnic groups. In addition, most of the participants were from the Artibonite region of Haiti and

having more women participants than men were the limitation of the project. Therefore, having and equal amount of Haitian men and participants from the nine regions of Haiti would have provided better insight for the prevalence of HTN, consequences, and the comorbidities associated with the disease.

Implications

Advanced Nursing Practice

The DNPQIP will affect advanced nursing practice by educating health providers about effective HTH management in Haitian immigrants as well as patients and providers about available community resources and services to improve adherence. Eighty-four percent (n = 21) of project participants were not up to date for preventative health services and screening due to lack of health insurance, and the providers lacked knowledge about community resources. Participants were not screened for adherence, factors contributing to non-adherence, and cultural practices. Participants should be screen for non-adherence early because there is a strong relationship between adherence, social economic status, ethnicity, race health literacy, and patients' beliefs (Abegaz, Shehab, & Elnour, 2017). Furthermore, early identification of contributing factors to non-adherence will result in decrease health care costs; improve BP control, and adherence (Abegaz et al., 2017).

Health Care Outcomes

Incorporating the DNP project in clinical practice will improve BP control, increase adherence, and decrease health care cost as well as decreasing negative health outcomes through early identification of contributing factors and simplification of treatment (Abegaz et al., 2017; Potthoff & Vonend, 2017). Seventy-two percent (n = 18)

of projects and participants were taking at least three medications, 20% (n = 5) were taking four or more medications for effective blood pressure control. Many of the participants reported associated the number of mediations taken to the severity of illness and wonders why they must take all these medications when they are not feeling sick. Consequently, many of them choose not to take their medications as prescribed until they are sick, which is oftentimes too late. Therefore, patients must be included in decision making about medication and disease management because simplification of HTN treatment is the best way to increase adherence (Abegaz et al., 2017).

Health Care Delivery

The commonness of chronic diseases necessitates health care delivery in a culturally competent manner and recommended clinical guidelines using the chronic care model and a multidisciplinary approach. The CCM is appropriate as it empowers health delivery systems; health providers; and patients to improve health outcomes, delivery and quality of care, inter/intra professional collaborations, and encouraged patient to actively participate in health decisions (Patel et al., 2016). Collaborative care is essential to decrease the deleterious consequences of HTN in this population. In addition, collaboration with local community pharmacists, nurses, primary care providers, and other allied health professional will increase adherence, increase patient education, and decrease mortality in the Haitian community (Proia et al., 2014).

Health Care Policy

Most of the participants did not have insurance and were unable to purchase their medications. In addition, many hypertensive immigrants, including those who are in the country illegally, refused to go to local community health centers or health department

clinics for fear of being reported to immigration authorities. Consequently, the participants did not follow up with their primary care provider as advised and did not have enough medications. Eighty percent (n = 20) of project participants reported missing their appointments because of financial reason and/or because they did not feel like they should not follow up when there is no sign of illness.

Evidence showed that the rate of missed appointment in hypertensive adults is very high and contributed to increase medical cost, interrupted medical care, and inadequate blood pressure control (Akinniyi & Olamide, 2017). Health providers must educate and encourage patients to monitor their BP at home and record the readings for review at every office visit as it can help physicians in effective medication management of HTN. In addition, newly diagnosed patients must follow up in 2 weeks, then monthly, and every 3 to 4 months until blood pressure is stabilized. Therefore, the laws preventing legal citizens who have not been in this country to qualify for Medicaid need to be changed. In addition, providing a way for illegal aliens to receive affordable health care will reduce emergency rooms visits and health care cost.

Future Research

The commonness of HTN in the Haitian population and the increasing negative health outcomes of the disease is compounded by lack of education. The prevalence of diabetes and kidney disease in the participants is concerning special because the majority are from the same geographical region in Haiti. In Boston Massachusetts, showed that compared to African Americans and non-Hispanics whites, Haitians have a decrease rate of nephropathy and decrease macrovascular and microvascular complication (Vimalanandqa et al., 2011).

At the time of the project, these findings were unexpected because Haitians do not access health services when necessary, have poorer glycemic control, low density lipoprotein (LDL), and blood pressure control (Vimalanandqa et al., 2011). The researchers predicted that Complications in Haitian immigrants are predicted to increase with acculturation. Eighty-four percent (n = 21) of the participants are from the same region and admit to using herbal medications. Further research to investigate the pattern of disease in that region as well as the impact of herbal medication on the renal and cardiovascular system is warranted.

Summary

HTN is a serious health problem and the most common chronic disease in Haitians immigrants. A diet rich in sodium and acculturation to a western diet in addition to financial, social, cultural, and spiritual factors contribute to the prevalence of HTN in this population as well as high rate of nonadherence resulting in increased mortality and mortality in this population. The DNP project showed a lack of knowledge and understanding about HTN that is compounded by illiteracy and a preference for herbal medications instead of prescription medications.

Furthermore, many Haitians believe in spiritual powers of healing and the erroneous belief that taking prescribed medications reflect a lack of trust and faith in God. Consequently, many Haitians do not adhere to medications or treatment plans, and they do not follow up as recommended, resulting in increased prevalence of chronic kidney disease. Health care delivery must culturally competent, and patients must be encouraged to take an active role in their lives. Furthermore, patient education about

medication, disease progression, and management is very important in this population as lack of knowledge is significant contributing factor to poor adherence

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Appendix A

Nova Southeastern University IRB Approval

NOVA SOUTHEASTERN UNIVERSITY

Institutional Review Board

MEMORANDUM

To: **Guilaine Gabriel-Percinthe**

From: **Vanessa A Johnson, Ph.D.,**

Center Representative, Institutional Review Board

Date: **April 23, 2018**

Re: **IRB #: 2018-207; Title, "DEVELOPING A RESOURCE GUIDE FOR PATIENTS NON- ADHERERED TO HYPERTENSIVE MEDICATIONS"**

I have reviewed the above-referenced research protocol at the center level. Based on the information provided, I have determined that this study is exempt from further IRB review under **45 CFR 46.101(b) (Exempt Category 2)**. You may proceed with your study as described to the IRB. As principal investigator, you must adhere to the following requirements:

1) CONSENT: If recruitment procedures include consent forms, they must be obtained in such a manner that they are clearly understood by the subjects

and the process affords subjects the opportunity to ask questions, obtain detailed answers from those directly involved in the research, and have sufficient time to consider their participation after they have been provided this information. The subjects must be given a copy of the signed consent document, and a copy must be placed in a secure file separate from de-identified participant information. Record of informed consent must be retained for a minimum of three years from the conclusion of the study.

2) ADVERSE EVENTS/UNANTICIPATED PROBLEMS: The principal investigator is required to notify the IRB chair and me (954-262-5369 and Vanessa A Johnson, Ph.D., respectively) of any adverse reactions or unanticipated events that may develop as a result of this study. Reactions or events may include, but are not limited to, injury, depression as a result of participation in the study, life-threatening situation, death, or loss of confidentiality/anonymity of subject. Approval may be withdrawn if the problem is serious.

3) AMENDMENTS: Any changes in the study (e.g., procedures, number or types of subjects, consent forms, investigators, etc.) must be approved by the IRB prior to implementation. Please be advised that changes in a study may require further review depending on the nature of the change. Please contact me with any questions regarding amendments or changes to your study.

The NSU IRB is in compliance with the requirements for the protection of human subjects prescribed in Part 46 of Title 45 of the Code of Federal Regulations (45 CFR 46) revised June 18, 1991.

Cc: Nicole Laing, DNP

Appendix B

Informed Consent

Consent Form for Participation in the Research Study Entitled "Developing a Provider's Resource for Patients Non-adhered to Hypertensive Medications"

Funding Source: None. IRB protocol #: Pending

Principal Investigator(s)

Guilaine Gabriel-Percinthe, MSN, RN

For questions/concerns about your research rights, contact:

Human Research Oversight Board (Institutional Review Board or IRB)

Nova Southeastern University

(954) 262-5369/ Toll Free: 866-499-0790

IRB@nsu.nova.edu

Site Information:

Initials: Date:

What is the study about?

The purpose of this study is to examine the existing system for patient's adherence to hypertensive medications and follow up; standardized clinical practice guidelines for medical follow up and adherence to medications; identify patient at risk for nonadherence to medications, disease management, and medical follow up; and incorporate standardized clinical guidelines into existing medical practice at this primary care office

Why are you asking me?

The reason you are being asked to participate is because you are a Haitian immigrant with hypertension and a patient at this facility for at least three years and taking at least two hypertensive medications.

What will I be doing if I agree to be in the study?

If you agree to participate in this project, you are asked to (1) Participate in a face to face semi-focus information session on hypertension that will last approximately 10 minutes (2) You will also complete a questionnaire three weeks after applying the information from the focus group.

Is there any audio or video recording?

This research project does include the use of audio recording during the focus group sessions. All audio recording will be deleted as soon as the information from the focus group are noted.

What are the dangers to me?

Loss of confidentiality is a possible risk associated with the study. For questions about the study or questions about your rights as a research participant, please contact the principal investigator Guilaine Gabriel-Percinthe, the project adviser Dr. Nicole Laing, or

the Nova Southeastern University Institutional Review Board at the appropriate phone numbers mentioned above.

How much does it cost to participate in the study?

There are no costs associated for participating in this project.

Will I get paid for being in the study?

There is financial compensation for participating in this study. Transportation cost will be paid by the principal researcher for individuals who do not drive as well as parking cost for all activities related to this project.

How will you keep my information private?

All information shared and acquired during the study are confidential unless release of the information is required by law. Research information may be reviewed by the capstone chair Dr. Nicole Laing Joseph and the Nova Southeastern University IRB. Your information will be kept for 36 months after the conclusion of the study.

What if I do not want to participate or I want to leave the study?

Participation in this is voluntary and you have the right to leave or refuse to participate from this study at any time. Your decision to leave or refusal to participate in this study will not have an impact on any health care services that you are entitled to receive. All information obtained prior to leaving this study may be used in the research and will be kept for 36 months after the conclusion of this study.

Initials: Date:

Other Considerations:

If any new relevant information that may impact your commitment to participate in this study becomes available; the principal investigator will provide this information to you.

Voluntary Consent

By signing below, you affirm that:

- Your voluntary participation of this study entitled "Developing a Provider's Resource for Patients Non-adhered to Hypertensive Medications".
- the objectives of the study were explained to you
- you have read this document or it has been read to you
- your questions about this study were answered adequately
- you were informed that you can contact the Nova Southeastern University Institutional Review Board (IRB) for questions about your study rights
- you are entitled to a copy of this form after you have read and signed it

Participant's Name Signature Date

Signature of Person Obtaining Consent Date

Appendix C

Implementation Questionnaire

1. What is high blood pressure?
2. How old were you when you were diagnosed with Hypertension?
3. What is the cause of your hypertension?
4. How often do you see the doctor for the high blood pressure?
5. Do you check your blood pressure at home? If yes go to number 6 if no go to number 7
6. How many times a week do you check your blood pressure?
7. What is preventing you from checking your blood pressure at home?
8. What medications are you taking for your high blood pressure?
9. Do you take nonprescription medication, such as vitamins, teas, cultural medicine to manage your blood pressure? If yes proceed to number 10 and 11 if no proceed to number 12
10. What nonprescription medication or remedies do you take?
11. Do you think the non-prescribed medication work better than the medication your doctor gives you?
12. What is your reason for not taking non-prescription medications or cultural remedies?
13. Do you take your medication as prescribed and instructed by your doctor?
14. Do you have any problem taking your medications?
15. How much salt do you eat?
16. Do you use salted fish, meats, or maggi bouillon in your foods?

17. Do you have family in Haiti who depends on you financially?
18. Does taking care of family member in Haiti prevent you from taking care of yourself?
19. Does taking care of family in Haiti motivate you to take care of your health?
20. Do you trust your health care provider

Appendix D

Post Implementation Questionnaire

1. What is the cause of your hypertension?
2. Do you take your medication as prescribed by your doctor?
3. What resources were most helpful to you?
4. Has your health improved since participating in the project?
5. What are you doing to stay in good health?