

Improving Uncontrolled Hypertension Through Self-Management Education

By

Vivian Nagib

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Abstract

Background: Hypertension is one of the most dangerous, common, costly, and fatal diseases. Despite the wide variety of advanced hypertension treatments, many hypertensive patients still suffer from uncontrolled hypertension. Self-management educational tools on a personal level in the primary care setting is considered one of the most effective ways to improve uncontrolled hypertension. Education on lifestyle changes, adherence to medication, hypertensive diet, and follow-up care can improve uncontrolled hypertension.

Objective: The objective of this project is to improve uncontrolled hypertension through improving self-management strategies by creating educational tools for hypertensive patients and follow-up face-to-face nursing visits for blood pressure check-up in the primary care setting.

Method: The project plan was implemented in a primary care clinic over eight weeks. Data was collected pre-intervention and post intervention. A RISE educational pamphlet, DASH diet guideline table, and a patient blood pressure log were provided for all hypertensive patients in the primary care clinic who had scheduled visits. A face-to-face follow-up nursing visit for blood pressure check-up was scheduled biweekly for all patients who received the educational materials.

Results: Despite the small sample size and the short implementation time, the results of this quality improvement project are significant. Therefore, the results are promising for future research with a larger sample size and longer implementation time.

Chapter 1: Introduction

Improving Uncontrolled Hypertension Through Self-Management Education

Hypertension is one of the main and dominant chronic diseases in the United States, affecting one-third of the population over 20 years of age (Findlow, Basalik, Dulin, Tapp, & Kuhn, 2013). Further studies show 70% of adults older than 65 years are suffering from hypertension (Findlow et al., 2013). The Center for Disease Control and Prevention (CDC, 2016) indicated that around 75 million American adults have high blood pressure, which is roughly one in three adults. In addition, only 54% of hypertensive patients have control over their condition. The most up-to-date statistics announced by the American Heart Association (AHA, 2018) revealed that 103 million American adults have high blood pressure and that the death rate caused by hypertension increased by 11% between 2005 and 2015.

The cost of hypertension is \$45.6 million each year, which includes time off from work, health care services, and medications (CDC, 2016). Clinicians must be dynamically involved in the management of chronic disease to help patients who are diagnosed with hypertension to achieve optimal control. According to Findlow et al. (2013), “Despite the increase in hypertension awareness among the population and the advancement of treatment in the past decade, less than half of hypertensive adults are controlled, regardless of race/ethnicity or gender” (p.637).

Controlling hypertension is a challenge for health care providers; only 50% of hypertension is controlled worldwide (Babae Beigi et al., 2014). Pharmacological management with hypertensive medication is typically the first line of treatment for hypertensive patients (Babae Beigi et al., 2014). Nevertheless, medication often does not effectively attain blood pressure control. Furthermore, only 59% to 83% showed adherence to hypertensive medications, which indi-

cates poor adherence to medications among hypertensive patients (Findlow et al., 2013). Approximately 30% of the patients do not refill the prescriptions and others stop taking the medication (Findlow et al., 2013). The reasons for non-adherence may be the unpleasant side effects or the patient's belief that not taking medications will prevent side effects (Findlow et al., 2013).

According to Findlow et al. (2013), the rate of hospitalization and emergency visits for hypertensive patients increases due to the lack of knowledge about the serious health consequences of hypertension, which include cardiovascular complications. In addition to medication therapy, a therapeutic lifestyle change is recommended for hypertensive patients (Findlow et al., 2013). While the rate of the population's awareness of healthy lifestyle behaviors such as non-smoking, dieting, weight control, and physical activity increased, the controlled hypertension rate is still distant from the ultimate goal for millions of Americans (Findlow et al., 2013). Even patients who are adherent to medications face the challenge of keeping long-term lifestyle changes to maintain health benefits (Findlow et al., 2013). Therefore, assessment of medication adherence and self-care activities for the hypertensive is necessary to gain a complete understanding of hypertension education in lowering blood pressure, preventing cardiovascular complications, and decreasing cardiovascular mortality (Findlow et al., 2013).

Background and Significance

By the year 2020, the leading cause of death and disability worldwide will be cardiovascular disease (Fuster, 2014). In a recent study, Mozaffarian et al. (2015) explained that hypertension was the cause of 14,104 deaths, which equals 6.38% per hundred thousand people. In the same study, the researchers reported that previous studies showed that self-care behavior and self-regulation interventions were effective in reducing the blood pressure as well as reducing its related deaths.

Scope. The significance of a slight decrease in blood pressure is that it contributes to the prevention of major cardiovascular consequences. A reduction of 10 mmHg of systolic hypertension will reduce the risk of the occurrence of major cardiovascular disease by 20% and the potential for stroke by 41% (Ettehad et al., 2016). Those with elevated blood pressure often do not know about their condition or whether or not their blood pressure is controlled, especially since hypertension can be asymptomatic (Bell, Twiggs, Olin, & Date, 2015).

When the diagnosis of hypertension is confirmed, treatment and control of the hypertension are key to secondary prevention (Partridge, Gallagher, Freeman, & Gallagher, 2018). Factors that lead to poor control include deficits in knowledge, medication side effects, inability to maintain recommended treatment, and lack of time and resources (Khatib et al., 2014). Previous studies reveal that improving knowledge of cardiovascular diseases, controlling risk factors, and promoting mental and physical health behaviors may contribute to overall cardiovascular health (Chu, Gotink, Yeh, Goldie, & Hunink, 2016).

Importance. Blood pressure control improvement is evidenced by the one-half of American adults with hypertension who are maintaining their blood pressure at the recommended levels (Mozaffarian et al., 2015). Lifestyle or behavioral risk factors that may lead to hypertension include excessive alcohol intake, smoking, poor nutrition, low physical activity, ethnicity, gender, increased salt intake, genetics, and socioeconomic factors (Ezzati & Riboli, 2015). Potential to reduce the prevalence of hypertension increases when these risk factors are reduced as well (Nichols, Peterson, Herbert, Alston, & Allender, 2016).

According to the Center for Disease Control and Prevention (CDC, 2017), adults and young people are at health risk of developing hypertension and cardiovascular disease because of lack of physical activity (CDC, 2017). Thirty minutes of moderate physical activity times a week

is the current public health recommendation; only one-third of the adults meet this recommendation, while, a quarter report no physical activity at all (CDC, 2017). The recommended treatment of hypertension includes both antihypertensive medications and lifestyle modification (Mancia et al., 2013). Studies on education programs concerning knowledge of the disease and lifestyle modification presented better results for optimizing control of blood pressure, as well as better treatment adherence (Beune et al., 2014).

What We Need to Find Out. Through this quality improvement project, we aimed to identify how improving self-management of blood pressure through education and a face-to-face nursing visit impacted blood pressure control. Although various approaches and methods have been tried to improve and control hypertension, the most effective approach involved a team-based approach to hypertension care in which a pharmacist and nurses were involved in the care of hypertensive patients (Proia et al., 2014). The team-based healthcare professionals working with patients improved blood pressure control (Proia et al., 2014).

Some approaches, such as the patient taking their own blood pressure, have not been as effective as the use of educational programs to enhance the quality of manual office blood pressure measurements (Mujtaba, Ashraf, & Anjum, 2013; Rabbia et al., 2013). Other studies show that individuals with poor adherence to hypertension management lacked knowledge about hypertension and the consequences if they did not adhere to hypertension treatment (Kamran, Ahari, Biriya, Malpour, & Heydari, 2014). Another study suggested that patients who had more favorable perceptions of medications were more likely to adhere to therapeutic treatment (Yue, Li, Weilin, & Bin, 2015).

Santos et al. (2018), completed a study with 354 hypertensive patients to evaluate their knowledge about hypertension and the effect of this knowledge on their hypertension. Santos et

al. discovered that the majority of these individuals were not knowledgeable about hypertension and the appropriate treatment plan (Santos et al., 2018). This observation occurred despite the significant involvement of the patient (Santos et al., 2018). In healthcare, many practice gaps result in preventing patients from being effectively diagnosed and treated for hypertension (James et al., 2014). If patients present with a systolic blood pressure greater than 140 mm Hg or diastolic blood pressure elevated more than 90 mm Hg on two separate events, diagnosing that patient with hypertension should be considered (James et al., 2014).

Needs Assessment

According to the Centers for Disease Control and Prevention (CDC, 2016a), the cause of more than 410,000 deaths among Americans in 2014 was high blood pressure, which is higher than 1,100 deaths per day and costs \$48.6 million every year. This overall number involves the cost of hypertension medication treatments, days off from work, and health care services (CDC, 2016a). Some individuals are predisposed to high blood pressure due to prehypertension and diabetes (CDC, 2016a). Individuals with such diseases are at an even higher risk for hypertension if they are living an unhealthy life.

This quality improvement project will emphasize education on an individual level to improve the self-management of high blood pressure. A SWOT analysis was performed to analyze the strengths weaknesses, opportunities, and threats to this project. A key strength identified is that current evidence exists to support this type of project, and there is also evidence-based literature to support the recommended solution. The staff nurse, manager, and the physician located at the project site were very supportive of the project, which allowed for face-to-face nurse follow-up visits for blood pressure evaluation to be implemented. These face-to-face nurse follow-up

visits are covered by Medicare and most insurances (STD TAC, 2014), which resulted in increased revenue for the clinic.

The following key weaknesses were identified as needs to be addressed: (a) insufficient follow-up because of the inability to keep appointments; (b) staff inability to contact the patients for some reason such as having difficulty hearing or deafness; and (c) some patients may not have phones, or they cannot use their phone because of vision or cognitive problems. A key opportunity identified at the clinic was that it was also a cardiology clinic where many hypertensive patients are seen, and this contributed to the project topic and encouraged the staff and the physician to be involved in the project. Some key threats, which could have altered the project outcomes, included the inability to change patients' habits to measure their blood pressure daily, patient noncompliance to a medication plan, and inconsistent logging of blood pressure readings. Additional threats to the outcome of this project are the inability for the patients to attend the follow-up visit appointments due to the inability to drive, or that they are unable to take time off from work for the follow-up appointment.

Problem Statement

The most common cardiovascular condition in Florida is hypertension, and nearly half (48.7%) of adults between the ages of 45 and 79 are affected (Smith et al. 2018). Hypertension is the leading modifiable risk factor for cardiovascular disease, chronic kidney disease, stroke, and death (Smith et al., 2018). Nationwide, 24% of adults with hypertension are untreated, 12% are unaware that they have hypertension, and only 54% attain blood pressure control of 140/90 mm Hg (Smith et al. 2018).

Florida ranks as one of the worst states for hypertension prevalence (Smith et al., 2018). Reducing hypertension in Florida to approximately 39% for women and 41% for men could prevent up to 10% of overall cardiovascular-related deaths in Florida (Smith et al. 2018). The highest priority statewide is to achieve improved blood pressure control (Smith et al. 2018). The need for improving hypertension control in the state of Florida is crucial. Prior the project site, it was noted that staff at the cardiology primary care clinic did not provide educational handouts that included how and when to measure blood pressure outside the health care site. There was also no provision of a diet guideline for patients to follow. There were also no face-to-face nursing visits to follow-up on blood pressure. This quality improvement project assisted in fulfilling the state plan and goal to reduce uncontrolled hypertension in the primary care clinic.

Project Aim or Purpose

The quality improvement project goal was to increase self-management knowledge for patients with uncontrolled hypertension to achieve a better control on their hypertension disease. Another goal of the project was to develop a sustainable system of ongoing support for this patient population to encourage them to self-manage their uncontrolled hypertension.

The quality improvement project's aim is to first provide all included patients with RISE education pamphlets during face-to-face nurse visits. Secondly, it aimed to provide all included patients with DASH education pamphlet during the face-to-face nurse visit. Finally, it aimed to decrease hypertension readings by three to seven mmHg throughout the two-month period for the included patients.

Clinical Question/PICOT

The project is designed to answer the PICOT question: "(P) In patients who have a diagnosis of uncontrolled hypertension, (I) how does a self- management educational pamphlet and a face-

to-face nursing visit, (C) compared to current practice, (O) affect uncontrolled hypertension (T) within a 2-month period?”

Congruence with an Organizational Strategic Plan

The project aligns with the mission of the community Department of Health's (DOH) strategic plan for the year of 2017 to 2019. The mission of the community DOH is “To protect, promote, and improve the health of all people in Florida through integrated state, county, and community efforts and the vision is to be the healthiest state in the Nation” (Florida Department of Health in Palm Beach County, n.d.). The primary cardiology clinic's mission is to improve the life of every person who enters the clinic (H. Sidky, personal communication, November 27, 2018). The clinic's mission is driven to meet the diverse needs of the patients in their community and the project's objective to achieve self-management of uncontrolled hypertension aligned with both the vision and the mission (H. Sidky, personal communication, November 27, 2018). The focus of this project was to educate the uncontrolled hypertensive patient in the primary cardiology clinic and to improve self-management of their chronic disease.

The project supported the county and community strategic plan to improve the health of the state aiming for Florida to be one of the best and healthiest states nationwide. This project strengthened the collaboration effort between the community and the cardiology primary care clinic mission by implementing a simple solution to assist with reducing the number of patients who have uncontrolled hypertension through the use of education and self-management strategies. Also, this project established the practice of face-to-face nurse visits with the included patients for a blood pressure check-up which impacted the health for uncontrolled hypertensive patients.

Search Process

The PubMed and Google Scholar websites were used to find evidence-based articles regarding hypertension. The keywords that were used to search for the evidence-based articles were hypertension, uncontrolled hypertension, hypertension education, simple education for hypertensive patients, and hypertension complications. Terms used to limit the searches were uncontrolled hypertension and education for uncontrolled hypertension.

Over 30 articles were found. Articles published over 5 years ago were excluded; the search was limited to the articles published between 2013-2018. There were five articles that focused only on hypertension medications or medication therapy, which were also eliminated. Twenty articles focused on improving uncontrolled hypertension and increased self-management through education, all of which were selected for the final appraisal.

Synthesis of Evidence

Patient education. Kilic et al. (2018) utilized Roy's adaptation model to provide education, which affected the management of hypertension. The study included hypertensive patients to evaluate the effects of education in managing hypertension. This model views individuals as interrelated among biological, psychological, and social aspects. The study population from included 155 hypertension patients from the Erzurum City Center registered in seven family health centers. Data collection was implemented using a form of patient description, hypertension management form, and the Self-Efficacy Scale for Adherence/Adaptation to Medical Treatment (Kilic et al., 2018). After the educational program, each patient was provided with an educational manual of self-management to refer to as needed. The study revealed that using the Roy adaptation model in the education provided for hypertensive patients was effective in reducing blood pressure and ensuring hypertension management.

Another study by Daniali, Eslami, Maracy, Shahabi, and Mostafavi-Darani (2017) was done to measure how hypertensive obese women's self-care behaviors and self-efficacy were affected through educational intervention (Danial et al., 2017). The randomized study included 146 hypertensive women between 30-65 years old selected to be referred to six healthcare centers in Isfahan. The selected women were randomly assigned to a control or intervention group and informed consent was obtained from each participant. The results showed a significant drop in systolic and diastolic after six months (Daniali et al., 2017).

Golshahi, Ahmadzadeh, Sadeghi, Mohammadifard, and Pourmoghaddas (2015) performed a randomized study to examine if self-care behaviors could affect blood pressure levels and to compare the different methods of training of self-care on patients' adherence and hypertension control (Golshahi et al., 2015). The study revealed that education on self-care management while receiving the usual care and using SMS might improve self-adherence and improve hypertension control (Golshahi et al., 2015). Also, Bosworth (2014) completed a study among hypertensive patients by comparing two self-management interventions for improving blood pressure control. This study revealed that literacy and geographical location factors could be measured to predict patient behavior. The awareness of certain factors can help guide the providers to predict a patient's capability to self-educate concerning how they can better help themselves with their hypertension.

Knowledge about hypertension. Abd El-Hay and Mezayen (2015) conducted a study to assess knowledge level and challenges faced by hypertensive patients, as well as their perceptions about modifying their lifestyle behavior. The convenience sample for the study consisted of male and female patients who had just received a diagnosis of hypertension (Abd El-Hay & Mezayen, 2015). This study took place in two health care facilities, one in the Primary Health

Care Units in Sebrbay at Tanta City and the other one at the Outpatient Medical Clinic at Tanta University Hospital (Abd El-Hay & Mezayen, 2015). Knowledge regarding hypertension was gathered using a structured knowledge questionnaire. The lifestyle behavior modifications sheet was also implemented. The results of the study suggested that the controlling hypertension and the prevention of long-term complications heavily rely on patients' knowledge and lifestyle modifications (Abd El-Hay & Mezayen, 2015). The results showed the significance of education as an intervention to improve hypertension (Abd El-Hay & Mezayen, 2015).

Another study was conducted by Viera, Cohen, Mitchell, and Seloane, (2014) to assess the current knowledge of primary care patients about different facts of high blood pressure. A cross-sectional survey was administered to adults from a cohort of 24 practices located in the North Carolina Family Medicine Research Network (NC-FM-RN) waiting room (Viera et al., 2014). A large sample of 700 hypertensive patients selected from 24 different practices in North Carolina, who participated in a practice-based research network, were mailed a questionnaire (Viera et al., 2014). The study showed that only 10% of those patients had their blood pressure controlled, 50% were unaware of their hypertension disease, and 25% were not being treated for hypertension (Viera et al., 2014).

Williams, Baker, and Parker (2014) examined the correlation between the level of health literacy and hypertensive patients' knowledge about their chronic disease and treatment. A cross-sectional survey for patients with hypertension and diabetes was conducted in general medical clinics at two urban public hospitals; one hospital was located at Harbor-UCLA medical center and the other hospital, Grady Memorial Hospital, was located in Atlanta, Georgia. This study was performed to test adults' health literacy.

William et al. (2014) used 402 patients with hypertension and 114 patients with diabetes. The study showed that patients who were involved in developing the educational materials were able to advance their health and that the educational material that they developed had an effective influence on them (William et al., 2014). Low-literacy patients with chronic disease need patient education materials and commitment of essential resources to improve their health outcome (William et al., 2014).

Technology blood pressure follow-up. Bengtsson, Kjellgren, Hallberg, Lundin, and Mäkitalo (2018) explored how well patients self-reported their blood pressure readings and the need for consultation using a mobile phone-based hypertension support system. The study included 20 patients and seven-health care professionals were selected from four primary health care centers in Sweden (Bengtsson et al., 2018). All patients were educated about the study and the inclusion of video and audio recordings in writing (Bengtsson et al., 2018). The health care professionals provided, and patients were ensured of, confidentiality before signing the consent form. This study showed how self-management using mobile devices increases patient education concerning hypertension.

Margolis et al. (2013) explored the effect of pharmacist management and telemonitoring home bases on blood pressure control. The study's goals were to determine if home blood pressure telemonitoring paired with a pharmacist case management intervention could improve blood pressure control when compared to the regular care and to verify if blood pressure control continued after the intervention ended (Margolis et al., 2013). A 12-month randomized trial of a clinic intervention and 6 months follow-up post-intervention was performed (Margolis, 2013). The researcher recruitment 450 adults with uncontrolled blood pressure from 14,692 patients

with electronic medical records selected from 16 primary care clinics in an integrated health system in Minneapolis-St. Paul, MN (Margolis et al., 2013). Before the research began, all selected patients signed an informed consent form (Margolis et al., 2013). Pharmacist case management, coupled with the home blood pressure telemonitoring, led to better control of patient blood pressure when compared to the 12-month usual care intervention and continued for six months post-intervention (Margolis et al., 2013).

Margolis et al. (2013) studied how home management, which arises from provisional education, can help patients self-manage their hypertension by furthering their adherence to recommendations from a health provider. Margolis et al. completed another study on home blood pressure telemonitoring and case management to control hypertension. As this study was designed for an experiment only, there were no statistical findings. However, it was hypothesized that patients who adhere to the telemonitoring method would have better blood pressure results. Zullig, Melnyk, Goldstein, Shaw, and Bosworth (2013) and Green et al. (2017) conducted studies to evaluate interventional trials involving home-based blood pressure monitoring with behavioral modification and medication management. In addition, Zullig et al. (2013) discussed the role of home-based blood pressure telemonitoring within the patient-centered medical home and the developing role of technology (Zullig et al., 2013). This study proved that home base blood pressure monitoring improved blood pressure and office visits may be unnecessary to achieve ideal blood pressure (Zullig et al., 2013).

Ralston et al. (2014) used the Electronic Medical Record (EMR) also to evaluate various factors that effectively provide control hypertension in uncontrolled hypertensive patients (Ralston et al., 2014). These factors include the role of home monitoring, medication adherence, communication with pharmacists, and lifestyle (Ralston et al., 2014). The conclusion of this

study showed that telemedicine resulted in better self-management of blood pressure in uncontrolled hypertensive patients (Raleston et al., 2014).

Self-care efficacy. Findlow et al. (2013) and Kazemin et al. (2018) validated the Hypertension Self Care Activity Level Effects (HSCALE) measure to assess the level of self-care of hypertensive patient with the clinical blood pressure check-up (Findlow et al., 2013). The HSCALE was provided to patients with hypertension at the beginning of the study to assess their levels of selfcare (Findlow et al., 2013). A cross sectional survey and medical record abstraction were implemented at an outpatient primary care clinic at Charlotte, North Carolina between September 2011 to March 2012 (Findlow et al., 2013). Findlow et al (2013). revealed that self-care is clearly related to education and allied with healthy blood pressure.

Zinat Motlagh, Chaman, Sadeghi, and Eslami (2016) explored the hypertensive patient's self-care. A large sample of 1836 adults mixed of men and women who were diagnosed with hypertension were selected randomly to participate in this cross-section study in the year of 2014 (Zinat et al., 2016). The study took place in rural and urban health care centers in southern Iran (Zinat et al., 2016). The inclusion criteria were limited to adults who were at least 30 years old, diagnosed with hypertension for at least 6 months, and had their records stored at the medical center (Zinat et al., 2016). Patients who did not sign the consent form to participate in the study and those who could not interact with the study's staff were excluded (Zinat et al., 2016). A questionnaire that included three factors was used as a measure for the study (Zinat et al., 2016). The three factors involved self-care activities regarding hypertension, risk factors for hypertension, and sociodemographic features (Zinat et al., 2016). The results of the study in regard to hypertensive patients' self-care behavior were less than 50% for patients who lost weight, adhered to diet or medications, lost weight or increased physical activities, and 50% for a non-smoker

(Zinat et al., 2016). The recommendation of the study for the primary care providers was to increase hypertensive patients' self-care activities through a better action plan and interaction with the patients to improve self-care regarding hypertension and to establish an extensive educational program for adults and young adults (Zinat et al., 2016).

Culture and Hypertension. Beune et al. (2014) performed a study to evaluate the impact of practice-based patient education that is culturally appropriate among African patients on blood pressure and adherence to treatment with uncontrolled hypertension. After 6 months, the mean for the intervention groups systolic/diastolic blood pressure lowered by 10/5.7 (SD 14.3/9.2) mmHg and the mean for the control group dropped by 6.3/1.7 (SD 13.4/8.6) mmHg (Beune et al., 2014). The study showed that culture affects the level of educations and controlling hypertension through self- management (Beune et al., 2014).

Kressin, Orner, Manze, Glickman, and Berlowitz (2015) identified if the impact of race on blood pressure control remained after accounting for certain factors that include beliefs about blood pressure and blood pressure medications, patients' clinical and sociodemographic characteristics, experiences of discriminations, and medication adherence (Kressin et al., 2015). The researchers administered a questionnaire to patients after their clinic visits, and electronic medical record as well as blood pressure data (Kressin et al., 2015). A display of patient factors was analyzed. Eight hundred and six White and Black hypertensive patients from an urban safety-net hospital were recruited. The study declared that no significant prediction of blood pressure control because of the race (Kressin et al., 2015).

Factors that affect blood pressure. Margolis et al. (2015) conducted a mediation analysis to define which factors had the most influence of a change in systolic blood pressure in a 6-

month trial to improve hypertension control (Margolis et al., 2015). In an integrated health system, eight clinics were randomized to deliver usual care to their patients and another eight clinics were randomized to deliver a telemonitoring intervention (Margolis et al., 2015). The study disclosed that the major factors of the explained intervention effect contribute to the blend of medication intensification and self-monitoring (Margolis et al., 2015).

Another study was done by Shamsi, Dehghan Nayeri, and Esmaeili (2017) to explore the effect of cultural, social, and religious factors on hypertension treatment. Qualitative research was done using 27 patients who were admitted to the hospital for hypertension (Shamsi et al., 2017). The study lasted for 9 months. The inclusive criteria required that patients be at least 18 years of age, oriented, diagnosed with hypertension for 2 years, speak the Persian language fluently, and be willing to participate (Shamsi et al., 2017). Patients with any diagnosis of psychological disease or disorientation were excluded (Shamsi et al., 2017). The method used for data collection was interviewing the selected patients and asking them two questions about “how hypertension affected their lives and what life experience they had after hypertension” (Shamsi et al., 2017). The researchers study concluded that hypertension affected the patient’s life psychologically, physically, and spiritually (Shamsi et al., 2017). The patients who believed in the cultural context and their religion coped positively with their hypertension (Shamsi et al., 2017).

Theoretical Framework

Selecting a theoretical framework that is consistent with the goal and sustainability of the project was imperative. The objective of this project is to provide education and support for hypertensive patients in order to improve self-management of their uncontrolled hypertension.

Orem’s self-care theory is the most applicable framework. Orem’s theory stipulates, “self-care theory, the self-care deficit theory, and the theory of nursing systems” (Hartweg, 2015, p. 107).

The self-care theory focuses on how necessary it is for the person to learn to care for oneself, for their wellbeing, life, and functioning (Hartweg, 2015).

Orem's theory also involves "the therapeutic self-care demand" (Hartweg, 2015, p. 112). The concept of this theory includes "every action a person performs for a long time for health, well-being, and life" (Hartweg, 2015, p. 112) and also includes self-care. Development of self-care refers to "the need of a person to take an action of a positive role for health which is the necessary actions required in general for human development, and goals achievement" (Hartweg, 2015, p.113). For actions to develop, a person needs to gain skills to help fulfill their needs and then they will be suitable for self-care (Hartweg, 2015).

The required actions to maintain life and promote health and well-being are called "therapeutic self-care demands" (Hartweg, 2015, p. 112). When the demand for the requirement is more than the individual's capacity, it will result in a self-care deficit (Hartweg, 2015, p. 112). Orem's methods for the nursing process thought to determine the role played by the nurse to provide self-care when a person's self-care deficits arise (Hartweg, 2015).

Encouraging self-care management through patient education can be used by the advanced nurse practitioner by applying Orem's theory (Crabtree, Stuart-Shor, & McAllister, 2013). Crabtree et al. (2013) specifically focused on educating patients on the risk factors which lead to uncontrolled hypertension. To achieve patient behavioral change toward medication adherence, self-monitoring of blood pressure, and adherence to medical follow-up, a self-care deficit in the patient's ability to maintain and sustain this behavior must be identified and addressed (Crabtree et al., 2013). Addressing the self-care deficit present in an uncontrolled hypertensive patient by using Orem's self-care-deficit theory would strengthen the strategies for blood pressure follow-up through patient education (Crabtree et al., 2013).

Using Orem's theory helped identify the self-care deficit and stimulate self-care for the participants. During the individual interview with each patient, the nurse investigated their life circumstances and gathered other helpful information from the patient. Examples of this information included age, adherence to medication or diet guidelines, which will allow the nurse to discover the self-care deficit of the selected patients.

Uncontrolled hypertension is associated with several non-modifiable and modifiable risk factors (Crabtree et al., 2013). Non-modifiable risk factors include age, race, gender, and heredity, while modifiable risk factors are high sodium and a high-fat diet, tobacco, or alcohol use, obesity, sedentary lifestyle, and stress (Crabtree et al., 2013). The remaining factors related to individuals' lifestyle can be modified. Lifestyle changes are part of nonpharmacologic hypertension treatment (Crabtree et al., 2013). By assessing the patient's lifestyle, it was possible to associate these factors with the health requirements and to discover if there is a self-care deficit aligned with the theoretical background. Using Orem's self-care theoretical framework with uncontrolled hypertensive patients improved their self-care.

Guidance was achieved through the completion of the nursing process, which included the face-to-face nursing visit interview, the physical examination, the diagnosis, and the evaluation of the patient's ability to control their hypertension. The analysis of the universal requirements regarding health deviations and detected self-care deficits related to the patients' lifestyle is necessary to decide how to maintain hypertension. The lack of control over stressful situations, overeating, lack of blood pressure control, diet habits, and ineffective pharmacological therapy management were critical factors in controlling hypertension and preventing its complications.

The supportive education system was a significant component of the nurse's actions, as nurses sought to help the patients improve their self-care. A scheduled nursing follow-up visit or

routine consultations, as well as continuously evaluating and reinforcing the patient's education at each meeting was helpful. It was crucial for hypertensive patients to be motivated and commit to incorporating lifestyle changes to meet self-care demands.

The application of Orem's self-care theory helped the organization deliver nursing processes as well as increase the nurses' performance towards these patients. The educational pamphlet was developed for the patient to keep at home and to use after the project is completed. The pamphlet included how and when to measure blood pressure, what the typical average blood pressure readings are, and what is considered abnormal and needing of intervention. A follow-up nursing visit for blood pressure evaluation supported the patient's improvement of self-management of their hypertension. Patients learned when they should contact the provider or when they should seek assistance for a medical emergency.

Chapter II: Methodology

Project Design

According to Moran, Burson, and Conrad (2017), anytime a Doctor of Nursing Practice scholar project aims to bring change through intervention in the form of a process or protocol, one of the recommended outcomes to achieve is quality improvement. This project is a quality improvement project that aims to bring changes to the uncontrolled hypertensive patient through education and a face-to-face nursing visit. The goal of this project was to increase the knowledge for the patient about self-management of the chronic disease by providing them with simple education materials. In the primary cardiology clinic, hypertensive patients were scheduled with their primary care doctor for a follow-up visit every three months, and prior to the project, there was no formal, standardized educational handout given to the patients on how and when the patients should measure their blood pressure at home, or diet guidelines to follow.

Setting

The project as mentioned above took place in a cardiology primary care clinic in an urban city in Florida. The patients were a mix of various cultures, nationalities, and social classes. All the patients were adults between 20 to 85 years old who were willing to learn about their chronic disease and their health in general (A. Sidky, personal communications. November 18, 2018).

The clinic staff includes a physician, office manager, and six nurses/medical assistant. The stakeholders at the clinic were willing to change how they follow-up on the hypertensive patients to improve the chronic disease. The nurses were also very eager to learn and participate in the project. Also, the office manager was willing to be part of the project by offering help and support. The physician was very supportive of the project plan and was willing to help at any time during implementation.

Population/Sample

Inclusion and exclusion criteria was utilized to determine which patients would be included or excluded in this quality improvement project. The inclusion criteria was adults aged 18 to 85 years of age with uncontrolled hypertension. This study excluded patients with any underlying disease that causes uncontrolled hypertension such as hormonal abnormalities, sleep apnea, renal artery stenosis, smoking, or alcoholism (American Heart Association [AHA], 2016). Additionally, this study excluded patients who used nonsteroidal anti-inflammatory drugs (NSAIDs), decongestants, corticosteroids, and illicit drugs such as methamphetamines or cocaine (Selh, 2017). Based on the chosen inclusion and exclusion criteria, the project team anticipated that a minimum of 30 patients would qualify to be part of this quality improvement project.

Recruitment Methods

The project is a quality improvement project; therefore, patients were not recruited. The data was collected from the clinic's registry for hypertension and since this is a quality improvement project, consent was obtained from the patients (See Appendix G). Patients at the clinic were scheduled for a blood pressure follow-up visit at the clinic and the data collected was provided by the physician who is the owner of the primary cardiology clinic. There was no need for incentives or advertisements as this project focused on patients with a pre-existing condition. The selected patients, as defined by the inclusion criteria, was identified before the intervention began and patients were assigned numbers to maintain confidentiality and to protect their identities.

Tools and Instruments

In this quality improvement project, there were tools for the patients and the nurses to use. The doctoral student created a simple educational pamphlet using the acronym RISE (See Appendix B), which provided the patients with a simple, easy, and visual education of how and when to measure their blood pressure. The RISE pamphlet was accompanied by a blood pressure log (See Appendix C) for the patient to record his or her blood pressure reading every time it is measured at home. In this blood pressure log, the patient will record the date, time, the blood pressure reading and any comments he or she wants to add on the day of their reading.

The RISE educational pamphlet was created by the doctoral student to simplify the education on how to improve the uncontrolled blood pressure in hypertensive patients. The RISE pamphlet will be given to patients by the nurses during their scheduled nursing visits for blood pressure check-ups. The RISE educational pamphlet was created as a summary of an article titled "8 steps to ensure your patients get their blood pressure right" (Berg, 2018). In his article, Berg, (2018) explained the new guidelines for the physician and healthcare team to assess blood pres-

sure and self-management to improve the management of the blood pressure for hypertensive patients. The guideline for how to measure blood pressure emphasized assisting the patients with using the blood pressure device, the proper posture position to measure blood pressure, how to document blood pressure readings, the importance of medication adherence, and how often to measure blood pressure. Berg also summarized how to prepare the patients to take their blood pressure and what the patients should do when there is an abnormal blood pressure reading (Berg, 2018).

Another tool that was used in the project was the blood pressure recording table (See Appendix E). The doctoral student created a blood pressure recording table for the nurse to record the patient's blood pressure reading at the time of the visit. In this recording table, a patient identification number (ID) was indicated to represent the patient's blood pressure record for the timeframe for the project.

In addition, a Dietary Approach to Stop Hypertension (DASH) diet table (See Appendix D) was included in the pamphlet to educate the patient to eat a healthy diet, which contributed to improvement with blood pressure control. The DASH diet is recommended by the American Heart Association for its effect on lowering blood pressure for the hypertensive adult (Brissette, 2014).

Project Plan

The first step in the project plan was to start with an informal educational session for the nurses in order to explain each element of the project and their roles (See Appendix A). The handouts included were the (1) RISE pamphlet, (2) blood pressure log (3) DASH diet, and (4)

blood pressure recording table. Next, nurses were educated on placing the pamphlet in the patient's files and provided it to the patients at the check-out time of their scheduled blood pressure follow-up visit with the physician with encouragement to follow the RISE pamphlet.

Then the nurses were educated on how to document the patient's blood pressure reading in the blood pressure recording table (See Appendix, E) that was created by the doctoral student for the face-to-face nurse visit. The blood pressure recording table was kept in a locked drawer in the administrator's office, and the nurses had access to the key to record the patient's blood pressure reading. The nurse was educated to return the blood pressure recording table to the drawer and ensure to lock the drawer with the key, then give the key back to the office administrator to store it. The nurses needed to then schedule the selected patients for the next blood pressure nursing visit for two weeks later and emphasize to the patient the importance of following the pamphlet guidelines when they measured their blood pressure at home or when they went to a local store to use the blood pressure machine there. Nurses recorded the patients' blood pressure reading in the blood pressure recording table at every blood pressure nursing visit and repeated the same process of storing the table in the locked drawer.

Nurses also recorded the blood pressure reading from the patient blood pressure log when the patient presented at each nurse visit. The nurses recorded the highest and lowest blood pressure reading from the patient blood pressure log in the blood pressure recording table every nursing visit until the end of the designated time for the project, which was two months. The doctoral student read the recording table at the end of the two months for comparisons on the patients' blood pressure reading before and after the use of the educational pamphlet. The results of the collected data on the blood pressure recording table were assessed with the help of a resource

person who has experience in statistical analysis, and who also provided a narrative summarizing the statistical analysis.

At the end of the informational session, the doctoral student reviewed the proper blood pressure measurement technique with the nurses at the primary cardiology clinic. The proper blood pressure technique involves an appropriate cuff size and the cuff wrapped around the patient's arm without clothes. Correct measurement of blood pressure is essential for accurate follow-up on blood pressure. The patient should be seated for five minutes quietly with their arm rested at heart level. The cuff bladder must encircle at least 80% of the upper arm circumference to avoid elevated blood pressure reading if an inappropriate smaller cuff is used (Selh, 2017).

Next, the nurses were educated on how to instruct the patients at their blood pressure checkup appointment on the RISE pamphlet and the blood pressure log and how the patient could use it to document blood pressure readings at home. Next, the nurse was instructed to determine the date of the next blood pressure nursing visit and remind the patient to bring their blood pressure log to their next nursing visit. Then, nurses were instructed to inform the receptionist to make the next appointment for the patients before they left the clinic.

The nurses were instructed to review the blood pressure reading and the medication list with all the patients and present them to the physician for review. Blood pressure logs with information on the date and time that the patient measured their home blood pressure were handed out by the nurses. The patients were to be encouraged to purchase their own blood pressure machine or to measure it at any pharmacy store that has a blood pressure automatic machine. The patient was educated to call the clinic if their blood pressure was higher than the individualized goal. The nurses made sure when providing the patients with the RISE pamphlet to include the DASH diet with tips for lifestyle changes. The nurses were informed that the receptionist would call the

selected patients to remind them of their scheduled time for the nursing visit for the blood pressure check-up 24 hours before their appointments.

Measurement

To measure the success of the implementation, successful outcomes went beyond measuring blood pressure changes. The education of the patients was measured by comparing pre and post blood pressure readings at the end of two months. Reducing a patient's blood pressure reading by three mmHg points over two months in 90% of the selected patients was the initial goal. Another project outcome was to provide education to 100% of the selected patients; this education included information that would teach the patients how and when to measure their blood pressure and on the benefits of eating a healthy diet. In addition, the project included education about the DASH diet, which helped the patient improve their uncontrolled hypertension. According to Tello (2018), changing diet can reduce blood pressure by 11 points and changing other habits may lower blood pressure readings by four to five points (Tello, 2018).

Procedures for data collection. The data was collected from (1) the patients blood pressure log patients brought in during the nursing visit; (2) the blood pressure reading obtained by the nurses during the nursing visit; (3) the blood pressure recording table where the nurse documented all blood pressure readings from the patient log and the nursing visits. The data was susceptible to have an error because it was collected by the patients. This type of error was prevented by teaching them the proper technic of measuring blood pressure. Since no additional participants were part of the data collection, no training was necessary. The staff in the clinic were asked to collect the blood pressure readings from the patient blood pressure log and save it in each patient's data collection table and save it in a locked box in the administrator's office. The key for this drawer was kept at the designated place determined by the office administrator.

Patients were given the educational pamphlet during their visit. Part of the educational pamphlet included a log where the patients recorded their blood pressure twice a day in the morning and in the evening. The observed barriers to data collection were the patient not being diligent about collecting their blood pressure at the correct times, or lack of consistency.

The stored data followed all privacy provisions for patient data to ensure HIPAA laws were not violated; data was saved in a designated drawer in the administrator's office and the key was kept in a safe place as mentioned, and only the staff had access to it. Once the patient was selected from the patient database by the physician (based on the subject selection discussed previously), the patient was given the pamphlet and educated on it by the nurse at their next visit.

Evaluation

This quality improvement project was planned to improve the self-management of uncontrolled hypertensive patients in the primary cardiology clinic through education and face-to-face nurse visits examining blood pressure. The project answered the question about how education improves self-management for uncontrolled hypertensive patients. The evaluation of the success of the project was done by analyzing the collected data of the blood pressure reading that was documented by the nurses in the blood pressure recording table at the end of the two months. Since the data analysis results showed a reduction of the blood pressure by three to eleven mmHg, then the goal of improving the uncontrolled hypertension was met. The doctoral student also evaluated how the RISE educational pamphlet increased the hypertensive patient's awareness of their chronic disease through the reduction in patient weight by four to ten pounds at the end of the two months. Evaluation of the blood pressure reading for the participant patients after

using the RISE educational pamphlet and showing an improvement of their blood pressure reading provides sustainability to implement the project strategy for a long time in the primary cardiology clinic with hypertensive patients in the future.

Sustainability

The primary care physician collaborating with the office manager and the nursing staff were willing to maintain the project strategy with all patients who were diagnosed with hypertension and the new patients who will be diagnosed with the same disease in the future. At the end of the implementation of the project, the steps for the projects and the RISE educational pamphlet were handed to the office manager to follow in the future. If at any given time the metric did not meet the goal for the patients, the nurses meet with the physician and the office manager to review the process to find why the goal was not met. The revenue reward for the primary cardiology care from the project was through getting paid for unlimited nursing visits (E. Khila, personal communication, February 21, 2019). This was also another reason for the project strategy sustainability in the clinic. Communications with other healthcare professionals and providers were essential for the project long term goal expanding, not only in the local clinic but also in other clinics in the community or even in other states.

The primary care physician is invited as a guest speaker for many medical conferences locally and nationwide, and he is planning to announce the result of the project with his patients to conference attendees (A. Sidky, personal communication, February 3, 2019). The primary care physician plans to use the RISE pamphlet in a display during conferences, which will give an opportunity for the educational pamphlet to be shared with a wide range of other physicians to use in the future. The spread of knowledge regarding Medicare pay for unlimited nursing visits (E.

Khila, personal communication, February 21, 2019) will encourage other physicians to pursue the project strategy in their practice clinics with their hypertensive patients.

Timeline

The project timeline (See Appendix H) included the project plan and design, Institutional Review Board (IRB) application, implementation steps, and after implementations data analysis, results, discussion, and conclusions. The plan for data analysis process, evaluation and budget began in November 2018 and was concluded by March 2019. The RISE educational pamphlet and blood pressure recording table was created by the doctoral student between January and February 2019. The IRB application with the letter to the CUHSR committee was submitted between March and April 2019 after the project defense took place on the assigned date that was determined by the project chairperson.

Staff planning education meetings began in May 2019 and the implementation of the project was from May through June of 2019. Data collection, statistical analysis, results, discussion, and a conclusion took place from June until August 2019. Project results will be provided to Bradley University in November of 2019.

Data Analysis

The data analysis was conducted with Dr. Bishoy Morkos, Ph.D. Associate Professor of Mechanical Engineering. The patients' initial blood pressure measures were compared to their blood pressure measures after using the educational pamphlet in the project for two months period. The comparison was performed using a paired t test since the data came from the same patients before and after using the educational tool. The t test indicated if there is a statistically significant difference in the mean scores for pre-and post-intervention (B. Morkos, personal com-

munication, February 15, 2019). If the data were nonparametric (does not follow a known distribution), then the Mann-Whitney U Test was used to examine the score or percentage of controlled hypertension (B. Morkos, personal communication, February 15, 2019).

Quantitative data analysis was used to analyze the effect of the educational pamphlet on improving uncontrolled blood pressure for hypertensive patients. The independent variable was the educational pamphlet, and the dependent variables were blood pressure and blood pressure entries (the frequency of which they measure and record their blood pressure) (B. Morkos, personal communication, February 15, 2019). The data analysis included a continuous dependent variable that was the percentage of controlled hypertension at pre-educational intervention and post educational intervention (Kellar & Kelvin, 2013).

Institutional Review/Ethical Issues/ HIPAA Privacy

The IRB application was completed by Bradley University Community Use of Human Subject in Research (CUHSR). The clinic office manager and the owner agreed to use the university IRB process as they did not have a privacy board. An emailed agreement (see Appendix I) on implementing the project at the primary cardiology clinic was signed by the physician who is the owner and was sent to the chair faculty to be provide to the university IRB committee. The CUHSR (See Appendix F) letter for requesting approval from the IRB committee at Bradley University is included. The project timeline (See Appendix H) and schedule of each activity were other tools used for the project.

In abiding by HIPPA requirements, patient identifying information was removed, and specific patient identification (ID) was created for each patient. Instead of the patient names, the doctoral student replaced the patient names with a number on the blood pressure recording table, which was stored in the locked drawer in the office of the administrator in the clinic. The key

was kept in its designated place. HIPAA privacy and security rules were followed, and no harm was done to the participant's privacy, security or care as they were receiving only their usual blood pressure checks.

The project was explained to the patients by the nurses while providing them the pamphlet at the checkout time of their scheduled blood pressure follow-up visit with the physician. The nurse included the benefits of their participation in the project, which involved improving their blood pressure control to prevent them from developing cardiovascular disease or stroke. The participant was asked to sign the informed consent form acknowledging that they were educated on their role of the project, that they would be participating in the project, and that they agreed to commit to coming for their scheduled nurse visits appointment for the two months for the project to be completed. The patients also had the chance to ask questions if they had any.

The participants could opt out from the project at any time if any changes in their circumstance occurred. For example, if anyone had a family emergency and could not come to the scheduled nursing visit, or if someone had an unexpected health issue that caused a hospital admission, patients were aware they could opt out of the program.

The doctoral student ensured the rights of all the participants and protected their dignity equally. According to the IRB ethically regulatory requirements, the process and outcome of the subject selected was fair and included delineated inclusion and exclusion criteria (Grady, 2015). While selecting the participants, there was no discrimination by socioeconomic status, education, or nationality.

Chapter III: Organizational Assessment and Cost Effectiveness Analysis

Organizational Assessment

Each interdisciplinary team member had a different role, and when they collaborated, they participated in the project according to each one's role. The nurses provided the pamphlets and educated the patients on content of the blood pressure log, and the DASH diet while the patients were being triaged in the exam room. The physician helped identify patients with uncontrolled hypertension. The manager allowed the nursing staff to keep the educational pamphlets in the patients' files and to provide it for the patient at the time of their scheduled visit with the education of how to follow it.

Readiness for Change

The primary care cardiology clinic was ready to change the way they educate and follow-up with their hypertensive patients to decrease the number of patients with uncontrolled hypertension. The physician, the office manager, and the nurse's staff were willing to learn and participate in the project. The primary cardiology care clinic reviewed the project and agreed readily for implementation of the project in the clinic. As promising results were observed, the clinic will now attempt to implement this intervention for all their established hypertensive patients and those newly diagnosed with hypertension.

Barriers

According to Burden (2016), at the beginning of initiating change, any concerns from the team members or obstacles to change should be addressed immediately by identification of the barrier, which may be a lack of information, systems in place or people (Burden, 2016). There were no anticipated barriers. Once a barrier was identified however, support and education were offered to help address it. The project involved nursing education, patient education, follow-up nursing visit, and documentation of patients' blood pressures reading, during the implementation of all of these aspects, so when any barriers arose, they were relayed in a staff meeting or via

emails to encourage and support the staff. Support of the project was maintained by engaging the office manager, the physician, and the nurse's staff. Finally, to sustain the change of this new strategy for blood pressure follow-up tailored to patients' education, any further barriers were addressed.

Cost Factors

The quality improvement project proved to be a cost avoidance project and did actually bring revenue to the primary cardiology clinic. The cost of the material came out of the current clinic budget. The materials were printed at the clinic printer and the owner agreed to print it, eliminating any cost. The nurses added each educational pamphlet in the patient's folder (staff time), which was part of their daily paid time. The patient did not have any additional costs as they were encouraged to have measured their blood pressure at local stores (Publix) or pharmacies (Walgreens, CVS, etc.) or use their personal blood pressure machine if they had one.

The project added revenue for the primary cardiology clinic through nursing visits. The clinic was paid for the face-to-face nurse visit by Medicare as mentioned above. Medicare pays \$15 for a nursing visit and there are no limits for the numbers of the visits (E, Khila, Communication interview, February 21, 2019).

The potential revenue projected before the implementation phase was \$15 per nurse visit for 30 patients, and actually resulted in a total of \$450. Additionally, each patient was scheduled for a blood pressure nurse visit every two weeks, which was four visits over the two months for the implementation phase. The total potential revenue at the end of the implementation phase was \$450 for four visits for each patient equaling to a total of \$1,800. Cost avoidance and revenue to the primary cardiology clinic encouraged and supported the sustainability of the project intervention in the clinic as well as other neighbor clinics.

Chapter IV: Results

Analysis of the Implementation Process

The initial project steps for the intervention began with the nurse's educational session to explain to patients the phases of the project and to review the accurate method of blood pressure measurement. This part took place one week before the intervention steps started on June 29, 2019. During this session, nurses were introduced to the RISE pamphlet that included the DASH diet, and the blood pressure log. Also, nurses were educated on how to use the blood pressure recording table that was created by the doctoral student to record the patient blood pressure reading during the face-to-face nursing visit. The original plan was designed with inclusion and exclusion criteria for the participant patients, but after the CUHSR application was reviewed and approved on June 14, 2019, it was advised by the CUHSR committee that the RISE pamphlet be provided for all the hypertensive patients at the primary care clinic. Also initially, the plan was to provide the patients with a consent form for participation in the project, but the CUHSR committee advised there was no need for the consent form. Because the project is a quality improvement project, no consent was required for the participants. Modifications during the implementation process were ongoing. Whenever any challenge would arise, it was presented by the nurse during the weekly meetings the doctoral student had with the nurses. One of the challenges was that of not being able to reach the patients on the phone and having to leave messages to confirm their face-to-face nursing visits. The modification implemented was a mailed reminder to the patient of their appointment. Another challenge was that some patients, after coming once or twice to the face to face follow up nursing visits, stopped coming because they said it was too much for them to come that often to the clinic. Those patients were encouraged by the nurses to come

every 4 weeks, and just check their blood pressure, but they were not part of the final results of the project.

The expected participant's sample size was around thirty participants, but only twelve patients were committed to coming for the face-to-face nursing visits for the two months. These patients brought their blood pressure log to the visits and followed the RISE pamphlet guidelines and the DASH diet. Some patients could not come periodically because they had no transportation, others could not afford to come because of the cost of the gas, and others could not take too much time away from their jobs.

Most Important Lessons Learned

The most important lesson to learn in this project is to create a motivational tool or reward for the patients to encourage them to participate in this care protocol designed for them to improve their blood pressure. Motivational tools, such as a small gift card that they can use toward their medication costs would be fruitful in encouraging patients to do the work provided, and it also gives the patient the impetus needed to effect greater changes in their lives. Another motivation could be providing the patients with other transportation alternatives such as public transportation with a discounted ticket for the participants to facilitate their coming to their blood pressure appointments. Providing the patient with information about discounted blood pressure monitors covered by Medicare, could also help more patients to participate in the care they need.

Analysis of the Project Outcome Data

Quantitative data was collected from 12 patients with regard to hypertension and weight. This data was collected both pre and post educational intervention. Blood pressure (BP) data was collected at four interval points: pre-intervention which was expressed as Time 1 or the first

nursing visit, Time 2 as the second nursing visit, Time 3 as the third nursing visit, and post-intervention at two months after the pre-intervention measurement. There was no missing data for the patients. The paired *t*-test was used to determine if the systolic and diastolic blood pressure and patient weight differed before (pre-intervention) and at two months after (post-intervention), the educational materials were provided to the patients. The null hypotheses was that there would be no change in hypertension/blood pressure or weight from pre to post-intervention. The alternative hypothesis was that there would be a decrease of three to seven mmHg of the blood pressure reading at the conclusion of the two months period. Patient weight was also assessed from pre to post-intervention.

Table 1

Descriptive Statistics for the Blood Pressure Measurements and Weight (N = 12)

Measure	Min	Max	<i>M</i>	<i>SD</i>
Pre- Systolic BP	140	170	152.17	9.76
Pre- Diastolic BP	80	95	89.08	3.52
Time 2 Systolic BP	139	150	143.08	3.70
Time 2 Diastolic BP	4	92	78.67	24.09
Time 3 Systolic BP	127	140	136.00	4.30

Time 3 Diastolic BP	70	86	80.92	4.31
Final Systolic BP	121	140	129.67	4.55
Final Diastolic BP	68	82	76.17	4.84
Pre -Weight	166	227	196.33	19.13
Post Weight	164	220	192.08	18.01

Descriptive Statistics. The descriptive statistics for blood pressure measurements and weight appear in Table 1. The average pre-systolic blood pressure was 152.17 ($SD = 9.76$); the average pre-diastolic blood pressure was 89.08 ($SD = 3.52$). The average Time 2 systolic blood pressure was 143.08 ($SD = 3.70$); the average Time 2 diastolic blood pressure was 78.67 ($SD = 24.09$). The average final systolic blood pressure was 129.67 ($SD = 4.55$); the average final diastolic blood pressure was 76.17 ($SD = 4.84$). The average pre-weight was 196.33 ($SD = 19.13$); the average post weight blood pressure was 192.08 ($SD = 18.01$).

Descriptive Statistics for Blood Pressure Measurements and Weight (N = 12)

Table 1. Descriptive statistics for blood pressure measurements and weight (N = 12).

Paired Samples *T* Tests - Systolic BP: Pre-intervention and final (two months later).

The first paired samples *t*-test was used to examine the difference between the pre-intervention systolic BP measure and the final systolic BP reading. As seen in Table 2, the average pre-intervention systolic BP was 152.17 ($SD = 9.76$) and the average final systolic BP was 129.67 ($SD =$

4.55) indicating a mean difference of 22.50. The difference between the average systolic pre-intervention and final BP measure was statistically significant ($t(11) = 7.48, p < .05$). The mean scores indicate that the average systolic BP significantly decreased from pre-intervention to the final BP measure.

Paired Samples T-Test: SBP at Preintervention and Final Measure (N = 12)

Pair for Item 1	Mean	SD	SE Mean	Lower	Upper	T	Df	P
Pre Systolic BP	152.17	9.76	2.82	15.88	29.11	7.48	11	.001
Final Systolic BP	129.67	4.55	1.31					

Table 2. Paired samples t-test comparing systolic blood pressure (BP) at preintervention and final measure (N = 12) with 95% CI of the difference.

Diastolic BP - Pre-intervention and final. The next paired samples *t*-test was used to examine the difference between the pre-intervention diastolic BP measure and the final diastolic BP reading. As seen in Table 3, the average pre-intervention diastolic BP was 89.08 ($SD = 3.52$) and the average final diastolic BP was 76.17 ($SD = 4.84$) indicating a mean difference of 12.91. The difference between the average pre-intervention and final diastolic BP measure was statistically significant ($t(11) = 8.98, p < .05$). The mean scores indicate that the average diastolic BP significantly decreased from preintervention to the final BP measure.

Paired Samples T-Test Comparing DBP at Preintervention and Final Measure (N = 12)

Pair for Item 1	Mean	<i>SD</i>	S.E. Mean	Lower	Upper	<i>T</i>	<i>df</i>	<i>P</i>
Pre Diastolic BP	89.08	3.52	1.01	9.75	16.08	8.98	11	.001
Final Diastolic BP	76.17	4.84	1.39					

Table 3. Paired samples *t*-test comparing diastolic blood pressure (BP) at preintervention and final measure ($N = 12$) with 95% CI of the difference.

Systolic BP - Time 2 and Final. The next paired samples *t*-test was used to examine the difference between the time 2 systolic BP measure and the final systolic BP reading. As seen in Table 4, the average time 2 systolic BP was 143.08 ($SD = 1.06$) and the average final systolic BP was 129.67 ($SD = 4.55$) indicating a mean difference of 13.41. The difference between the average systolic time 2 and final BP measure was statistically significant ($t(11) = 9.85, p < .05$). The mean scores indicate that the average systolic BP significantly decreased from time 2 to the final BP measure.

Paired Samples T-Test Comparing SBP at Time 2 and Final Measure ($N = 12$)

Pair for Item 1	Mean	<i>SD</i>	S.E. Mean	Lower	Upper	<i>t</i>	<i>Df</i>	<i>P</i>
Time 2 Systolic BP	143.08	3.70	1.06	10.41	16.41	9.85	11	.001
Final Systolic BP	129.67	4.55	1.31					

Table 4. Paired samples t-test comparing systolic blood pressure (BP) at time 2 and final Measure (N = 12) with 95% CI of the difference.

Diastolic BP: Time 2 and final. The next paired samples *t*-test was used to examine the difference between the time 2 diastolic BP measure and the final diastolic BP reading. As seen in Table 5, the average time 2 diastolic BP was 78.67 (*SD* = 24.09) and the average final diastolic BP was 76.17 (*SD* = 4.84) indicating a mean difference of 2.5. The difference between the average time 2 and final diastolic BP measure was not statistically significant ($t(11) = 0.37, p > .05$). The mean scores indicate that the average diastolic BP *did not* significantly decrease from time 2 to the final BP measure.

Paired Samples T-Test Comparing DBP at Time 2 and Final Measure (N = 12)

Pair for Item 1	Mean	<i>SD</i>	S.E. Mean	Lower	Upper	<i>T</i>	<i>Df</i>	<i>P</i>
Time 2 Diastolic BP	78.67	24.09	6.95	-12.29	17.29	0.37	11	0.71
Final Diastolic BP	76.17	4.84	1.39					

Table 5. Paired samples t-test comparing diastolic blood pressure (BP) at time 2 and final measure (N = 12) with 95% CI of the difference.

Systolic BP: Time 3 and final. The next paired samples *t*-test was used to examine the difference between the time 3 systolic BP measure and the final systolic BP reading. As seen in Table 6, the average time 3 systolic BP was 143.08 (*SD* = 1.06) and the average final systolic BP

was 129.67 ($SD = 4.55$) indicating a mean difference of 13.41. The difference between the average systolic time 3 and the final BP measure was statistically significant ($t(11) = 9.85, p < .05$). The mean scores indicate that the average systolic BP significantly decreased from time 3 to the final BP measure.

Paired Samples T-Test Comparing SBP at Time 3 and Final Measure (N = 12)

Pair for Item 1	Mean	SD	S.E. Mean	Lower	Upper	T	Df	P
Time 3 Systolic BP	136.00	4.30	1.24	3.96	8.70	5.89	11	.001
Final Systolic BP	129.67	4.55	1.31					

Table 6. Paired samples t-test comparing systolic blood pressure at time 3 and final measure (N = 12) with CI 95% of the difference.

Diastolic BP: Time 3 and Final. The next paired samples *t*-test was used to examine the difference between the time 3 diastolic BP measure and the final diastolic BP reading. As seen in Table 7, the average time 3 diastolic BP was 80.92 ($SD = 4.31$) and the average final diastolic BP was 76.17 ($SD = 4.84$) indicating a mean difference of 4.75. The difference between the average time 3 and final diastolic BP measure was statistically significant ($t(11) = 4.31, p > .05$). The mean scores indicate that the average diastolic BP *did not* significantly decrease from time 3 to the final BP measure.

Paired Samples T-Test Comparing DBP at Time 3 and Final Measure (N = 12)

Pair for Item 1	Mean	SD	S.E. Mean	Lower	Upper	<i>t</i>	<i>Df</i>	<i>P</i>
Time 3 Diastolic BP	80.92	4.31	1.24	2.32	7.17	4.31	11	0.71
Final Diastolic BP	76.17	4.84	1.39					

Table 7. Paired Samples T-Test Comparing DBP at Time 3 and Final Measure (N = 12).

Patient weight at Time 1 and end of two months. The next paired samples *t*-test was used to examine the difference between the patients' weight at preintervention (Time 1) and at the final measurement period. As seen in Table 8, the average time 1 weight was 196.33 (*SD* = 19.13) and the final weight was 192.08 (*SD* = 18.01) indicating a mean difference of 4.25. The difference between the average time 1 and final weight was statistically significant ($t(11) = 8.34$, $p < .05$). The mean scores indicate that the average weight decreased from time 1 to the final measure of weight.

Paired Samples T-Test Comparing Pre-Test and Post-Test Scores for Survey Item 5

Pair for Item 5	Mean	SD	S.E. Mean	Lower	Upper	<i>t</i>	<i>Df</i>	<i>p</i>
Pre Weight	196.33	19.13	5.52	3.12	5.37	8.34	1	.01
Post Weight	192.08	18.01	5.20					

Table 8. Paired samples *t*-test comparing pre-test and post-test scores for survey Item 5 (N=5).

Figure 1, Figure 2, and Figure 3 below show the plotted means for systolic blood pressure at preintervention, Time 2, time 3 and Final, diastolic blood pressure at preintervention, Time 2, Time 3, and Final, along with patient weight at preintervention and final measurement. The plotted means clearly show a decrease in systolic blood pressure, diastolic blood pressure, and weight from preintervention to the final measurement period.

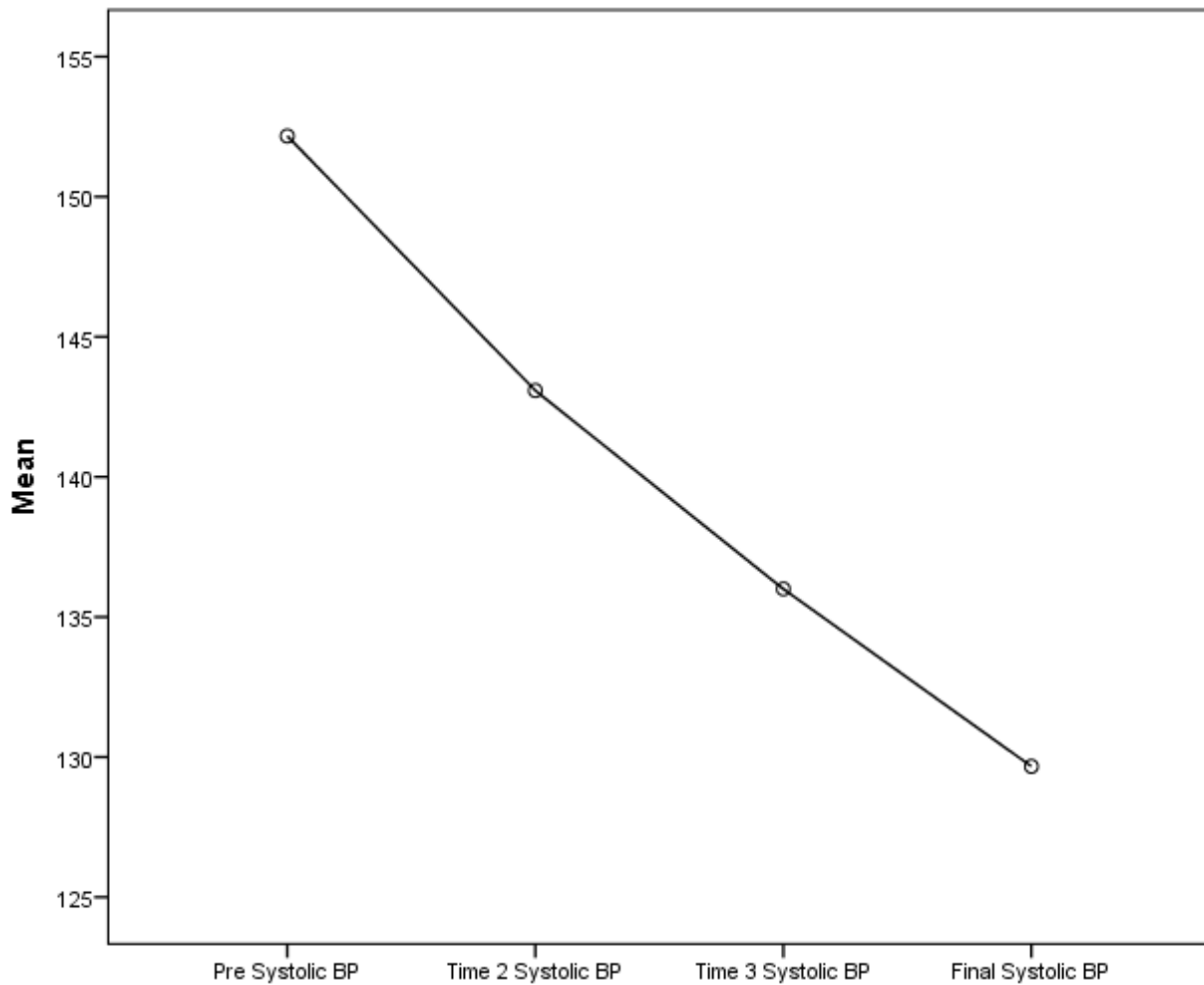


Figure 1. Plotted means for systolic blood pressure at preintervention, time 2, time 3, and the final measurement period.

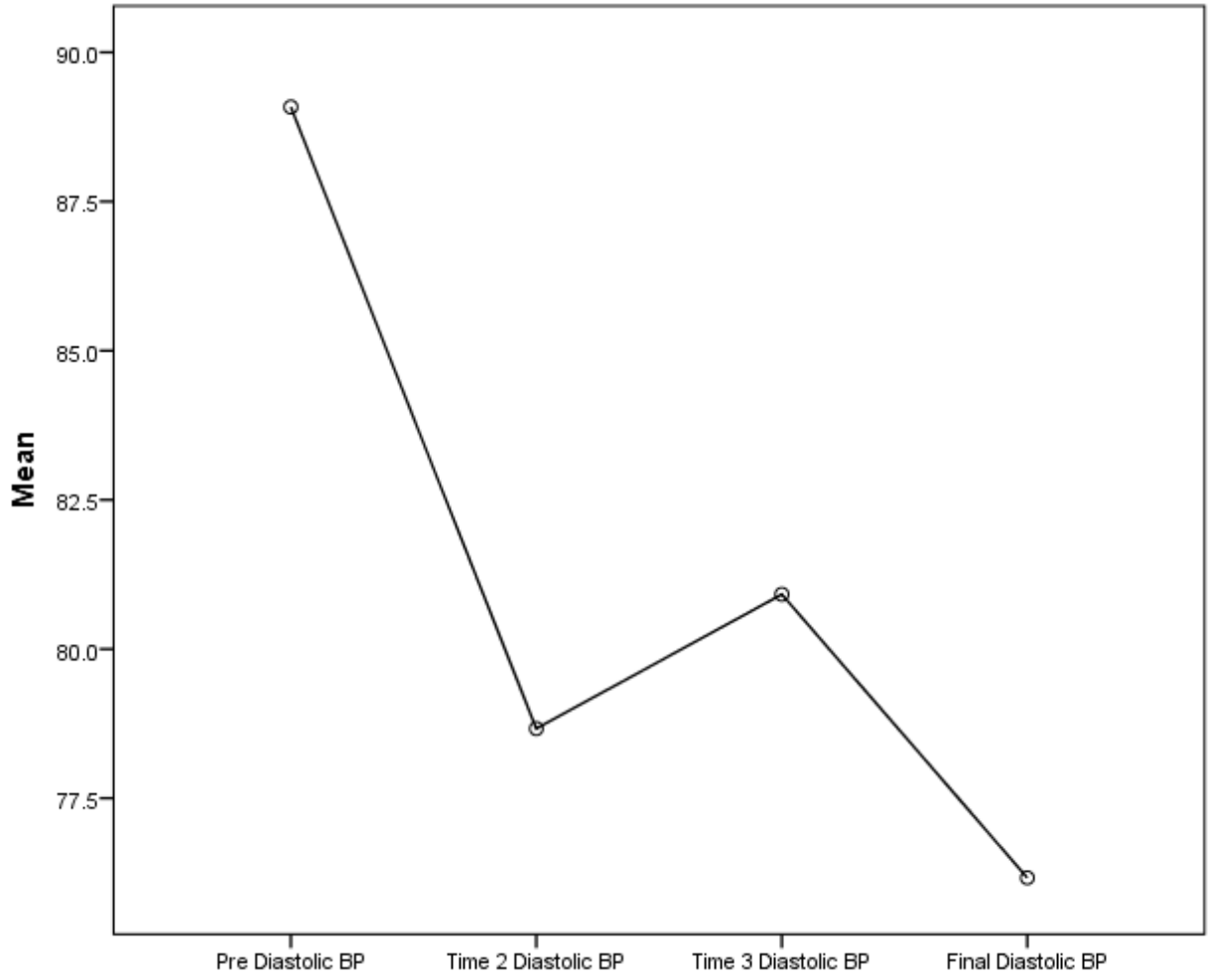


Figure 2. Plotted mean diastolic blood pressure at preintervention, time 2, time 3, and the final measurement period.

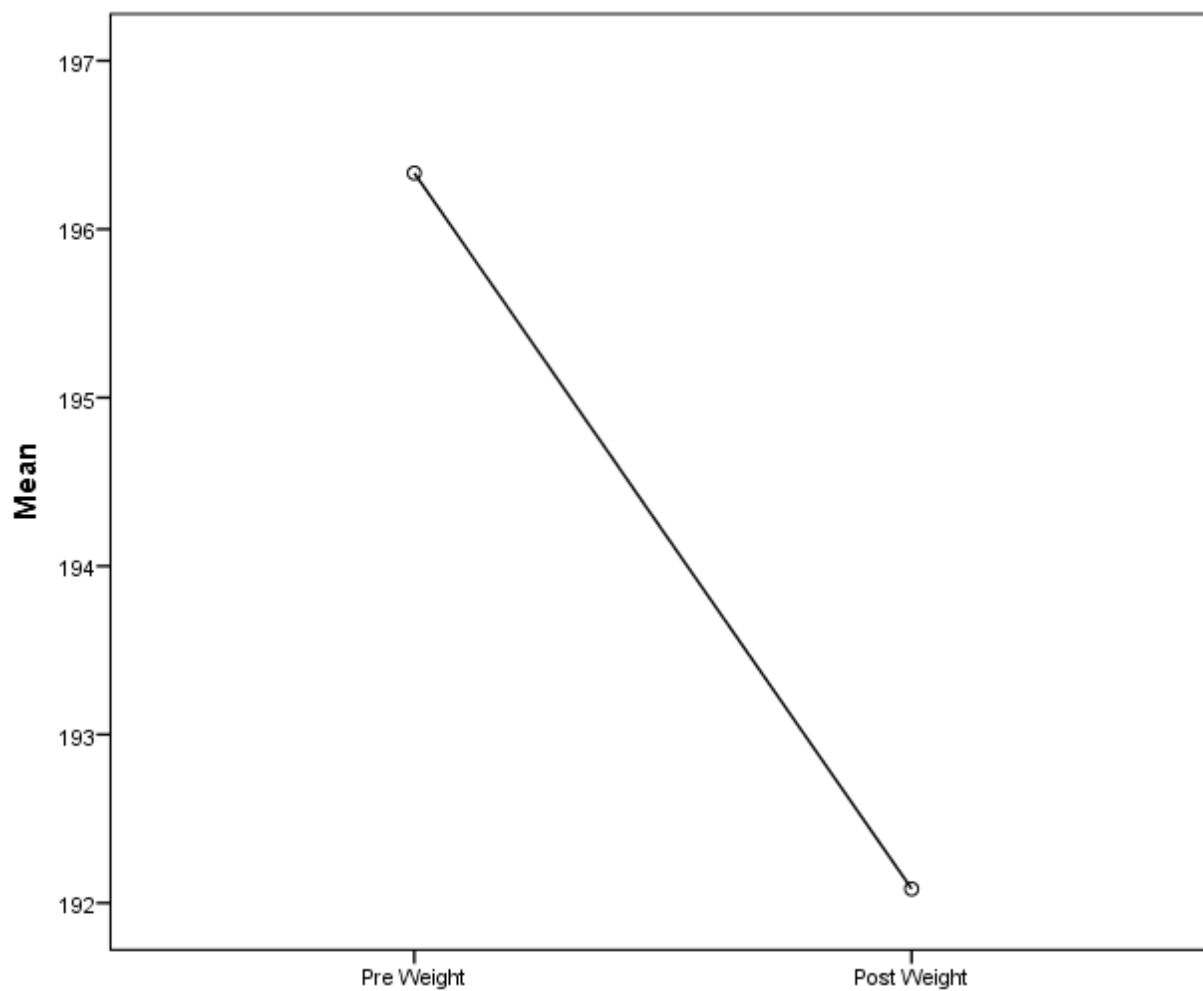


Figure 3. Plotted mean weight at preintervention and the final measurement period.

Chapter V: Discussion

Summary of the major findings and outcomes linked to SMART objectives

Main changes observed in clinical outcomes. The first objective for the quality improvement project was to provide all included patients with the RISE education pamphlets during the face-to-face nurse visits. During the implementation phase, the nurses gave the RISE pamphlet to all the hypertensive patients at the time of their scheduled appointments with the physician in the primary care clinic. Fortunately, the nurses reported that 100% of the hypertensive patients who had scheduled a visit with the primary care physician during the two months of the implementation phase were indeed provided with the RISE pamphlet.

The second objective was to provide all included patients with DASH diet education pamphlets during the face-to-face nurse visit. Again, nurses were able to provide 100% of the hypertensive patients who came to their scheduled face-to-face nursing appointment, with the DASH diet educational pamphlet. Nurses explained to each patient how to follow the DASH diet and encouraged them to adhere to the diet plan.

The third objective aimed to decrease hypertension readings by between 3-7 mmHg throughout the two-month period for the included patients. The analysis indicated that the intervention significantly decreased patients' systolic pressures by 22.50 mmHg from pre-intervention to the final measurement period. The intervention also led to a decrease in patients' diastolic blood pressure by 12.9 mmHg from pre-intervention to the final measurement period. As such, the hypothesis that there would be a decrease of 3-7 mmHg at the conclusion of the 2-month period was supported and the related outcome for blood pressure was met. Patient weight was also assessed before and after the intervention and patients' weights were noted to have significantly

decreased over time by about 4.25 pounds. Therefore, individual patient weight outcomes were also achieved.

Success and difficulties in implementation. This pilot project is about *improving uncontrolled hypertension through self-management education*, and despite some encountered difficulties, the overall outcome of the project was very positive. The most important success is that 100% of all the hypertensive patients who came to the primary care clinic during the two-month implementation period were provided with the RISE pamphlet and received education on how to follow it. In addition, another success was that 100% of all the hypertensive patients were provided with the DASH diet and received education by the nurse of how to follow it. Another success is that the RISE pamphlet and the DASH diet became a part of the primary care clinic protocol of care for future hypertensive patients. The new protocol involves placing the pamphlet and diet information in the waiting room in the clinic and in all hypertensive patients' charts. The most exciting successful outcome of the project is the significant improvement of the blood pressure reading for the hypertensive patients who adhered to the plan of the implementation phase for the two months designated time.

Difficultés encountered were mainly in convincing the patients to come for their follow-up face-to-face nursing visits to measure their blood pressure. The success of blood pressure control required the work from the two partners, the physician and the continuous compliant patient (Visco, Finelli, Pascale, Mazzeo, Ragosa, Trimarco, Iaccarino, 2018). Some of the patients were very excited and enthusiastic to come for these visits, but the majority were not. Other patients wanted to come for the visits, but they could not come because of the lack of transportation, and some thought that monitoring their blood pressure that often is not that important. Another difficulty was that some patients did not have the ability to monitor their blood pressure outside of

the clinic visit. They were not able to go to the pharmacy to measure their blood pressure, or they did not have a blood pressure monitor so they were not able to document their blood pressure readings in their blood pressure log and they felt that this project was not working for them and never showed up for their nursing visit appointment. This was unfortunate for those patients because in the end, these straightforward and simple interventions that are easy to incorporate and utilize could have helped those patients as well.

Effectiveness of the intervention. The quality improvement project was effective in many ways. Of those who entered the program, 100% of the hypertensive patients at the primary care site received the RISE educational pamphlet, so even if they did not participate in the implementation phase, they had the education on how to improve their blood pressure. In addition, 100% of the hypertensive patients received the recommended DASH diet for hypertension, which is recommended for hypertensive patients by the American Heart Association for its effect on lowering blood pressure for hypertensive adults. as mentioned earlier (Brissette, 2014).

The effectiveness extended to the Stakeholders at the primary care clinic. The nurses gained self-confidence in their skills to measure the blood pressure correctly, to document it and to educate the patients on the RISE and the DASH educational pamphlet. The office manager gained the experience of collecting the fifteen dollars from Medicare for the nursing visits and gained experience of how to implement the protocol steps for taking care of the hypertensive patients in the office. The physician witnessed the significant improvement of the participant's blood pressure from the pre and post-intervention by following the project protocol and was pleased.

Limitations

The project has limitations that need to be addressed should future endeavors such as this be undertaken. The small sample size of the twelve participants was a limitation of the project. The RISE pamphlet was provided to all the hypertensive patients in the primary care clinic, but about eleven patients who were scheduled for the face-to-face nursing visits did not come to the visits. The nurse would call them a day before to remind them of their appointment, but about eleven patients cancelled their appointment for different reasons. Some of the patients canceled the appointment because they could not find someone to bring them to the clinic; others would say it was too soon to come, that a visit every two weeks was too much. Other patients did not follow-up with the face-to-face nursing visits because of high gas prices and they cannot afford to buy gas beyond their means.

Some of the nurses took time off during the implementation of the project, and that was also a limitation. Maybe in such cases it is possible they did not confirm the face-to-face nursing visits a day before the patient visit which could also be a limitation. This is one of the limitations that could be avoided if two or three nurses only were assigned to follow-up with the patients and their appointments.

The length of the project could also be one of the limitations. The time of the project was only two months, which only allowed three pre-intervention and one post-intervention blood pressure reading. Longer time could allow more data to be collected, with more data collected, there could be more significant results. Significant results would strengthen the project's sustainability.

It is possible that another limitation was a lack of patient readiness for learning. On the continuum of any disease process is the tendency for patients to not accept the gravity of the problem. Especially if any of the participants were newly diagnosed, it is possible they were not

ready to learn and that might have influenced their readiness for teaching. There is no way to know how this factor might have influenced participants, but since this is the group of patients who also desperately need the teaching this project provides, perhaps future projects could be customized to the newly diagnosed patient.

Implications for Change

Practice. Bloch and Basilno ,(2019) emphasize that the most critical premature cardiovascular disease risk factor is hypertension, which is even more common than the other major risk factors of diabetes, dyslipidemia, and cigarette smoking. The project's significant outcome results prove that patient education improved blood pressure readings for hypertensive patients. The plan of care of this project for the hypertensive patients involved care steps for the patients apart from just education. Providing the RISE educational pamphlet and the DASH diet is one component, and the follow-up nursing visits are another aspect of the improvement plan or the patients. The plan of this project will be given to the office manager at the clinical site as the clinic protocol for hypertensive patients, which will ensure the sustainability of the project. The project protocol may be changed some in the future by allowing the patients to own their own blood pressure monitor to facilitate their care at home. Assisting the patients with transportation concerns, such as helping them to find discounted public transportation will help the patients to come to the clinic for their follow up nursing visits.

Research. There is an opportunity for future research with perhaps a larger sample number, which would provide more solid evidence base for the positive effect of patient's education on improving hypertension. This project plan can then be used as an evidence-based study as the researcher can build on its outcome on a larger scale, which can then be applied in a broader sense and in more than one clinical care site. According to Palinkas, Horwitz, Green, Wisdom,

Duan, & Hoagwood, (2015) “qualitative methods are used to explore and obtain the depth of understanding as to the reasons for success or failure to implement evidence-based practice or to identify strategies for facilitating implementation” (p. 533). The project is indeed a quality improvement and the outcome result are significant for the improvement of the blood pressure for the hypertensive patients after patients received education on their chronic disease and they followed the project plan of care.

Nursing. The nursing staff at the primary care clinic gained dignity, a more engaging form of delivery of care, a heightened compassion, and self-confidence as they participated in patient care by way of this intervention. Nurses felt that they are important and independent caregivers to their patients as they participated in such as activities as scheduling the patient to come to the clinic for nurses visits only. Nurses gained experience by following up with the participant and witnessed how the patient's blood pressure improved after they used the RISE educational pamphlet and the DASH diet. These added components of care provided positive feedback for the nurses which then encouraged them to continue providing the educational pamphlet to all their patients and to be more invested in individual care plans. Also, the nurses were empowered to make sure the pamphlet is placed in the waiting area for all patients who come to the clinic to have access to. As an added benefit, this aspect will also ensure the sustainability of the project.

Health Policy. The implications for health policy are numerous. To begin, this type of a project provides the impetus for nurses to approach administrative and governing boards in an effort to change public policy with their ideas the stem from this project. Any types of improvements that can be made to this plan are avenues of change that can be introduced at a broader level in order to effect bigger and long-lasting changes. In this way, the quality of care changes when plans are enacted. In addition, the quantity of patients who are assisted becomes larger.

Knowing that change can take place in this way has been one of the more rewarding parts of this experience for all involved.

Chapter VI: Conclusion

Value of the Project

The purpose of the project was to improve uncontrolled hypertension through patient education with close and personalized patient follow-up. This quality improvement project can impact the healthcare practice as is evidenced by its proof of the positive effect of education on the blood pressure value for the participants. The particular project components of the RISE simple educational pamphlet, the DASH diet, and the face-to-face follow up nursing visits proved its impact on improving hypertension values for hypertensive patients. This project should be used as an evidence-based protocol that will result in significant positive outcomes. An additional benefit of this quality improvement project is that this pamphlet can be used in future research with a larger sample.

DNP Essentials

According to Moran et al. (2017), the DNP Essentials provide the tools and competencies that Doctoral prepared nurses need to perform their roles at the highest level (Moran et al., 2017). This project met several DNP Essential descriptors, which influenced the doctoral student's growth, professionally and personally.

DNP Essential I: Scientific Underpinnings for Practice. The DNP Essential I guided the DNP student to be actively involved in the literature review regarding the project topic of how to improve uncontrolled hypertension through education. The DNP student gathered twenty articles from the literature that assessed the knowledge of various factors affecting hypertensive patients

including lack of education. The conceptual framework using Roy's theory guided the implementation of the project as another scientific part of the groundwork.

DNP Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking. The doctoral student planned the project to implement a protocol at the primary care practice for uncontrolled hypertensive patients. The doctoral student collaborated with stakeholders at the practice assessing the policy and the protocol for the hypertensive patients. This required painstaking hours of planning and attempts to gather these important leaders over time at different phases. This was not an easy task.

DNP Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice. Taking information from the literature review and synthesizing it was the beginning of the analytical process performed by the doctoral student. Results were then compared to the literature and descriptive statistics were used to analyze outcomes. The background, scholarship and knowledge was applied throughout use of this essential.

DNP Essential IV: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care. The utilization of informational brochures and instruction on blood pressure monitoring demonstrates use of this Essential. Patients were given easy access to information they might not have sought themselves and the use of blood pressure machines and interpretation of information for patients demonstrates how the Essential was applied.

DNP Essential V: Health Care Policy for Advocacy in Health Care. Patients received advocacy for their health care and individualized health care plans via visits with the nurses and

one-on-one discussion. It was clear to patients that the support they received was not only going to help them individually but inspire them to take a more active role in their care.

DNP Essential VI: Interprofessional Collaboration for Improving Patient and Populations Health Outcomes. The joint collaboration with staff at the primary care clinic involved not just professionals such as physicians and nurses, but also leaders and stakeholders. It was necessary to be a source of information for all so that the project stayed organized.

DNP Essential VII. Clinical Prevention and Population Health for Improving the Nation's Health. The fruit of the work from the project helped patients with prevention of the problem's hypertension can cause and in particular, cardiovascular disease. Ideas that were sparked for future projects similar to this have the capacity to continue to improve the nation's health because more people are expected to be impacted through that also.

DNP Essential VIII: Advanced Nursing Practice. The performance of construction, implementation and analyzing the project gives an overview of what it means to be an Advanced Nurse Practitioner. Through this project, there was adequate utilization of all essentials.

Plan for Dissemination

The plan for dissemination of this project will include an oral presentation at Bradley University. Faculty, project team members, the mentor and students will be invited to attend the oral presentation. Once the project is approved, the doctoral student will submit the project to the e-repository as required by Bradley University. Also, a final paper will be submitted to the local health department, University of Illinois IRB, Review Board at Bradley University, and Health and Human Services Department. Fortunately, the physician at the clinic was receptive to the

project protocol and in collaboration with him, this quality improvement project can be presented to the other physician during their meeting at the hospital.

As mentioned, the physician will present the findings at medical conferences he attends. This will give the opportunity to share the RISE pamphlet with numerous medical professionals and patients.

The doctoral student is prepared to present this quality improvement project to the American Heart Association for consideration as a supplemental educational tool. Other ideas for dissemination include nursing journals and the State Board of Nursing to support the state mission to improve the health of hypertensive patients.

Attainment of Personal and Professional Goals

This project was created for personal and professional reasons. The personal reason was that my sister, who just retired at 60 years old and moved to the United States had uncontrolled hypertension such that she needed to be admitted at the hospital twice within two months. She went to several doctors and changed various antihypertension treatment until finally, her blood pressure got under control. During that time, I was continually educating her on hypertension, how to measure her blood pressure, when and how she should keep a blood pressure log, and present it to her physician at her follow up visit. In essence, I lived the project before I wrote or implemented it. I also witnessed my late mother in law have a stroke because of her neglected hypertension and since then, hypertension became my number one passion in nursing. During my years as an RN, I have always been educating patients with uncontrolled hypertension, and I

see how the few minutes of education I spend with them opens their eyes to many things regarding their chronic disease. I was so happy to see how many patients' blood pressures improved through my education for them.

I always wanted to pursue my nursing career to reach the highest level I could, but I had to take care of my family first. Four years ago, my kids were very busy in their education and that is when my time came to pursue my dream and continue my education and I joined the Bradley DNP program online. I will always be searching for new knowledge in nursing, and I already joined ARNP journals to keep up with daily new knowledge. My interest in scientific knowledge will never end. Therefore, my education will never end.

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Appendix A

Nurse Educational Session Outline

The RISE educational pamphlet

1. The DASH diets
2. Patient blood pressure log
3. Blood pressure recording table
4. Review blood pressure technique

Appendix B

RISE Pamphlet

RISE to a Better Blood Pressure Reading

R Remember to take your pills on time.



I Insert the time and the date into your blood pressure log.



S Sit quietly and relax for 5 minutes before measuring your blood pressure.



E Eliminate any crossed limbs, then take your blood pressure.



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Appendix C

Blood Pressure Log

Name: _____

Date	Time	Systolic	Diastolic	Pulse	Comments

Appendix D

DASH Diet

Food Group	Serving Sizes	Examples and Notes	Significance of Each Food Group to the DASH Eating Plan
Grains	1 slice bread 1 oz dry cereal ½ cup cooked rice, pasta, or cereal	Whole-wheat bread and rolls, whole-wheat pasta, English muffin, pita bread, bagel, cereals, grits, oatmeal, brown rice, unsalted pretzels and popcorn	Major sources of energy and fiber
Vegetables	1 cup raw leafy vegetable ½ cup cut-up raw or cooked vegetable ½ cup vegetable juice	Broccoli, carrots, collards, green beans, green peas, kale, lima beans, potatoes, spinach, squash, sweet potatoes, tomatoes	Rich sources of potassium, magnesium, and fiber
Fruits	1 medium fruit ¼ cup dried fruit ½ cup fresh, frozen, or canned fruit ½ cup fruit juice	Apples, apricots, bananas, dates, grapes, oranges, grapefruit, grapefruit juice, mangoes, melons, peaches, pineapples, raisins, strawberries, tangerines	Important sources of potassium, magnesium, and fiber

<p>Fat-free or low-fat dairy products</p>	<p>1 cup milk or yogurt 1½ oz cheese</p>	<p>Fat-free milk or buttermilk; fat-free, low-fat, or reduced-fat cheese; fat-free/low-fat regular or frozen yogurt</p>	<p>Major sources of calcium and protein</p>
<p>Lean meats, poultry, and fish</p>	<p>1 oz cooked meats, poultry, or fish 1 egg</p>	<p>Select only lean; trim away visible fats; broil, roast, or poach; remove skin from poultry</p>	<p>Rich sources of protein and magnesium</p>
<p>Nuts, seeds, and legumes</p>	<p>⅓ cup or 1½ oz nuts 2 Tbsp peanut butter 2 Tbsp or ½ oz seeds ½ cup cooked legumes (dried beans, peas)</p>	<p>Almonds, filberts, mixed nuts, peanuts, walnuts, sunflower seeds, peanut butter, kidney beans, lentils, split peas</p>	<p>Rich sources of energy, magnesium, protein, and fiber</p>
<p>Fats and oils</p>	<p>1 tsp soft margarine 1 tsp vegetable oil 1 Tbsp mayonnaise 2 Tbsp salad dressing</p>	<p>Soft margarine, vegetable oil (canola, corn, olive, safflower), low-fat mayonnaise, light salad dressing</p>	<p>The DASH study had 27% of calories as fat, including fat in or added to foods</p>
<p>Sweets and added sugars</p>	<p>1 Tbsp sugar 1 Tbsp jelly or jam ½ cup sorbet, gelatin dessert 1 cup lemonade</p>	<p>Fruit-flavored gelatin, fruit punch, hard candy, jelly, maple syrup, sorbet and ices, sugar</p>	<p>Sweets should be low in fat</p>

5 Steps to Lifestyle Changes to Improve Blood Pressure

1. Lower Your Sodium Intake to better manage blood pressure
2. Increase Potassium Intake with healthy foods. For example:
 - Fruits like bananas, dried apricots, and pomegranates
 - Vegetables like Brussels sprouts, beets, and acorn squash
 - Dairy products, including fat-free or low-fat (1 percent) milk
 - Coconut water
3. Eat a Balanced, Low-Salt Diet Rich in Fruits and Vegetable
4. Get Physically Active and Move More, with or without a Gym
5. Maintain a Healthy Weight by Moving More and Eating Better

Source: National Heart, Lung, and Blood Institute; National Institutes of Health; U.S. Department of Health and Human Services, 2018.

Appendix E

Blood Pressure Recording Table

Date of the nursing visit	Today BP Reading	Patient BP reading from the loge Highest reading	Patient BP reading from the log Lowest reading	Nurse's /Patient Comments

Appendix

CUHSR committee Letter

March 20, 2019

Committee on the Use of Human Subjects in Research

Bradley University

1501 W. Bradley Avenue

Peoria, IL 61625

Dear CUHSR Committee,

As a requirement for the Doctor of Nursing Practice Degree at Bradley University, I am submitting the following research proposal for CUHSR approval: *Improve Self-Management In Hypertensive Patients Through Educations* Hypertension is the silent death causing cardiovascular disease and stroke. The hypertension rates continue to be increased that was estimated that fifty percent of the American population now diagnosed with hypertension. Despite the available therapeutic treatment that are available now, patients still need continuous education and guidance to increase their self-management for their chronic disease.

Based on category 2, I believe that this project will be exempt since my project will involve no patient's information nor personal identifiers. I am sure that this project will contribute to the existing medical knowledge about hypertension and increase the hypertensive patient's self-management and improve their uncontrolled hypertension.

Thank you for your time and consideration of my request. I look forward to your response.

Very Respectfully, Vivian Nagib, RN, BS

Appendix H

Timeline Table

Timeline Tasks	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19
Meeting with Site staff	Yellow					Yellow								
Needs Assessment	Pink													
Literature Review, Background & Significant	Green					Green								
Problem Statement, PICO I	Yellow													
Congruence with Organizational Structure	Pink					Pink								
Synthesis of Evidence, EE I	Green													
Project Designe, Population, Setting	Yellow					Yellow								
Data Analysis, Evaluation, Budget				Pink		Pink								
Creat Educational Pamphlet RISE & Finalized it						Green								
Creat Blood Pressure Recording Table& Finalized it						Yellow								
Submitt Draft						Pink			Green					
Final Proposal Submission								Green						
IRB Application								Yellow						
Propusal defense									Pink					
Staff Planing Education Meeting										Green				
Commence Implementation										Yellow				
Data Collection, Patient signing consent									Pink					
Blood pressure Nurses Visits									Green					
Data Collection/Entry												Yellow		
Analysis of outcome/Statistics												Pink		
Discussion, Conclusion													Green	

