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Nurse Education Regarding Hypertension and Use of a Follow-up Call Protocol in Primary Care

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
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Abstract

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by

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MS, Ana G. Méndez University, 2019

BS, Caribbean University, 2014

Project Submitted in Partial Fulfillment

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Doctor of Nursing Practice

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Abstract

Many patients whose primary or secondary chronic condition is hypertension present to their first follow-up appointment in a primary care facility in the north of Puerto Rico with uncontrolled high blood pressure. Nurses' knowledge of hypertension is vital to addressing a gap in practice for this patient population and patient quality of life and the prevention of cardiovascular diseases. The practice-focused question guiding this project focused on a nurse educational session for increasing hypertension management knowledge as well as a follow-up phone call protocol that aimed to improve patient care. The theoretical framework guiding this project was Pender's health promotion model. This framework aims to help nurses understand the major determinants of health behaviors that promote healthy lifestyles. Six registered nurses from the facility participated in a staff education program that included a PowerPoint presentation and a question-and-answer discussion. A pretest was given prior to the education and a posttest was given after to assess improvement of nursing knowledge on hypertension. A descriptive statistical analysis showed an improvement in posttest scores compared to pretest scores suggesting knowledge gained on seven out of the 10 items. Findings generated from this project have the potential for increasing nursing knowledge of hypertension and enhancing the lives of patients diagnosed with high blood pressure. Implications for positive social change include raising awareness of the importance of continuing nursing education and its impact in achieving effective patient outcomes, preventing repeated hospitalizations, and lowering healthcare costs.

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Dedication

I dedicate this capstone project to myself and three special people in my life. To myself for having the courage and strength that is needed to do a degree in a language that is not my primary. These three years have been hard, but I am so proud of every step, and every tear that ran down my face, they made me the professional I am today.

To my son Christopher, who was present in my thoughts every time I wanted to give up. Seeing his picture on my desk, next to my computer gave me the strength I needed to accomplish this goal. Son, this is for you, I wanted to make you proud!

To my amazing partner Erich, who has seen me cry and despair for the past three years. Thanks for believing in me and supporting me when I had no strength left.

To my mom who is in the sky but here at the same time. Mom, I wish you were here to hug me in this special moment. This is also for you.

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Section 1: Nature of the Project

Introduction

Chronic conditions such as hypertension have been a concern for the healthcare industry for many decades. According to the Mayo Clinic (2021), high blood pressure (HBP) causes the blood against the artery walls to be higher than expected and may cause health issues leading to disability and even death. In a primary care facility in the Commonwealth of Puerto Rico, hypertension is one of the most common problems patients visit their primary care physician (PCP) for. In this project, I focused on initiating a follow-up call protocol and nurse education session with the ultimate goal of increasing nurses' knowledge and improving patients' blood pressure (BP). If a controlled blood pressure is not achieved, patients are at risk for kidney disease, heart attack, coronary artery disease, stroke, heart failure, or other cardiovascular risk factors (Waked et al., 2019).

In populations identified as at risk of developing hypertension, education on hypertension and the importance of self-monitoring needs to begin early. Complications from hypertension can begin before the patient is diagnosed, but if detected or treated at an early stage, hypertension's side effects can be reduced if not eliminated. Hypertension can be modified or preventable with well-delivered patient education. Social changes may include a patient having a healthier lifestyle and the community spending less money on hypertension medications.

Problem Statement

At a primary care facility, nurses lack education regarding hypertension and had no established protocol to monitor patients after their first office visit. Nurses confirmed they felt unsure of how to counsel patients in preventing complications. The lack of education was determined to be a gap in this practice setting.

This project is important to nursing practice because I sought to improve nurse knowledge regarding hypertension, which could impact patient outcomes. According to Jones et al. (2017), nurses are educated to monitor, educate, and treat patients according to goals and plans; however, the main responsibility rests with the patient as they apply what they are taught. Patients must be taught by knowledgeable nurses, or they will have little opportunity to apply knowledge that could prevent complications that could lead to poor health or death. Clinical trials have shown that several education strategies improve adherence and lower BP including nursing interventions described by Kannure et al., (2021) such as short text messages, education, and follow-up phone calls, which have improved medication adherence, as well as control of hypertension.

Purpose

Many patients at a healthcare facility in Puerto Rico, whose primary or secondary diagnosis is hypertension, are experiencing complications related to their disease. Facility leadership indicated there was no consistency among the nurses in their knowledge of the disease or follow-up with the patients (personal communication, May 15, 2022). The overall practice-focused question relevant to this gap in practice was: Will a nurse education program addressing use of follow-up phone calls to manage hypertension in a

primary clinic improve nursing knowledge toward the ultimate goal of decreasing hypertension in a primary care facility in Puerto Rico? The intervention was a staff nurse education development program, and the expected outcome of this intervention was learner gain in knowledge. The outcome to be achieved as a result of educating nurses on follow-up phone calls was to improve hypertension management among patients. This intervention has the potential of addressing the gap in practice, which is the lack of nurse understanding, resulting in little control over patients' BP, which has resulted in many patients presenting with uncontrolled hypertension.

Nature of the Doctoral Project

In this project, I used the theoretical framework of Pender's (1982) health promotion model, which helps nurses understand the significant determinants of health behaviors to promote healthy lifestyles. A pretest was given to participants prior to the education session, which encompassed a PowerPoint presentation and a question-and-answer discussion. This was followed by a posttest to identify improvement in nurse hypertension knowledge. A quantitative approach was used to analyze the pretest and posttest scores. Following the educational session, nursing staff started the follow-up protocol of making a phone call, asking patients about their BP reading, and exploring their activities to engage in lifestyle choices after visiting the primary care facility.

The short-term goal of this doctor of nursing practice (DNP) project was to increase nurses' knowledge of hypertension and strategies they can use to teach patients in the hope of promoting better patient outcomes. The long-term facility goal of the project is for patients to have a role in controlling their BP and for nurses to monitor

patient progress using follow-up phone calls. The findings include a better understanding of hypertension by both patients and nurses, including patient lifestyle for controlling hypertension, and an established follow-up protocol nurses can use with future patients at the facility.

Significance

The practicum site is a self-standing primary care facility that manages non-urgent care in Puerto Rico. The facility includes two medical doctors and six nurses. The nurses include one licensed practical nurse, three nurses with an associate degree in nursing, and two nurses with a bachelor's degree in nursing. Other stakeholders include the patients and their families, the facility, and the reputation of the facility in the community.

The project results should enable staff nurses to better understand the pathology of hypertension, its prevention, and to better assist patients in the management of their lives, resulting in the reduction of medical costs and hospitalizations of untreated hypertension. The clinic's mission is to promote wellness and preventive care, which aligns with using a follow-up call protocol to reduce the disease and improve health outcomes. If the results demonstrate a lowering patient BP reading, the nurse education with follow-up call strategies can be used in other primary care facilities that struggle with uncontrolled hypertensive patients. With evidence-based protocols to guide practice, nurses will gain the skills to assess patients' health status, adjust medications, and address hypertension care and control barriers to improve patient outcomes.

This project should impact the patients, their families who care for them, and the stakeholders in a positive manner. The patients should see improved medical outcomes

and positive lifestyle modifications. At the same time, the families may have decreased care responsibility, and other stakeholders may have a better understanding of hypertension and the importance of a follow-up nursing practice protocol. Social change will occur when hypertension is better controlled by the patients, potentially extending their lives. Nurses will become more empowered and confident as their knowledge of hypertension increases. Families will also receive help from the positive health benefits their loved ones experience. A chronic disease that is not controlled is costly for insurance companies and the facility, and better control of hypertension should result in financial savings.

Summary

The practice gap of a lack of nursing knowledge related to hypertension management and poor patient hypertensive control was identified in a primary care facility in Puerto Rico. The clinical practice question is: Will a nurse education program addressing use of follow-up phone calls to manage hypertension in a primary clinic improve nursing knowledge toward the ultimate goal of decreasing hypertension in a primary care facility in Puerto Rico? The context for this project was nurses employed at a self-standing medical facility that engages in primary care. An educational session was held regarding a follow-up call protocol and chart evaluation took place. The project was aimed to increase nursing knowledge to promote improved patient teaching using a follow up phone call for patients with a diagnosis of hypertension. The expected benefit would be improved patient quality of life by decreasing unwanted cardiovascular events due to uncontrolled hypertension.

In Section 2, I discuss the theoretical framework in detail. I establish the relevance of the project to nursing practice using evidence-based research information. I also will highlight the background of the problem and will explain the role of the DNP student in the project.

Section 2: Background and Context

Introduction

In this DNP project, I focused on developing a nurse education session to increase nurses' knowledge and address the use of a follow-up phone call protocol for hypertension patients after their first clinic visit. Despite efforts made by physicians at the clinic, the patient population continued to have high incidence of uncontrolled hypertension. In this evidence-based practice (EBP) project, I sought to create a staff education program to assess nurses' knowledge gained about a follow-up phone call protocol to be given to patients following an initial visit to promote patient improvement in BP readings. The facility wants to promote nurses following up with patients weekly by phone.

The practice-focused question relevant to this gap in practice is: Will a nurse education program addressing use of follow-up phone calls to manage hypertension in a primary clinic improve nursing knowledge toward the ultimate goal of decreasing hypertension in a primary care facility in Puerto Rico? The healthcare staff's lack of knowledge about assisting patients to manage uncontrolled hypertension after their first visit to the facility is the gap in practice. The facility itself does not have a protocol for educating or following up with these patients, threatening positive patient outcomes. The purpose of this DNP project was to close the gap in practice by educating nurses on hypertension so they could educate patients and implement a follow-up protocol for patient teaching about hypertension. In this section, I focus on the theoretical framework

used as a guide for staff education on the protocol. The local background and the importance of the role of the DNP student will also be discussed.

Theoretical Framework

The theoretical framework used to guide this project was the health promotion model proposed by Nola Pender in 1982. The model's main purpose is to help nurses understand the major determinants of health behaviors to promote healthy lifestyles for patients (Petiprin, n.d.). The model is used to structure nursing protocols and interventions and describes nurses' critical function in helping patients prevent illness by self-care. Health-promoting behavior is the desired behavioral outcome of this project and is the endpoint of the health promotion model.

Pender's model includes the following five key concepts: (a) person, (b) environment, (c) nursing, (d) health, and (e) illness. Pender described *person* as a biophysical organism shaped by the environment and *environment* as the cultural, social, and physical context in which life unfolds. An individual can manipulate the environment to create a helpful context of cues and facilitators for health-enhancing behaviors. The *nurse* role in the model is a collaborative role with patients and families to create the best circumstances for the expression of optimal health and high-level well-being. *Health* is defined as the human potential through goal-directed behavior, self-care, and relationships with others to support relevant environments (Petiprin, n.d.). Finally, *illness* in the model is described as events in a person's life that can hinder or facilitate the continuing search for health.

Pender's health promotion model guided me by demonstrating the importance of protocols and effective proper nursing interventions used to help patients prevent illness by self-care. Goudarzi et al. (2020), in their cross-sectional study with hypertensive patients, used Pender's health promotion model to demonstrate that personal, cognitional, lack of knowledge, emotional status, and situational factors are all important areas where nurses should focus to help their patients perform healthy behavior, especially adherence to hypertension treatment. In another hypertensive cross-sectional study, Kamran et al. (2015) stated that self-care was influenced in the patient population by the use of Pender's model and a focus on patients' sociocultural conditions, lack of knowledge, and individual values and opinions.

Relevance to Nursing Practice

Hypertension education is often delivered to patients by a registered nurse. Correct understanding of the causation and prevention of hypertension is vital to the process of patient education. Bundy et al. (2017) stated that when registered nurses have correct knowledge about the patient education they are delivering, it could lead to greater patient understanding of the need for treatment compliance. In this DNP project, I focused on increasing nurses' knowledge through an education session that addressed the use of a follow-up phone call protocol. This project is relevant to nursing practice because I focused on improving nursing knowledge with the goal of decreasing patient hypertension. Hannan et al. (2022) indicated that nurses should be reskilled every 1–12 months, as suggested by the American Heart Association and should be educated on how to follow or develop protocols for when BP is uncontrolled.

To reduce the gap in practice, staff should consistently receive focused education. Some nurses may not be adequately taught to care for or manage acute hypertension in patients who resist or do not understand the treatment. Therefore, providing an evidence-based staff training program to prepare nurses who have no specialty training or the competencies needed to effectively manage hypertensive patients is critical for optimum patient outcomes. This DNP project could help reduce the number of uncontrolled hypertensive patients in the facility, which will then help patients and the facility economically.

In a study of the prevention and control of hypertension, patient education was the primary strategy used to control BP. According to Carey et al. (2018), control of BP can be achieved by educating patients on the importance of BP monitoring, diet adherence, and lifestyle modifications. Because patients receive their education primarily from healthcare providers, nurses must fully understand this disease and its side effects to educate patients.

In another study, researchers found that medication forgiveness was the most common reason patients continued to have hypertension. According to Acelajado et al. (2019), many patients forget how to follow their treatment instructions after leaving their doctor's office. Acelajado et al. suggested a follow-up phone protocol in which nurses remind patients to take their hypertensive medications. This strategy eventually resulted in controlled BP (Acelajado et al., 2019). Inadequacies in staff knowledge may be a contributing factor leading to secondary complications that can cause patient morbidity

and mortality. A comprehensive evidence-based staff nursing educational session may serve as a guide to nurses educating patients.

Currently, there are no specific strategies or protocols in place at the facility to educate patients. Nurses at the facility have had varying experience with hypertensive patients prior to their work at this facility. Nearly all nursing staff voiced needing a refresher on the disease and its complications. The introduction of the educational program will enlighten nursing staff of EBP guidelines for the control and management of hypertension. Understanding the need for a follow-up call after being seen will reinforce patient education.

Local Background and Context

This project is being undertaken at a primary care facility. The facility sees all types of patients; however, it is more common to see older patients. The clinic employs nurses with all types of backgrounds and education. The clinic has the following nursing staff: a licensed practical nurse, three nurses with an associate degree in nursing, and two nurses with a bachelor's degree in nursing. The two physicians are both medical doctors; one is a family doctor, and the other one practices general medicine.

It was found at this facility that nurses lacked knowledge of the disease etiology of hypertension and felt uncomfortable educating patients on approaches for care that they were unsure of. There was also no understanding of the importance of a follow-up plan to ensure nurse-taught information was being applied by the patient. The protocol of follow-up call-backs was supported by the facility leadership because it was felt it would aid in monitoring and tracking noncompliant and uncontrolled hypertension in patients.

Patients with uncontrolled hypertension have been arriving at the facility office without a scheduled appointment and taking the place of new patients. Unscheduled appointments has caused the clinic to have a low volume of new patients, which results in loss for the facility, financially and reputation-wise. For this reason, it is important that patients who need hypertensive care are able to better care for themselves, and still be closely watched.

Role of the DNP Student

My responsibility will be to create and deliver a hypertension education session to the nursing staff at a primary care facility where many patients present with uncontrolled HBP. As a current case manager, I collaborate closely with patients with HBP. After delivering the educational session and the protocol of follow-up patient calls every two weeks, it is hoped that patients will experience improvement in their BP reading. I collaborated with the team by taking a leadership role and ensuring the promotion of the implementation.

This facility was selected after a meeting with the facility's leadership. As a registered nurse, I knew about this clinic's problem with uncontrolled hypertensive patients because I would visit the facility often, when working for my former employer. I knew it has been of importance to the doctors and nurses working there to control their hypertensive patients. The uncontrolled hypertensive population has been taking available appointments chosen for new enrollments because of their uncontrolled BP. This has been decreasing new enrollments, reflecting in less than desired patient outcomes and a monetary loss for the facility. Lack of follow up adds added costs to this health system due to uncontrolled hypertension adverse events.

I see no biases that I have at this time, although as the project progresses., I used the evidence to reduce bias. It was important for me to be perceptive of any bias that may arise.

Summary

In this section, the challenge of uncontrolled hypertension in a public health primary care facility was identified. The problem was described as the lack of nurse knowledge, which has provoked a facility to educate its nurses using a new protocol, so that it would be reasonable to continue receiving and manage patients who have uncontrolled BP. In this section the theoretical framework was described, as was the project's relevance for the profession of nursing. The local background and my role as the DNP student role was also explored. In Section 3 the sources of evidence-based literature will be explored, as will the analysis and synthesis of the evidence.

Section 3: Collection and Analysis of Evidence

Introduction

Despite efforts to prescribe correct hypertension treatment, physicians and nurses continue receiving patients with uncontrolled HBP at an urban clinic in Puerto Rico. The lack of nurses' knowledge and lack of an established follow-up protocol have been identified as primary reasons for this gap in practice. This project's goal was to increase nurses' knowledge regarding hypertension and increase patient compliance through follow-up phone calls.

This project is crucial to nursing as it was conducted to address the educational needs of clinical staff and help in the prompt management of hypertension in patients. This project will help inform and improve knowledge and skills using EBP initiatives. This education module could facilitate the improvement of health outcomes for patients under care for the treatment of hypertension after nurses are provided with current education on EBP guidelines. The project correlates to the practice of nursing, as it promotes self-management support measures, intervention measures, adequate patient education, and dietary education for clinic staff.

The project was conducted to address the practice-focused question of whether increasing nurses' knowledge and introducing a protocol for follow-up phone calls could decrease patients' uncontrolled hypertension. EBP guidelines give a structural approach consistent with current best practices needed for health care professionals across all care settings. In the following section, I clarify why the practice-focused question was

selected, discuss the sources of evidence used to address the gap in practice, and provide a step-by-step description of how the evidence was collected, analyzed, and synthesized.

Practice-Focused Question

The local problem in the primary care facility was that nurses were not receiving adequate education on how to manage uncontrolled hypertension in patients, and there was no follow-up process to ensure patients were complying with treatment. The practice question that guided the project was: Will a nurse education program addressing use of follow-up phone calls to manage hypertension in a primary clinic improve nursing knowledge toward the ultimate goal of decreasing hypertension in a primary care facility in Puerto Rico? The purpose of the practice-focused question was to find if education and a follow-up call protocol positively affect patients diagnosed with uncontrolled HBP.

Sources of Evidence

The literature used to meet this doctoral project's purpose was obtained from searches in databases such as PubMed/Medline, Cumulative Index of Nursing and Allied Health Literature, and the National Library of Medicine. The keywords used were *hypertension, cardiovascular disease, blood pressure, self-monitoring, barriers to hypertension education, follow-up phone calls for patient hypertension*, and *nurse education*. The articles used were published between 2016 and 2021.

Subjective and objective evidence from the local primary care facility was obtained from the staff, physicians, and nurses. Meetings took place with the physicians and nurses to decide why the facility had so many uncontrolled hypertension patients. Such meetings led to the discovery that not only was there no nurse education on

hypertension care, but there also was no follow-up phone call protocol in place. Nursing staff could use such a protocol to ensure patients were following their nurse-given instructions.

Nurses at the clinic need to understand evidence-based hypertensive medication recommendations, treatment parameters, and expected positive patient outcomes. The implementation of the staff education session will educate the nurses on the management of patients with hypertension, its treatment modalities, and the signs and symptoms of noncompliance, which could result in secondary diagnoses of issues such as stroke and cognitive decline. Implementing EBP, particularly using comprehensive clinical practice guidelines through a staff educational session, could improve the quality of care given to hypertensive patients and could improve staff knowledge.

Hypertension is a concern for public health. According to the Centers for Disease Control and Prevention (2022a), nearly half of adults in the United States and its territories (47%, or 116 million) have hypertension, which is well-defined as systolic blood pressure higher than 130 mmHg and/or diastolic blood pressure higher than 80 mmHg. This DNP project was created to increase nurses' knowledge of hypertension using an education session. At the facility, nurses are not spending time on patient education because they lack knowledge about how to control hypertension through patient education. According to McEwin and Wills, (2019), physicians and nurses should spend more time on patient education to improve patient outcomes. Nurses and providers involved in the care of acute patients must understand the rationale for effective management of hypertension.

Nurse education is vital for positive patient outcomes. Nurses have been shown to be the primary educator of patients. Fereidouni et al. (2019) stated that negligible patient education is the number one reason for patient complaints and poor outcomes. Romero Guevara et al. (2019) identified five educational sessions on how to use various components and techniques to provide adequate patient education for managing hypertension and diabetes: (a) adherence behavior, (b) giving adherence feedback to patients, (c) the importance of self-monitoring of BP, (d) the use of follow-up calls, and (e) the use of a pill box. According to the researchers, once nurses started to implement what was taught, patients started to have stable BP and HbA1c levels. Also, in a randomized controlled trial, Miao et al. (2020) found that nurse-led follow-up calls for hypertension management improve patient BP and self-care behaviors.

Follow-up phone calls have been used in other healthcare scenarios to improve patient outcomes with success. Luciani-McGillivray et al. (2020) studied a phone call protocol in which calls were made to patients 24 to 48 hours following discharge from the emergency department as a reminder to schedule a medical follow-up, support adherence to the treatment plan, and reduce revisits to the emergency department. A total of 894 patients took part between October 2017 and June 2018. Patient follow-up to primary doctors increased from 48.68% to 65.5% ($p < .0001$), and ED revisits decreased significantly (4.5% vs. 8.6%, $p < .001$).

Facility nurses must also educate patients on what a hypertensive diagnosis entails, including any recommendations to control their hypertension, along with any side effects that could cause bodily injury or even death. According to Ko et al. (2017), more

than 60% of patients with acute stroke present with an elevated BP at least 1 hour before onset of stroke symptoms. Persistent attempts must be made to lower BP to <180/105 mm Hg even if it involves using multiple BP agents or continuous infusions (Ko et al., 2017).

The information presented in this evidence-based literature review justifies the need for an educational session and a follow-up protocol at the facility to promote better patient outcomes. The literature presented clearly shows that healthcare staff are responsible for teaching patients about their disease in a consistent and thorough manner.

Evidence Generated for the Doctoral Project

Participants

Participants in this project included nurses employed in a metropolitan primary care clinic located in Puerto Rico. The clinic sees mostly patients in the city who have hypertension as a primary or secondary disease etiology. The DNP target group included clinicians directly involved in taking care of patients, but who have not been specifically educated to manage patients with HBP; the clinic is not considered a hypertensive specialty facility. The education of the participants varied among licensed practical nurse and nurses holding an associate degree in a nursing or a bachelor's degree in nursing. Participant nurses are usually involved in the treatment and management of hypertensive patients but have limited knowledge in managing them because they were not educated in care for patients with HBP. Participants' general clinical nursing knowledge and years of experience fell within a range of 5 years to 20 years of nursing experience. The invited nurse participants who chose to attend the education contributed evidence to address the practice-focused question regarding the gap in practice.

Procedure

A literature review was performed, and current evidence was evaluated to find relevant research to support the development of an educational module. The DNP student addressed the lack of nurse education using the current evidence guidelines, as the participants have a knowledge gap in the clinical care of hypertensive patients. The DNP project tools that was used to collect evidence for this DNP project was a pretest and posttest. Pretest and posttest data was be administered by the DNP student to the participants. The pretest was completed by the staff to evaluate the staff knowledge of effective BP management in hypertensive patients. The education program will then be presented by the DNP student and will include a PowerPoint presentation and handouts. A question-and-answer period will follow the completion of the staff education module. Following the presentation, a posttest was administered to measure participants knowledge acquisition. The questions on the pretest were identical questions as the posttest. According to Liu and Maxwell (2020), the use of pretest and posttest questionnaires in measuring participant comprehension is essential for deciding the effectiveness of knowledge gained and discovering any possible positive outcomes that are the presumed effects (Liu & Maxwell, 2020). This evidence has showed that the use of EBP provides an operational approach which is reliable for the best practices that are required for health care professionals.

To examine the effectiveness of the education on the implementation of follow-up phone calls to patients. The tools that were used to collect the evidence was from the identified data shared by the site, gathered from the medical records of patients over the

age of 45 with consistently uncontrolled BP. The follow-up phone call protocol sheet were created by the DNP student using an example of an already validated tool. An outline for BP check frequency and a quick neurological assessment to check any change in mental status, which could be as a result of elevated BP, was utilized. This checklist was completed by the nurses after the patient is first seen for hypertension. The data obtained can be used by the organization's management to measure knowledge acquisition and decide whether the new system of BP management and education module will meet the educational needs of the staff nurses.

The Walden University Institutional Review Board (IRB) first approved this project before it was implemented. Data analysis was conducted using IBM SPSS Statistics Version 28.

Protection of Participants

The nurse participant's confidentiality and privacy was preserved throughout the project. All evidence and data collected was confidential and anonymous. The DNP student contacted Walden University's IRB approval before the implementation of the DNP project and was not started until Walden IRB approval was received. A consent form for the pre and posttest was given to the staff. The project is voluntary, and participants will remain anonymous throughout the project. Participants will have the right to withdraw from the project at any time. No identifying information will be contained on the pre-or-post tests. All collected information will be held in a locked box to which only the DNP student will have access. The collected information will be destroyed after five

years. There will be no financial incentive given to participants of this project. The DNP student will adhere to all IRB rules and requirements.

The site agreement will be obtained and included in the Walden application for IRB approval. The use of evidence for this project follows the guidelines for completion of a staff education project using allowed sources of evidence according to the Table in the manual.

Analysis and Synthesis

The question addresses staff learner gain. The data relating to the pre and posttest will be analyzed using the SSPS software. Descriptive statistics will be used to show staff improvement in knowledge of the follow up protocol and how to care for hypertensive patients. To conduct the analysis of data collected, recorded, and organized, including the data relating to the follow-up phone calls, Microsoft Office Excel will also be utilized in assessing the learner gain based on the pre and posttest scores. The use of the evidence-based education session will supply knowledge and skills that are essential for nurses to provide safe, quality patient care. The DNP student will not manipulate the evidence to ensure the integrity of the results.

Summary

In section three, the evidence-based literature was reviewed, followed by a discussion of the participants and the procedures that will be implemented. Additionally, data collection and its analysis were discussed. The next section will outline the data analysis that was conducted in an organized and detailed manner, including the findings and implications and synthesis of the evidence collected from the literature review.

Section 4: Findings and Recommendations

Introduction

The purpose of this DNP project was to develop an educational session related to hypertension. Patients in a primary care facility with uncontrolled HBP were not being followed up with by nursing staff after their first visit with their primary physician. This lack of follow up caused a high number of daily unscheduled patients at the facility, which limited the facility's ability to see or engage new patients. After conversations with the nurses, I found that staff had a lack of education regarding hypertension and had no established protocol to monitor patients after their first office visit. The practice-focused question that helped drive this project was focused on a nurse educational session to increase nurses knowledge on hypertension. A pretest and posttest were used to assess learning. A follow-up phone call protocol was used by the nursing staff to monitor patients after their first visit with the primary physician. The purpose of the doctoral project was to improve patient care toward the goal of decreasing patients' BP.

The evidence-based information used for this project was obtained from database searches of scholarly articles. I used Walden's University Library to search CINAHL, NCBI, and Google Scholar. The specific search terms used were *hypertension, uncontrolled blood pressure, patient noncompliance, follow up calls by healthcare staff, medication adherence,* and *nurse education*. All articles used were published between 2016 and 2021. Subjective and objective evidence from the local primary care facility was provided from clinic staff, physicians, and nurses.

The evidence presented in this section were obtained from the pretest and posttest results. Findings are shown in using graphics developed by the SPSS program. Strategies used to obtain the results were an in-person pretest that took place at the facility, followed by an educational session that concluded with a posttest to obtain and analyze the impact of the education session. The educational session aimed to increase nurses' knowledge through evidence-based strategies that have proven to be effective when used in uncontrolled hypertensive patients.

Findings and Implications

When developing the education session, the objective was to determine whether an educational session about HBP to the nursing staff in an outpatient clinic not specialized in management of HBP would improve nursing knowledge toward the ultimate goal of decreasing hypertension in a primary care facility in Puerto Rico. The process had four phases that involved (a) a pretest with 10 premises about HBP; (b) a PowerPoint education session about hypertension followed by questions and answers; (c) a posttest; and (d) discussion of the results of the pretest and posttest with the preceptor followed by the creation of a follow-up phone call protocol.

Phase 1: Pretest

Table 1 shows the results of the 10 premises provided as a pretest before the education session. These results are shown in percentages and are related to nurses' knowledge on hypertension. The results of the pretest questionnaire revealed insufficient knowledge regarding HBP among the nursing staff. Specifically, pretest results pertaining to Questions 2, 3, 5, 6, 7, 8, and 10 are presented.

Question 2 pertained to identifying if participants were aware that uncontrolled HBP affects the ability to perform activities of daily living; 66.7%, (n = 4) responded that they disagree. In Questions 3, 6 and 7 (identification and management of HBP) participants' responses were between agree (Question 3) 83.3% (n = 5), neither agree nor disagree (Question 6) 66.7% (n = 4), and agree 66.7% (n = 4) (see Table 1). In Question 5 (knowledge regarding symptoms of HBP), 66.7% (n = 4) of the participants selected *agree*. Lastly, in Question 10 (medication compliance), 50.0% (n = 3) selected neither agree nor disagree.

Table 1

Results of Pretest Questionnaire (N = 6)

Question	Agree	Neither agree nor disagree	Disagree
HBP is BP higher than 130/90mmHg	83.3% (n = 5)	16.7% (n = 1)	0% (n = 0)
HBP affects the ability to perform daily activities	16.7% (n = 1)	16.7% (n = 1)	66.7% (n = 4)
The only way to know if you have HBP is to have your BP tested	16.7% (n = 1)	83.3% (n = 5)	0% (n = 0)
HBP leads to heart attack, heart failure, kidney damage, and stroke	16.7% (n = 1)	33.3% (n = 2)	50.0% (n = 3)
All patients with HBP will present symptoms of the disease	66.7% (n = 4)	33.3% (n = 2)	0% (n = 0)
BP is measured while a patient is seated and has been calm for nearly 5 minutes	16.7% (n = 1)	66.7% (n = 4)	16.7% (n = 1)
A single high reading is a main concern to be alarmed	66.7% (n = 4)	33.3% (n = 2)	0% (n = 0)
Medication is the first line therapy for HBP	33.3% (n = 2)	66.7% (n = 4)	0% (n = 0)
Physical activities reduce the chances of developing HBP	50.0% (n = 3)	33.3% (n = 2)	16.7% (n = 1)
Medication compliance reduces the possibility of developing uncontrolled BP	33.3% (n = 2)	50.0% (n = 3)	16.7% (n = 1)

Phase 2: PowerPoint Education Session

After participants completed the pretest, I delivered an HBP education session over 30 minutes. The education session was focused on the identification, management, prevention, and control of hypertension. Once the education session was completed, a question-and-answer session took place in which I answered participating nurses' questions.

Phase 3: Posttest

The results of the posttest revealed an increase in nurses' knowledge regarding hypertension after the education session took place. Specifically, in response to how participants responded to Questions 2, 3, 5, 6, 7, 8, and 10. Question 2 once again pertained to identifying if participants were aware that uncontrolled HBP affects the ability to perform activities of daily living; 83.3%, (n = 5) responded that they agreed (see Table 2). In Questions 3, 6 and 7 (identification and management of HBP), participants responded *agree* for (Question 3) 83.3% (n = 5) and (Question 6) 100.0% (n = 6) and *disagree* (Question 7) 100.0% (n = 6) (see Table 2). Lastly, in Question 10 (medication compliance), 100.0% (n = 6) of the participants selected *agree.*

Table 2

Results of Posttest Questionnaire (N = 6)

Question	Agree	Neither agree nor disagree	Disagree
HBP is BP higher than 130/90mmHg	100.0% (n = 6)	0% (n = 0)	0% (n = 0)
HBP affects the ability to perform daily activities	83.3% (n = 5)	16.7% (n = 1)	0% (n = 0)
The only way to know if you have HBP is to have your BP tested	83.3% (n = 5)	16.7% (n = 1)	0% (n = 0)
HBP leads to heart attack, heart failure, kidney damage, and stroke	100.0% (n = 6)	0% (n = 0)	0% (n = 0)
All patients with HBP will present symptoms of the disease	0% (n = 4)	0% (n = 2)	100.0% (n = 6)
BP is measured while a patient is seated and has been calm for nearly 5 minutes	100.0% (n = 6)	0% (n = 0)	0% (n = 0)
A single high reading is a main concern to be alarmed	0% (n = 0)	0% (n = 0)	100.0% (n = 6)
Medication is the first-line therapy for HBP	16.7% (n = 1)	0% (n = 0)	83.3% (n = 5)
Physical activities reduce the chances of developing HBP	100.0% (n = 6)	0% (n = 0)	0% (n = 0)
Medication compliance reduces the possibility of developing uncontrolled BP	100.0% (n = 6)	0% (n = 0)	0% (n = 0)

Phase 4: Discussion of results and creation of the follow up phone protocol

During the last phase, the results from the pre and posttest were discussed with the mentor who was surprised with the results. After the discussion, the creation of the follow up phone call protocol took place at the preceptor's office. The protocol was created using Microsoft Word program and consisted of 05 premises developed by the DNP student and approved by the preceptor (see Table 3).

Table 3

Follow-Up Phone Protocol

Post-office discharge phone call follow-up protocol for uncontrolled hypertensive patients. Patient Name: _____ DOB:¬_____ Follow-up call to: Patient__ Caregiver__ Follow-up week number: __ after PCP visit			
Questionnaire	Yes	No	Discussion Points
Did you monitor your BP today?			If not, discuss the importance of BP monitoring. Please note BP reading under the "yes section."
Have you picked up your hypertensive medications from the pharmacy?			If not, ensure the patient knows to which pharmacy his medications were sent.
Have you taken your hypertensive medications as prescribed?			If not, discuss the importance of taking medication as prescribed.
Have you had any side effects?			If yes, discuss the importance of scheduling a f/u appointment with PCP immediately.
Is the cost of the prescribed medication too much?			If yes, discuss options with the patient and PCP.

Recommendations

Nursing staff education sessions have the potential to increase nurses' knowledge toward the ultimate goal of helping patients fulfill the goal of managing and controlling their uncontrolled BP. The creation of the education session was a response to the lack of knowledge identified in the primary clinic. The DNP student recommended to the

preceptor and his coworker, a creation of an education session every six months on topics affecting the clinic. The student also recommended the use of the phone call follow up protocol to be used with all patients in the clinic with a diagnosis of hypertension. These recommendations can be achieved if the staff demonstrates interest in continuing increasing their knowledge of topics that affects the clinic and if the preceptor is open to delivering the education sessions.

Strengths and Limitations of the Project

The strengths of the DNP project relied in the pre-approval by the medical doctor (preceptor) of the education session, follow up phone protocol and pre and posttest. This pre-approval helped the DNP student have a better understanding of the process he will take at the moment of implementation and gave him a realistic view of what the clinic wanted to achieve.

The major limitation of the DNP project was its small staff sample size. The implementation part took place with only one primary clinic that had a total of six nurses. However, regardless of the clinic's small staff size, the clinic still had the problem of filling the knowledge gap.

Some future recommendations for an educational project include longer time to follow-up on the staff's retention of what was thought during the session. Follow-up to this recommendation should be the opportunity to measure the outcomes of the follow-up phone protocol that was created by the DNP student.

Section 5: Dissemination Plan

This project will be disseminated to the clinic staff along with presenting the gap in practice. I also anticipate the project may be used in other primary clinics facing the same practice gap because each clinic will benefit from an increase in nurses' knowledge, which was demonstrated in pretest and posttest findings. The education PowerPoint presentation may be used as a continuing education session every 6 months or as stipulated by the management staff. Furthermore, the follow-up phone call protocol is attached to this project and may be disseminated to other facilities without an established phone call follow-up protocol.

Analysis of Self

As a DNP-prepared nurse, I have gained research skills, knowledge, and discipline through the course of my doctoral journey. Having the opportunity to create this project has increased my desire for research. This process has helped me encourage others to use EBP in nursing, specifically when managing uncontrolled hypertensive patients. Once my degree is completed, I look forward to becoming a nursing professor whose mission will be to help future nurses feel passionate about EBP and its tremendous benefit in nursing practice. I look forward to disseminating these findings to my current workplace where hypertension has also been the main cause of patients returning to the hospital searching for care.

Summary

My main goal has been to apply what I was taught through the years as a DNP student to a facility that has been struggling with managing hypertension patients.

Applying the doctor of nursing practice essentials (Bekemeier et al., 2021) to nursing has been an excellent opportunity to increase my leadership skills, knowledge, and discipline. Having had the opportunity to disseminate my project to the clinic presenting the gap in practice has helped me fulfill my nursing goals.

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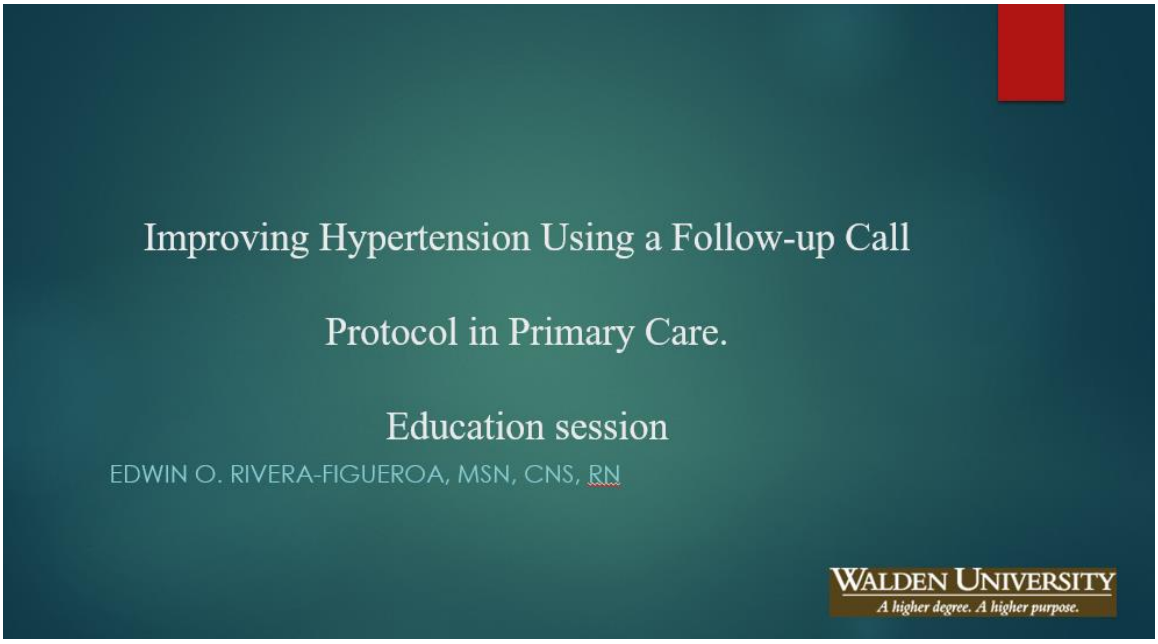
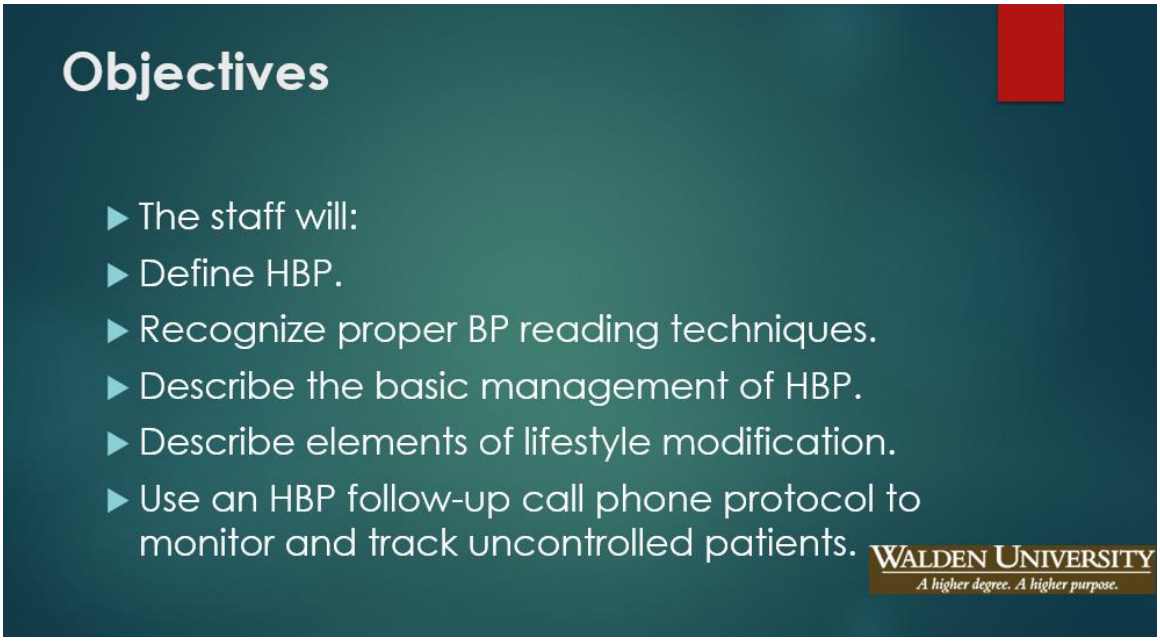
Appendix: PowerPoint Education Session





INTRODUCTION

- Complications from hypertension can begin before the patient is diagnosed, but if detected or treated at an early stage, its side effects can be reduced, if not eliminated.
- Hypertension can be modified or preventable with well-delivered patient education.
- Social changes may include a patient having a healthier lifestyle and the community spending less money on hypertension medications.

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What Is Hypertension

- According to the Mayo Clinic (2021), high blood pressure is when the blood against the artery walls is higher than expected and may cause health problems.
- High blood pressure (HBP) is well-defined as systolic blood pressure (SBP) higher than 130 mmHg and/or diastolic blood pressure (DBP) higher than 80 mmHg (CDC, 2022).

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Consequences of uncontrolled HBP

- If a controlled BP is not achieved, patients are at risk for kidney disease, heart attack (HA), coronary artery disease (CAD), stroke, heart failure (HF), or other cardiovascular risk factors (Waked et al., 2019).
- Complications from hypertension can begin before the patient is diagnosed, but if detected or treated at an early stage, its side effects can be reduced, if not eliminated.

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Causes and Risk Factors

- Age- BP rises with age.
- Gender- HBP is more common in young and middle-aged men (<55 years of age).
- Family History- having a close family with Dx of HBP (parents or siblings).
- Ethnicity- African Americans have twice the incidence of developing HBP.

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Signs and Symptoms

- Dizziness
- Palpitations
- Difficulty breathing
- Reduced activity tolerance
- Fatigue
- Angina (chest pain)

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Treatment

- Lifestyle modifications
  - . Limit alcohol use
  - . Reduce stress factors
  - . Diet and exercise

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Prevention

- Increase the level of physical activity
- Monitor BP twice a day
- Maintain a healthy weight
- Have regular follow-ups with PCP

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Nurses' role in controlling BP

- Monitor BP
- Obtain a complete history
- Support and teach the patient to adhere to treatment as ordered
- Teach disease process and how lifestyle changes and meds can help
- Give weekly follow-up phone calls

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Measuring Blood Pressure Instructions for patient

- Avoid smoking and drinking caffeine
- Sit quietly for 5 minutes before the reading
- Sit comfortably with the forearm supported at heart level on a firm surface, with both feet on the ground.

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Follow-Up call protocol

- Provides an opportunity for healthcare practitioners to adjust patients' treatment regimens.
- Assess the patient's adherence to therapy
- Monitor any adverse effects
- Improve patient retention in care

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