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Evaluation of the Implementation of Primary Prevention Guidelines for the Treatment of Hypertension

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This is to certify that the doctoral study by

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Abstract

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MS, Texas Woman's University, 2007

BS, Texas Woman's University, 2000

Project Submitted in Partial Fulfillment

Of the Requirements for the Degree of

Doctor of Nursing Practice

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Abstract

Hypertension is a chronic disease that is associated with increased risk of cardiovascular mortality. This Doctor of Nursing Practice project was a quality improvement initiative that addressed the gap in practice that the nurse practitioners (NPs) were not consistently following the American College of Cardiology (ACC) and American Heart Association (AHA) recommended guidelines for the treatment of hypertension. The purpose of the project was to evaluate whether the NPs were consistently using the guidelines to treat patients with hypertension after an educational intervention. The project used a before-after approach to evaluate the consistency of using the guidelines in treatment of hypertension. The "Plan Do Act Study" (PDSA) model was used as the framework for the project. Evidence was obtained from the databases CINAHL, CINAHL plus, EBSCOhost, Medline, Google Scholar, and PubMed. Three months of retrospective and prospective data were analyzed. All the data reviewed had the diagnosis code of I1.0. The data reviewed 3 months prior to NPs' education revealed high blood pressure (BP) readings and poor documentation of patient education by NPs, while the prospective data reviewed revealed lower BP readings and increased documentation of patient education. Thus, the findings showed an improvement in hypertension management with the use of the ACC/AHA guidelines by the NPs. Consistent use of the ACC/AHA guidelines by the NPs is recommended, which will increase patient knowledge and compliance. The project contributed to positive social change by adopting the ACC/AHA guidelines to reduce morbidity and mortality in cardiovascular disease in the patients seen in the clinic.

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Section 1: Nature of the Project

Introduction

Hypertension is associated with an increased risk of myocardial infarction, stroke, and cardiovascular mortality, and even a mildly elevated blood pressure may have a significant adverse effect on target organs such as the kidney, brain, arteries, and the heart (Meng et al., 2015). In the United States, hypertension accounts for more cardiovascular disease-related deaths than any other modifiable risk factor (Carey & Whelton, 2017). According to American College of Cardiology/American Heart Association (ACC/AHA) guidelines, nonpharmacological interventions are recommended for all adults with hypertension and for patients requiring pharmacological therapy to attain a target blood pressure of less than 130/80 mm Hg (Blonsky et al., 2018). This project aimed to evaluate the implementation of the ACC and AHA guidelines by primary care Nurse Practitioners (NPs) at the practice site to facilitate consistent patient care in treating hypertension. Assessing the effectiveness of implementing the guidelines is essential to determine if the NPs effectively treat and educate patients diagnosed with hypertension. The NPs can positively impact social change by educating patients at every visit on hypertension, medications, and patient compliance with medications. Section 1 will discuss the problem statement, the purpose of the doctoral project, the nature of the project, and its significance in the clinical settings.

Problem Statement

The identified problem within the practice was an inconsistency in following the ACC/AHA guidelines in treating patients with hypertension. The gap in practice was that the NPs were not consistently following the recommended guidelines for the treatment of hypertension. The development of the ACC and AHA guidelines has led to early treatment of hypertension and reduced elevated blood pressure (Arnett et al., 2019). Personal communication with the medical director at the practice site on March 15th, 2019, reinforced the presence of an inconsistency in practice. The medical director shared data of the number of patients being treated for hypertension and the lack of consistent implementation of the recommended treatment guidelines by the NPs. The medical director discussed that patients were not educated about hypertension, and blood pressure readings were not at goal because the NPs had been inconsistent in following the ACC and AHA guidelines when caring for patients with hypertension. Many patients had visited the clinic several times with elevated blood pressures higher than 130/90 that were not addressed at the visit. Additionally, because of the NPs' lack of knowledge of the treatment guidelines, they failed to educate the patients to return to the clinic for follow up, to discuss lifestyle management, and to review pharmacotherapy at every visit. The ACC and AHA guidelines present recommendations to prevent cardiovascular disease (CVD), such as lifestyle modification and pharmacotherapy, which the NPs need to communicate to the patients to enhance patient education and assess compliance during follow-up visits. According to Arnett et al., (2019), lifestyle habits such as diet, inadequate sleep, and lack of physical activity can impact blood pressure, so it is

important to educate the patient at every visit. Therefore, the project site implemented a quality improvement initiative to educate the NPs to consistently use the ACC and AHA guidelines to treat patients diagnosed with hypertension, to provide consistent patient education regarding management of hypertension, and to address diagnosis and management of hypertension at every visit.

It was unknown how effectively the NPs had been using the ACC/AHA guidelines in their practice with patients diagnosed with hypertension. However, an increase was seen in the number of patients whose blood pressure was not at goal. There was no evidence of the NPs' knowledge or utilization of the ACC/AHA guidelines for management of hypertension. The identified practice problem was that it was not known if the NPs have consistently incorporated the use of the ACC/AHA guidelines in their practice with patients diagnosed with hypertension. The guidelines promote radical changes in the management of hypertension (Loannidis, 2018). The traditional BP measurement parameters used prior to 2017 were retired due to their inadequacy and were not concordant with the 2017 Hypertension Clinical Practice Guidelines (Casey et. al. 2019). The ACC/AHA guidelines have been shown to improvement management of hypertension by increasing hypertension awareness, encouraging lifestyle modification, and focusing on antihypertensive medication initiation (Muntner et al., 2018). According to Unger (2020), lifestyle modifications and pharmacological treatment are the primary treatment guidelines recommended by ACC/AHA guidelines. The lifestyle modifications require continuous education, which will allow patients to manage their health. This

project evaluated how effectively the NPs implemented the use of the ACC and AHA guidelines.

To improve quality outcomes of patients with chronic health problems such as hypertension, it is important to use evidence-based treatment. The doctoral project was significant in the nursing field because it evaluated the implementation of the ACC and AHA guidelines consistently improved patient outcomes. According to Chien (2019), evidence from research must be accompanied by effective implementation to achieve significant outcomes. The NPs understood the importance of using the ACC and AHA guidelines to provide the best evidence-based practice in treating patients with hypertension to provide individualized care plans that will achieve optimal blood pressures for each patient and prevent long term complications of hypertension. Because they educated the patients at each visit, the patients were more knowledgeable about their health and complied with their treatment plan.

Purpose Statement

The gap in practice was that the NPs were not consistently following the recommended guidelines for treating patients diagnosed with hypertension due to a lack of knowledge. Before the introduction of the ACC and AHA guidelines, the NPs simply prescribed medications to the patients with hypertension and did not document any patient education in the medical record. Their practice was not effective in controlling hypertension and due to a lack of education, patients were not compliant with follow-up visits. The NPs were educated using a PowerPoint discussion regarding the ACC and AHA guidelines. They were encouraged to use the guidelines at every encounter with

hypertension patients and to document education in the medical record. The nurse practitioners were eager to learn and verbalized understanding after the education that was provided. Key stakeholders of the organization and I drafted and implemented a proposed change in caring for hypertension using the ACC and AHA guidelines after educating the NPs. Early detection and consistent treatment of hypertension using the ACC and AHA guidelines can help reduce morbidity and mortality of the CVD. According to Kaul (2020), one of the goals of the ACC and AHA guidelines is to have a universal blood pressure goal of <130/80. The Evidence Review Committee commissioned to review the guidelines concluded that decreasing the SBP to less 130 mm Hg significantly reduced the risk of major cardiovascular event and stroke (Kaul, 2020). An important component of blood pressure management in the treatment of hypertension, according to the ACC and AHA guidelines, is patient follow-up (Carey & Whelton, 2017). Prompt management of very high blood pressure is important to reduce the risk of target organ damage (Carey & Whelton, 2017). Thus, the DNP project aimed to contribute to the reduction of morbidity and mortality of CVD by educating the NPs on the ACC and AHA guidelines in treatment of hypertension.

The practice-focused question was, will the NPs be consistent in incorporating the ACC and AHA guidelines in treating patients with hypertension by determining if blood pressures are better controlled, documentation of education in the medical record, and increased patient compliance with follow-up visits? The data consisted of de-identified data of blood pressures, education documentation, and follow-up appointments 3 months before and 3 months after the education was provided to the NPs. The medical director

and office manager coordinated to provide me with the de-identified data on a USB during a follow-up meeting with them.

This doctoral project was significant to the field of nursing practice with the use of evidence-based practice in caring for patients. Educated as to how to use and adhere to the ACC and AHA treatment guidelines, NPs provided the recommended care and education to their patients. The NPs looked beyond treating hypertension with medications, as they began to follow the ACC and AHA guidelines. According to Himmelfarb et al. (2016), the role of the NPs in diagnosing and treating patients with hypertension has grown over the past 50 years. Nurse practitioners not only monitor and educate patients about hypertension but are also responsible for medically treating and managing hypertension. Nurse practitioners can improve outcomes and quality of life for patients with hypertension by helping them successfully self-manage their blood pressure (Jones et al., 2017).

The meaningful gap in practice was the lack of a standard guideline in treating patients with hypertension. The NPs used different nonstandard guidelines according to their personal preferences in treating patients with hypertension. According to ACC and AHA guidelines, nonpharmacological interventions are recommended for all adults with hypertension and for patients requiring pharmacological therapy to attain a target blood pressure of less than 130/80 mm Hg (Blonsky et al., 2018). Lifestyle goals should be emphasized on a regular basis in addition to prescribed medication for hypertension (Arnett et al., 2019). Many primary care NPs focus on detecting hypertension early and implementing the ACC and AHA guidelines which includes treatments, such as lifestyle

modification and pharmacotherapy (Arnett et al., 2019). The project had the potential to fill in the gap in practice and provided evidence-based data using the ACC and AHA guidelines.

Nature of the Doctoral Project

The setting for the DNP project was a rural internal medicine clinic located in the Southwest United States. The practice setting specializes in acute and chronic medical conditions such as hypertension and serves populations of all ages and mixed ethnicities. The care team at the practice site included NPs, a medical doctor, and the clinic manager. According to a personal interview with the medical director, approximately 45 to 50% of adult patients seen at the practice have been diagnosed with hypertension, and three to five patients with hypertension visit the clinic each week (Personal communication, March 19, 2019). Further, the medical director indicated that prior to the meeting related to the AHA/ACC guidelines, the NPs were not using any standardized guideline to care for patients diagnosed with hypertension, as they practiced independently according to what they believed should be prescribed to control the patient's hypertension.

The project used evidence obtained from the databases Cumulative Index to Nursing and Allied Health Literature (CINAHL), CINAHL plus, EBSCOhost, Medline, Google Scholar, and PubMed. The search terms used included *hypertension, ACC guidelines, hypertension and nurse practitioners,* and *hypertension guidelines.* The inclusion criteria were articles written in English with an adult population and dates of publication from 2015 to 2020. The exclusion criteria included articles not containing relevant data on the project and those published earlier than 2015.

The project used a before-after approach to evaluate if the education related to the ACC and AHA guidelines was effective. Retrospective data for patients diagnosed with hypertension who were treated for the 3-month period before the NPs were familiarized with the ACC and AHA guidelines were collected. The same data was collected prospectively for the 3-month period following the education. The office manager used the electronic medical records (EMR) system to find ICD-10 code I1.0 to locate patients diagnosed with hypertension and create an Excel file saved on a USB. The file contains de-identified data that included the patient's blood pressure readings, race/ethnicity, age, list of antihypertensive medications, documentation of education, and follow-up appointments made/attended. The file was uploaded to my computer via the encrypted USB with password protection that was created by the IT department. The data were kept encrypted on my personal laptop that was also password protected and kept in a locked private office.

The purpose of the project was to determine whether the NPs were consistent in using the ACC and AHA guidelines in treating hypertension and educating patients. The need for the project was birthed at the primary site through undocumented treatments and patient education related to the treatment of hypertension patients and uncontrolled hypertension. The implementation of the DNP project bridged the existing gap in practice by encouraging NPs in using evidence-based practice guidelines in treating hypertension. The consistent use of the ACC and AHA guidelines promotes hypertension management and reduces morbidity and mortality. The guidelines provide a foundation for the delivery of quality cardiovascular care (Arnett et al., 2019). The implementation of the ACC and

AHA guidelines would bridge the existing gap in practice by providing evidence-based practice to control and manage hypertension. The ACC and AHA guidelines will be permanently incorporated as standard practice to improve hypertension outcomes in the clinic setting.

Significance

The key stakeholders were the NPs in the clinic, the medical director, and the office manager. The NPs are affected directly by the project; the medical director and the office manager are affected in the project indirectly. The medical director and the office manager were involved in collaboration and planning of the project. Evaluating the application of the guidelines by the NPs in treating hypertension positively impacts the management and education of patients diagnosed with hypertension across the continuum of care. According to the Eight Joint National Committee (JNC- 8), guidelines in 2014 and the ACC and AHA guidelines in 2017, hypertension remains the leading cause of death worldwide and in the United States (Carey & Whelton, 2017).

The contribution of the project to nursing practice is that it determined if the use of the ACC and AHA guidelines improved hypertension management and outcomes of patients with uncontrolled hypertension. After the presentation, the NPs no longer used an inconsistent approach to treat and educate their patients based on personal preferences of how to provide care. The development of the ACC and AHA guidelines has led to early treatment of hypertension resulting in a reduction in elevated blood pressure (Arnett et al., 2019). Nurse practitioners' consistent use of the ACC and AHA guidelines can improve early diagnoses of hypertension, prevent complications of

uncontrolled hypertension, and educate patients on how to better manage their chronic disease. Health care providers who are responsible for the care of patients suffering from hypertension may benefit from this project by adhering to the guidelines to improve patient outcomes.

The practice guidelines developed from the practice improvement project can be extended to NP students and novice NPs who will be joining the practice. The medical director will continue to improve the practice by incorporating evidence-based practice by consistent use of the guidelines. The patients will be satisfied with their health when they see an improvement in their blood pressure and have better understanding of their health. Nurse practitioners can improve outcome and quality of life for patients with hypertension by making contributions towards helping patients to successfully self-manage their blood pressure (Jones et al., 2017). Part of the management of hypertension following the ACC and AHA guidelines is educating patients on how to manage blood pressure in addition to taking their medications.

The project also contributed to positive social change by adopting the ACC and AHA guidelines to reduce morbidity and mortality in CVD. According to the JNC 8 guidelines in 2014 and the ACC and AHA guidelines in 2017, hypertension remains the leading cause of death worldwide and in the United States (Carey & Whelton, 2017). The potential for social change is addressed in this practice improvement project as it supported NPs in providing care according to best practices to attain optimal outcomes by the early detection and management of hypertension. Compliance to the guidelines was emphasized to provide evidence-based practice. Nurse practitioners are positioned to

guide patients in making healthier and lifestyle choices to help control hypertension through health promotion. Evidence-based clinical guidelines are useful for health screening, health promotion, and the management and treatment of chronic conditions, such as hypertension (Dyal et al., 2016). This quality improvement project aimed to increase patient safety and quality of care by focusing on assessment, awareness, knowledge, and education of the patient with hypertension.

Summary

Atherosclerotic Cardiovascular Disease (ASCVD) has become the leading cause of morbidity and mortality globally, and the leading cause of death for most racial or ethnic groups in the United States (Arnett et al., 2019). Under the new guidelines of the ACC and AHA, a blood pressure of 130/80 or higher is considered hypertension, and about 46% of American adults have hypertension (Blonsky et al., 2018). Nurse practitioners at the practice site have not been consistent with implementing nonpharmacological and pharmacology therapy in treating hypertensive patients as recommended by ACC and AHA guidelines. The setting for the DNP project was a rural internal medicine clinic located in the Southwest United States. The practice-focused question was, will the NPs be consistent in incorporating the ACC and AHA guidelines in treating patients with hypertension by determining if blood pressures are better controlled, documentation of education in the medical record, and increased patient compliance with follow-up visits? The project used a before-after approach to evaluate if the education related to the ACC and AHA guidelines was effective. Retrospective data for patients diagnosed with hypertension who were treated for the 3-month period before

the NPs were familiarized with the ACC and AHA guidelines were collected. The same data was collected prospectively for the 3-month period following the education. The project contributes to positive social change by adopting the ACC and AHA guidelines to reduce morbidity and mortality in CVD. The project contributes to nursing practice by using evidence-based approach in treating hypertension. Evidence-based clinical guidelines are promoted in the project and also have a positive social impact in nursing practice by reducing morbidity and mortality in CVD. Section 2 discusses the context of the practice problem, the theory for the project, the relevance of the practice-focused problem, and my role as a DNP student.

Section 2: Background and Context

Introduction

ASCVD has become the leading cause of morbidity and mortality globally, and the leading cause of death for most racial or ethnic groups in the United States (Arnett et al., 2019). Forty-six percent of American adults have hypertension (Blonsky et al., 2018). Hypertension is associated with an increased risk of myocardial infarction, stroke, and cardiovascular mortality, and even a mildly elevated blood pressure may have a significant adverse effect on target organs such as renal, brain, arteries, and the heart (Meng et al., 2015). In the United States, hypertension accounts for more CVD related deaths than any other modifiable risk factor (Carey & Whelton, 2017). The purpose of this project was to evaluate the application of the ACC and AHA guidelines by the NPs in a primary care setting. NPs at the practice site have not been consistent with implementing nonpharmacological and pharmacology therapy in treating hypertensive patients as recommended by ACC and AHA guidelines. According to ACC and AHA guidelines, nonpharmacological interventions are recommended for all adults with hypertension and for patients requiring pharmacological therapy to attain a target blood pressure of less than 130/80 mm Hg (Blonsky et al., 2018). In this section, I discuss theories guiding the evaluation of the effectiveness of the ACC and AHA guidelines and its relevance to nursing practice, the relevance of the DNP project, and the role of the DNP student.

Concepts, Models, and Theories

Nursing theories and models contribute to the development of nursing profession by supporting nurses' role during care (Ozdemir, 2019). A theoretical framework is the link between the proposed or current study to that of established theories or models (Murray et al., 2019). Quality improvement (QI) is a framework used to improve the way care is delivered to patients. QI methods have been introduced to healthcare to support the delivery of care that is safe, effective, timely and efficient (Reed & Card, 2016). A model for improvement (MFI) is the most commonly used QI model in health care and it uses a rapid cycle process called "plan do act study" (PDSA; Reed & Card, 2016). The PDSA model provides a structured experimental learning approach to testing changes (Reed & Card, 2016).

The purpose of the PDSA model is to design an intervention and data collection plan and specify how the intervention will be implement and evaluated. The evaluation of the plan determines if the plan will be sustained. The first step in the model is *plan* which involves planning the methodology and data collection. The *do* step involves collection of data. Time is then set aside to analyze and study the result of the data during the *study* step. The last step in PDSA model is *act* in which the findings of the evaluation are disseminated, in the case of my project, to the NPs and medical director of the clinic.

The PDSA model was used as the framework for the DNP project. The contribution of the project to nursing practice is that it can determine if the use of the ACC and AHA guidelines improved hypertension management and outcomes of patients with uncontrolled hypertension. The NPs were educated to consistently use the ACC and

AHA guidelines to treat patients diagnosed with hypertension, to provide consistent patient education regarding management of hypertension, and to address diagnosis and management of hypertension at every visit. With this education, the NPs would no longer use an inconsistent approach to treat and educate their patients based on personal preferences of how to provide care. The plan step decided the aim and process of the project. Then, the do step focused on receiving deidentified data from the medical record that was provided by the office manager. The data consisted of de-identified sections of medical records where the NPs documents their assessments, BP measurements, treatment plans, and patient education. The study step focused on reviewing the retrospective and prospective data collected before and after the educational intervention. The act step evaluated if the NPs had been consistently implementing the ACC and AHA guidelines when treating patients with hypertension.

Relevance to Nursing Practice

There are several evidenced-based models that exist currently to help healthcare providers and NPs provide quality care to patients with hypertension in the clinical setting. According to Casey et al. (2019), failure to correctly control hypertension can put patients at increased risk for CVD, stroke, and renal failure. According to Alper et al. (2019), hypertension is a common chronic condition with widespread expectations surrounding guideline-based care. The role of the NPs in diagnosing and treating patients with hypertension has grown over the past 50 years. The NPs were trained to treat patients with evidence-based practice. A cross-sectional study of eight clinical practice guidelines (CPGs) found notable inconsistencies in recommendations (Alper et al., 2019).

Hypertension is very common but guideline recommendations for hypertension are of increasing interest and have profound complications (Alper et al., 2019). According to Himmelfarb et al. (2016), evidence-based protocols have helped to guide NPs to assess the patient's health status, adjust medication, and address barriers to hypertension management. The role of nurses increasingly focuses on NPs because of the ability to prescribe antihypertensive medications, and practice in teams or independently (Himmelfarb et al., 2016). There have been health disparities among those with hypertension and nursing has been challenged to find method to reduce the differences. NPs must remain current in evidence-based practice while treating any chronic condition such as hypertension (Jones et al., 2017).

Following the current guidelines in hypertension helps ensure patients achieve treatment goals. Nurses need to understand current guidelines and treatment goals in other to identify those with undiagnosed and uncontrolled hypertension to avoid complications (Davis, 2021). Nurses should take the opportunity to educate their colleagues about blood pressure classifications and treatment guidelines. Team-based care, including nurse clinicians collaborating with physicians, consistently improved hypertension control (Egan et. al., 2018).

The NPs look beyond treating hypertension with medications as they follow the ACC and AHA guidelines. Nurse practitioners can improve outcomes and quality of life for patients with hypertension by helping them successfully self-manage their blood pressure (Jones et al., 2017). The meaningful gap in practice was the lack of a standard guideline in treating patients with hypertension. Efforts to improve hypertension care

have included the use of performance measures and evidence-based guidelines to improve quality of life for patients (Himmelfarb et al., 2016). Nurses have been involved in the conduct of clinic-based research to improve the hypertension quality gap in hypertension outcomes (Himmelfarb, et al., 2016).

Local Background and Context

The DNP project was implemented at an outpatient primary care clinic located in the southern region of the United States. The practice setting specializes in acute and chronic medical conditions such as hypertension and serves several populations of mixed ethnicities and all ages. The care team at the practice site includes NPs and a medical doctor, providing care to patients with hypertension and managing other comorbidities. The NPs at the project site care for 4,500 adult patients, of which 1,900 have hypertension. However, the NPs had been inconsistent in implementing the ACC and AHA guidelines when caring for patients with hypertension. Personal communication with the medical director at the practice site reinforced that there was inconsistency in practice. The information shared by the medical director indicated patients were not being educated about hypertension and blood pressure readings were not at goal. The NPs had been inconsistent in following the ACC and AHA guidelines when caring for patients with hypertension. Many patients had visited the clinic several times with blood pressure higher than 130/90 and the elevated readings were not addressed at the visit. Additionally, because of the NPs inconsistency with treatment guidelines, they failed to educate the patients to return to the clinic for follow up.

A personal interview with the medical director (March 19, 2019) indicated that the NPs were not using the ACC and AHA guidelines to care for patients diagnosed with hypertension, as they are practicing independently according to what they believe should be prescribed to control the patient's hypertension. The practice setting specializes in acute and chronic medical conditions such as hypertension and serves several populations of mixed ethnicities and all ages. Therefore, the project was a QI initiative that evaluated an intervention that addresses the lack of consistency in the NPs' use of the ACC and AHA guidelines to treat patients diagnosed with hypertension, to provide consistent patient education regarding management of hypertension and to address diagnosis and management of hypertension at every visit. The project site aimed to reduce the number of patients who return with elevated blood pressure readings despite being seen at previous health encounters. Hypertension guidelines are an important tool to assist health care providers develop treatment regimens for patients to reach optimal blood pressure control and the ACC and AHA guidelines should be implemented to guide NPs in the care of their patients for improved patient outcomes (Averette, 2017).

Role of the DNP Student

Currently, I am working as a family NP in an outpatient facility managing same day complaints and chronic conditions, including hypertension. My role as an NP involves providing patient education using evidence-based guidelines and precepting NP students occasionally. As an experienced NP, I recognized the impact of uncontrolled hypertension without following accredited guidelines. As a DNP student, my educational foundation in nursing education and research helped influence healthcare outcomes for

patients and NPs in QI. DNP-prepared NPs have acquired the knowledge and skills to promote change that improves quality of care and health outcomes for individuals and communities (Newland, 2019).

My role as the project leader was to evaluate the consistent use of the ACC and AHA guidelines by the NPs in treating patients with hypertension. I developed, administered, and collected data for this QI project using a practical approach. Hypertension has been one of my favorite diseases to manage, and thus to contribute to decreasing morbidity and mortality related to cardiovascular-related death. I have always been drawn to articles on heart disease and hypertension; I was eager to acquire more knowledge in hypertension. I was responsible for selecting the appropriate goals and theoretical framework for this project. My role for this project also included partnering with the NPs to develop a method that fit into their work schedule. I was responsible for analyzing the data. My motivation for the project came from listening to the medical director's desire for the NPs to treat patients with hypertension effectively. The role of NPs in hypertension management involves coordination of care and QI (Himmelfarb et al., 2016).

A potential bias is my passion for hypertension but diligently made sure the project was professional and did not enforce any personal belief with the project. There was no direct relationship to any of the NPs or the medical director. There was an agreement in writing that indicated no personal bias concerning this project. According to Choi and Pak (2015), bias in questionnaires is an important issue in health research and ambiguous questions lead to understand the question differently than was intended. The

communication with the medical director did not involve ambiguous questions; there were no assumptions.

Summary

Nursing theories and models contribute to the development of nursing profession by supporting nurses' roles during care. The PDSA model was used as the framework for the DNP project. There are several evidenced-based models that exist currently to help healthcare providers and NPs provide quality care to patients with hypertension in the clinical setting. Following the current ACC and AHA guidelines for treating hypertension helps ensure patients achieve treatment goals. The DNP project was implemented at an outpatient primary care clinic that specializes in acute and chronic medical conditions that is in the southern region of the United States. The project was a quality improvement initiative that evaluated an intervention that addressed the lack of consistency in the NPs' use of the ACC and AHA guidelines. My role as the project leader was to evaluate the consistent use of the ACC and AHA guidelines by the NPs in treating patients with hypertension. Section 3 discusses the practice-focused question, sources of evidence, and analysis/synthesis of the project.

Section 3: Collection and Analysis of Evidence

Introduction

The identified problem within the practice was an inconsistency in following the ACC and AHA guidelines for treating patients diagnosed with hypertension. The DNP project was implemented at an outpatient primary care clinic located in the southern region of the United States. The practice setting specializes in acute and chronic medical conditions such as hypertension and serves several populations of mixed ethnicities and all ages. The project was a QI initiative to evaluate an intervention that addressed the lack of consistency in the NPs' use of the ACC and AHA guidelines to treat patients diagnosed with hypertension, to provide consistent patient education regarding management of hypertension, and to address diagnosis and management of hypertension at every visit. Section 3 will address the practice-focused question, sources of evidence, evidence generated for the project, and planned analysis/synthesis.

Practice-Focused Question

The identified problem within the practice was an inconsistency in following the ACC and AHA guidelines for treating patients with hypertension. The gap in practice was that the NPs were not consistently following the recommended guidelines for the treatment of hypertension. The development of the ACC and AHA guidelines has led to early treatment of hypertension and reduced elevated blood pressure (Arnett et al., 2019). The practice-focused question was, were the NPs consistent in incorporating the ACC and AHA guidelines in treating patients with hypertension by determining if blood

pressures are better controlled, documenting education in the medical record, and increasing patient compliance with follow-up visits?

Prompt management of hypertension is important to reduce the risk of target organ damage (Carey & Whelton, 2017). The primary purpose of the project was to evaluate the compliance of the NPs in using the ACC and AHA guidelines. The project provided evidence-based data on the effectiveness of ACC and AHA guidelines in improving quality outcome in hypertension control. Data were evaluated to determine if consistency of the NPs improved the patients' hypertension outcomes, which included decreased BP values and documentation of ACC and AHA guidelines.

Operational Definitions

Hypertension: According to Center for Disease Control and Prevention (CDC) (2021), hypertension is defined as blood pressure at or greater than 130/80.

American College of Cardiology and American Heart Association (ACC and AHA) guidelines the American College of Cardiology and American Heart Association translated scientific evidence into clinical practice guidelines with recommendations to improve cardiovascular health (Arnet et al., 2019).

Sources of Evidence

The project used evidence obtained from the databases CINAHL, CINAHL plus, EBSCOhost, Medline, Google Scholar, and PubMed. The search terms used included *hypertension, ACC and AHA guidelines, hypertension and nurse practitioners,* and *hypertension guidelines*. The inclusion criteria were peer-reviewed articles that were written in English with the focus on an adult population and dates of publication from

2015 to 2021. The exclusion criteria included articles not containing relevant data on the project and those published earlier than 2015. A review of abstracts of each peer-reviewed articles was an important step to determine if the article was eligible. Thirty peer-reviewed articles were located and only 20 were used; the other 10 articles were not eligible due to irrelevance to the practice-focused problem.

The evidence from the articles provided information on the importance of using the ACC and AHA guidelines to manage hypertension. It supported the existence of the practice-focused question and showed the importance of using the ACC and AHA guidelines in treating hypertension with evidence of NPs compliant with following the guidelines. NPs can improve outcomes and quality of life for patients with hypertension by helping them successfully self-manage their blood pressure (Jones et al., 2017). The articles supported the purpose of the project and align with the purpose of the project by providing the benefits of using the ACC and AHA guidelines. Many primary care NPs focus on detecting hypertension early and implementing the ACC and AHA guidelines which includes treatments, such as lifestyle modification and pharmacotherapy (Arnett et al., 2019). The project provided evidence-based data using the ACC and AHA guidelines.

According to Casey et al. (2019), the ACC and AHA guidelines recommend intense lifestyle modification and a BP goal of less than 130/80mm Hg. The data collected were evaluated for consistent use of the guidelines by the NPs. To obtain the data, the project site transferred information from the EMR using a specific ICD-10 code, I1.0. The data consisted of the ICD-10 code, blood pressure readings, education documentation, and follow-up appointment for visits that occurred 3 months before and

after the NPs were educated on the use of the ACC and AHA guidelines. The retrospective and prospective data were evaluated to determine if the NPs were consistently using the guidelines in their practice.

Evidence Generated for the Doctoral Project

Participants

The participants for the study were the 3 NPs and the medical director. The NPs are Masters prepared advanced practicing nurses with an average of 10 years of experience. They have worked at the project site for approximately 4-5 years. The medical director provided a Word document that contained sections of the medical record with deidentified vital signs, assessment, and education provided to the patients. All the information obtained was uploaded into an Excel file. The NPs were responsible for performing their own assessments, educating the patients, and documenting on each patient encounter.

Procedures

The procedures for this project were guided by steps as outlined in the Walden University DNP QI evaluation manual. To obtain the data, the project site transferred information from the EMR to obtain retrospective and prospective data. The data were related to the educational intervention that was conducted outside the scope of this project. In addition to using the ICD-10 code, I1.0, to obtain the assessment data, the vital signs, education documentation, and follow-up appointments were capture for clinic visits 3 months before and after the educational intervention. The EMR is a valid tool used because of the ability to copy and paste the section of the medical record needed

into a Word document and then converted to an Excel file. The medical doctor at the project site provided the sections of the medical records as deidentified data for analysis by saving them on a Thumb drive.

A graphical representation was created after evaluation of the assessments blood pressures, education documentation, and follow-up appointments for 3 months before and after the NPs were instructed on the ACC and AHA guidelines and the importance of consistently using them in practice. The figure was created to show comparisons of the retrospective and prospective data. The graph made it easier for the evaluation and for the NPs to see the benefit of using evidence-based guidelines consistently for treating patients with hypertension. The data was kept on a thumb file and kept in a locked file cabinet in the clinic setting. The key to the cabinet was separated from other keys and kept with the medical director. The thumb file was accessed when needed.

Protections

Quality initiatives, detailed explanation of the project, and permission from the medical director were in place at the DNP project site to ensure ethical protection. A verbal agreement was obtained from the medical director. The medical director, who also represents the quality department, kept data secured on a thumb file before it was released for the project. The project began after the Institutional Review Board (IRB) at Walden University approved the DNP project.

Analysis and Synthesis

The main objective of the project was to determine the consistency of the NPs' use of the ACC and AHA guidelines when treating patients with hypertension.

Retrospective data for the project included how patients with hypertension were treated 3 months before the NPs started using the guidelines consistently. Prospective data included treatment of patients with hypertension for 3 months after the NPs were educated on how to use the ACC and AHA guidelines in their practice. The retrospective data and prospective data were compared.

The aim of the project was to evaluate if the NPs were consistently using the ACC and AHA guidelines when treating patients with hypertension. The need for the project was based on the information obtained from the medical director that the NPs were not consistent in using evidence-based guidelines when treating patients with hypertension. Collection and evaluation of the retrospective and prospective data were used to determine the NPs' consistent use of the guidelines.

Summary

The ACC and AHA guidelines are an evidence-based practice in managing hypertension. The project was needed because of uncontrolled hypertension and the lack of consistency of the NPs in using evidence-based guidelines when treating patients with hypertension in an internal medicine clinic in the Southwest United States. The purpose of the project was to determine if the NPs were using the ACC and AHA guidelines consistently for the treatment of patients with hypertension. The project used evidence obtained from the databases CCINAHL, CINAHL plus, EBSCOhost, Medline, Google Scholar, and PubMed. The search terms used included *hypertension, ACC and AHA guidelines, hypertension and nurse practitioners,* and *hypertension guidelines*. All data sources were peer-reviewed and published within 5 years. The ICD-10 code, I1.0, was

used to obtain the assessment data, the vital signs, education documentation, and follow-up appointments for visits 3 months before and after the educational intervention. The EMR is a valid tool to use because of the ability to copy and paste the section of the medical record needed into a Word document and then converted to an Excel file. The medical doctor at the project site provided the sections of the medical records as deidentified data for analysis by saving them on a Thumb drive. Section 4 discusses the findings and implications, recommendations, and strengths and limitations of the project. The evidence from the articles provided information on the importance of using the ACC and AHA guidelines to manage hypertension.

Section 4: Findings and Recommendations

Introduction

The identified problem within the practice was an inconsistency in following the ACC and AHA guidelines for treating patients with hypertension. Early detection and consistent treatment of hypertension using the ACC and AHA guidelines can help reduce morbidity and mortality of the CVD. An important component of blood pressure management in the treatment of hypertension, according to the ACC and AHA guidelines, is patient follow-up (Carey & Whelton, 2017). The gap in practice was that the NPs were not consistently following the recommended guidelines for treating patients diagnosed with hypertension due to a lack of knowledge. The practice-focused question was, will the NPs be consistent in incorporating the ACC and AHA guidelines in treating patients with hypertension by determining if blood pressures are better controlled, documenting education in the medical record, and demonstrating increased patient compliance with follow-up visits?

The doctoral project is significant to the field of nursing practice by using evidence-based practice in caring for patients. Educated as to how to use and adhere to the ACC and AHA treatment guidelines, NPs can provide the recommended care and education to their patients. The NPs can look beyond treating hypertension with medications when they follow the ACC and AHA guidelines. The project used evidence obtained from the databases CINAHL, CINAHL plus, EBSCOhost, Medline, Google Scholar, and PubMed. The search terms used included *hypertension, ACC and AHA guidelines, hypertension and nurse practitioners,* and *hypertension guidelines*. A review

of abstracts of each peer-reviewed articles was an important step to determine if the article was eligible. Thirty peer-reviewed articles were located and only 20 were used. The main objective of the project was to determine the consistency of the NPs' use of the ACC and AHA guidelines when treating patients with hypertension by comparing retrospective and prospective data. The data compared were age of the patients, ethnicity, blood pressure readings, diagnosis code, treatment plan, documentation of education by the NPs, and medication list.

Findings and Implications

A QI evaluation was conducted on consistent use of ACC and AHA guidelines by NPs in treating patients with hypertension. The evaluation of the data of the age of the patients, ethnicity, blood pressure readings, diagnosis code, treatment plan, and medication list were analyzed and compared 3 months prior to NPs introduction to the guidelines and 3 months after. Data reviewed 3 months prior to NPs consistent use of the guidelines revealed very high BP readings and limited education provided by NPs (Table 1). All the data collected and reviewed have a similar diagnosis code, but not all had a treatment plan, and education documented. The data indicated no consistent use of the ACC and AHA guidelines. The ethnicities varied and the age range of the patients in the first 3 months was from 38 through 65 years. The data documented systolic blood pressure ranged from 140s to 200s and diastolic blood pressure from 80s to 100s.

Table 1

Retrospective Data

Month	Age (years)	Blood Pressure	Treatment	Education
1	38-65	150/90-200/100	8/15	7/15
2	40-72	160/90-180/100	12/20	5/20
3	42-65	140/80-170/90	15/27	8/27
M	40-67	150/87-183/97	12/21 (56%)	7/21 (32%)

Data reviewed 3 months after the NPs' education of the ACC and AHA guidelines revealed lowered blood pressure readings and increased education provided by NPs (Table 2). All data had a diagnosis code of I1.0, and there was increase in documentation of treatment plans and patient education. The data indicated consistent use of the guidelines. The ethnicities varied and the age range of the patients was from 36 through 80 years. The data documented systolic blood pressure ranged from 130s to 160s and diastolic blood pressure from 70s to 90s

Table 2

Prospective Data

Month	Age (years)	BP	Treatment	Education
1	40-67	138/90-160/90	8/15	12/15
2	48-79	130/90-150/80	17/20	17/20
3	36-80	140/80-160/70	15/18	15/18
M	41-75	136/87-157/83	14/18 (75%)	15/18 (83%)

The prospective data were significant in comparison to the retrospective data. After the introduction of the ACC and AHA guidelines to the NPs, they were in

compliance with the education and treatment plans and used the guidelines consistently. During the second prospective month of using the ACC and AHA guidelines, 85% of treatment plans and patient education were documented in the patient medical record. There was also a significant decrease in the blood pressure readings, the lowest blood pressure reading in the prospective data was 130/90 as compared to the retrospective data. The prospective data showed that consistent use of the ACC and AHA guidelines decreased blood pressure readings and increased documentation of the treatment plan and patient education in the medical record.

Recommendations

Educating the NPs in consistent use of the ACC and AHA guidelines to treat patients with hypertension was beneficial for the patients and the clinic. The first recommendation is for the NPs to be consistent with scheduling patients for follow-up visit in order to consistently use the guidelines. According to Carey and Whelton (2017), management of hypertension in accordance with guideline recommendations is effective only when followed by both patients and practitioners. The NPs can add the guidelines to their treatment protocols so new NPs or student NPs will continue using the guidelines. The ACC and AHA guidelines provide recommendations to patients with hypertension, define practices meeting the needs of patients, and help providers with clinical judgment (Carey & Whelton, 2017).

As the QI project continues, there will be improvement in hypertension as prehypertension will now be treated as hypertension. Early detection and treatment of hypertension will reduce the risk of acute coronary syndromes, myocardial infarction,

stroke, congestive heart failure, and end stage renal disease According to Carey and Whelton (2017), the guidelines eliminated the category of prehypertension and started treatment earlier for patients with hypertension who had systolic blood pressure greater than 130 and diastolic blood pressure greater than 90.

There may also be improvement in patients' compliance and knowledge, such as being compliant with diet modifications and their health. The guidelines emphasize patient-physician/NP shared decisions and/or interaction. The NPs' compliance with the guidelines increases patients' education and potential compliance with the treatment plan. According to the ACC and AHA guidelines, patients should be educated on how to measure blood pressure at home and follow lifestyle modification in addition to medication (Carey & Whelton, 2017).

The educational format used in the QI project can also help to bring other practice deficiencies up to the standard of care. The positive outcome of the project may motivate the NPs to improve patient outcomes in other areas by incorporating the relevant evidence-based practice guidelines. NPs, as clinical leaders, have increased responsibilities in leading and collaborating with teams to implement evidence-based practice across patient groups and embed practice change into routine care (Clarke et al., 2021).

Strengths and Limitations of the Project

The primary strength of this project was that the NPs demonstrated an overall improvement in compliance with the ACC and AHA guidelines for the treatment of patients with hypertension. The NPs were not resistant in using the guidelines as shown

by the improvement of the patients' blood pressures and documentation of treatment plans and patient education. The guidelines increased the NPs knowledge in the management of hypertension by practicing the standard of care and improving short- and long-term patient outcomes. The guidelines provide a cornerstone of quality cardiovascular care (Reboussin et.al., 2018). Use of the guidelines promoted a team-based system approach for better diagnosis and management of hypertension (Loannidis, 2018).

The limitations to this project were timing and data availability. The longer the project is in place, the more data would be available for review. If the data collected for the 3-month period was extended for 9 months, there will be more data to review and analyze to determine if the NPs continued to consistently use the ACC and AHA guidelines in their practice. Potential challenges from measurement implementation during a QI project may lead to unintended consequences (Casey et. al. 2019). According to Casey et al. (2019), the ACC and AHA guidelines are intended to provide practitioners with tools to identify opportunities for improvement in managing hypertension.

Section 5: Dissemination Plan

The plans to disseminate findings from the project will be carried out in two steps. First, the outcome of the project will be presented to the medical director at the clinic setting. If accepted and approved by the medical director, I will ask for approval to share the findings with the NPs in the clinic setting to encourage them to be consistent in using the ACC and AHA guidelines. According to Dagne and Beshah (2021), implementation of evidence-based practice in clinical settings is essential. The NPs will be encouraged to share the importance of using the ACC and AHA guidelines consistently with new NPs who are hired, and NP students as needed. The outcome of the project will be forwarded to the clinic administration.

Limited support to using evidence-based practice hinders the use of up-to-date evidence in clinical decision-making practice (Dagne & Beshah, 2021). The findings of this project will be shared within the Walden University by the standards set forth by the university. I will share this project with peers at North Texas Nurse Practitioners (NTNP), Association. I will also share it with friends and family members who are healthcare professionals. Promotion of adopting implemented evidence-based practice in clinical practice is essential for all nurses (Dagne & Beshah, 2021).

Analysis of Self

Practitioner

The completion of the DNP project provided me an opportunity to enhance and develop skills. As a practitioner, I practiced without using evidence-based practice prior to the DNP program. Since the beginning of the project, research from the DNP project

has increased my knowledge and application of what I learned in practice. The DNP project gave me better insight into the benefit of utilizing evidence and theoretical frameworks to collaborate as a practitioner with other health care providers. It also gave me the opportunity to utilize advanced competencies to evaluate practice interventions and engage in evidence-based practice. DNP-prepared APRNs have acquired the knowledge and skills to promote change that improves quality of care and health outcomes for the communities (Newland, 2019).

Scholar

According to Roi et al. (2019), the quality of student-advisor relationship, the scholar's sense of belonging, and the amount of freedom given in the project are positively related to the success of a scholar in a project. The project has positioned me for future growth in the organization as a scholar. Developing and implementing the project facilitated my written and oral communication skills so that I have increased confidence to effectively communicate with the medical director and the NPs. I also engaged in other major activities, precepting NP students and working full time at an ambulatory clinic, at the same time as DNP project experience. Trying to meet deadlines with the DNP project was incredibly challenging most times, but I recognized that managing multiple projects and responsibilities was critical for me as a scholar.

Project Manager

The position of a project manager is central to project management discipline (Akkermans et.al, 2020). According to Patanakul (2022), project manager assignment and sufficient resource allocation contribute to improve project management. Prioritizing the

DNP project was important during the COVID-19 pandemic. Managing the project involved gathering more research articles, collecting data, analyzing data, and completing the project. The insight gained during my DNP journey to overcome the obstacles reinforced the critical role of effective goal settings, prioritization, and collaboration. Project management skills helped me in completing this project. According to Trautman et al. (2018), nurses prepared in research- and practice-focused doctoral programs make important contributions to the implementation that shapes nursing practice

Summary

The outcomes of this project reinforce the importance of the NP using the ACC and AHA guidelines in treating hypertension consistently. The development of the ACC and AHA guidelines has led to prompt treatment of hypertension and reduced elevated blood pressure (Arnett et al., 2019). The results confirm the need for an increase in the consistent use of the guidelines by the NPs. Hypertension was not at goal when the NPs were not using the guidelines consistently. There was an increase in using the guidelines and improved blood pressure readings with the use of the guidelines. The DNP project will help transform practice and establish a standard of care for the management of hypertension. It is imperative for a doctorate-prepared nurse scholar to disseminate knowledge to improve patient care using evidence-based practice.

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