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Staff Nurse Education to Improve Adherence to Hypertension Management

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This is to certify that the doctoral study by

Veronica Dike

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Walden University
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Abstract

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by

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MS, Texas Woman's University, 2009

BS, Texas Woman's University, 2001

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

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Abstract

Adherence to hypertension management medication(s) and lifestyle modification improve outcomes for patients diagnosed with hypertension. In this project, an educational program was developed to reduce the knowledge gap among staff nurses regarding addressing patients' nonadherence to hypertension management in an outpatient clinic in the southern United States. Guided by andragogy and the health belief model, the staff nurse educational program was developed from evidence-based clinical practice guidelines and best practices from literature to evaluate the impact of education on improving staff nurses' knowledge related to addressing patients' nonadherence to hypertension management with the goal of reducing the associated medical costs, morbidity, and mortality. A panel of six experts evaluated the project for content validity. Six nurses participated in the education program by first completing a pretest questionnaire using a 5-point, Likert-type scale ranging from *completely disagree* to *completely agree,* followed by a PowerPoint presentation. Posttest questionnaires using a 5-point Likert-type scale were completed by the participants. Descriptive statistics were used to analyze the pretest, posttest, differences in pre- and posttest scores, and staff nurses' intent to educate their patients. Posttest results indicated a up to 50% increase in test scores among the 6 staff nurses. Staff nurses' intent to teach and motivate patients on the importance of adherence to hypertension management was 100%. This staff nurse education project can promote positive social change by improving health outcomes for people with hypertension through educating staff nurses to teach and motivate their patients regarding the importance of adherence to hypertension management.

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Dedication

This project is dedicated to the glory of Almighty God, who made it possible for me to accomplish this DNP journey. My dedication also goes to my beloved late parents: Mr. Jude Alakwe and Mrs. Zita Alakwe. You both laid the solid academic foundation that has empowered me to excel in my journey toward this DNP program.

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Section 1: Nature of the Project

Introduction

Nonadherence to hypertension management, namely taking prescribed medications and implementing lifestyle modifications, remains a major public health challenge contributing to uncontrolled hypertension and associated cardiovascular complications (Adinkrah et al., 2020; U.S. Department of Health and Human Services [USDHHS], 2020). Although adherence is critical to optimal hypertension management, only 51% of Americans treated for hypertension follow their health care professional's recommendations (USDHHS, 2020). Optimal adherence to hypertension management is associated with optimal odds of blood pressure control, while nonadherence to cardioprotective medications increases a patient's risk of death from 50% to 80% (USDHHS, 2020).

Hypertension, or high blood pressure, affects about 45% of adults (or 108 million) in the United States and is a major preventable risk factor for heart disease and stroke, which are the first and fifth leading causes of death in the United States, respectively (USDHHS, 2020). As defined by the new standard guideline of the American College of Cardiology, hypertension involves systolic blood pressure of 130 mmHg or greater and diastolic blood pressure of 80 mmHg or above; the older standard was 140/90 mmHg or higher (Rubenfire, 2017).

About 86 million people (about 80% of those with hypertension) are recommended for prescription medications and lifestyle modifications, about 61 million (or 57%) are uncontrolled, and about 26 million (or 24%) have their blood pressure

controlled to ≤ 130/80 mmHg (Centers for Disease Control and Prevention [CDC], 2020). When uncontrolled, hypertension can contribute to health complications, such as heart disease, cerebrovascular disease, kidney disease, and premature morbidity and mortality (USDHHS, 2020). Despite the common nature of this condition and a large amount of national attention, hypertension remained a contributing factor or cause of death for about 500,000 Americans in 2018 (CDC, 2020). According to the CDC (2020), hypertension costs the United States about $131 billion annually.

Hypertension control is key to reducing the risk of future cardiovascular events in the population of people diagnosed with cardiovascular diseases. Intervention is needed now because progress in lowering cardiovascular disease deaths has stalled (USDHHS, 2020). In this doctoral project, I developed and implemented an educational program for staff nurses to improve adherence to hypertension management in the identified population.

This doctoral project will impact social change for all the stakeholders, including health care consumers, organizations, and the nursing profession. The goal of the educational program was to improve the knowledge of the staff nurses so they could educate their patients on the importance of adherence to hypertension management.

Problem Statement

Medication adherence is an important aspect of the effort to control hypertension (USDHHS, 2020; Whelton et al., 2018). The effort to improve nonadherence is a national and public health priority that the USDHHS, the Office of Disease Prevention and Health Promotion (ODPHP, 2021), and Healthy People 2020 initiatives address. The original

and updated publications of Healthy People 2020 identified hypertension as a leading modifiable risk factor for heart disease, stroke, and other cardiovascular diseases, thus supporting the importance of addressing hypertension (ODPHP, 2021). According to Healthy People 2020, it is crucial to address hypertension issues to prevent the associated complications, such as heart disease and stroke, which are the first and fifth causes of death in the United States, respectively (ODPHP, 2021). Healthy People 2020 listed objectives aimed at addressing hypertension, including increasing the percentage of hypertensive adults with adherence to prescribed medications to lower their blood pressure and increasing the percentage of adults with controlled hypertension (ODPHP, 2021).

The USDHHS (2016) also launched the national Million Hearts initiative that brings together federal agencies, health systems, communities, nonprofit organizations, and private-sector partners from across the country to prevent heart disease and stroke, two of the leading causes of death in the United States. Among the aims of the Million Hearts initiative is improving adherence to hypertension management. The Million Hearts initiative focuses on implementing a small set of evidence-based priorities and targets that can improve cardiovascular health for all (USDHHS, 2016).

The local nursing practice problem for this project was the need to improve medication adherence in patients with hypertension. The practice problem of nonadherence to hypertension management was identified through an observed pattern of patients' recurring visits for hypertension management and personal communication with a nurse practitioner (NP) in a local outpatient clinic. Adult hypertensive patients in the

identified setting were not consistent with their adherence to prescribed medication and lifestyle modification. The issue of nonadherence was addressed to reduce the risks associated with uncontrolled hypertension, such as cardiovascular disease, cerebrovascular disease, kidney disease, and other complications. Nonadherence to hypertension management was evident in patients not picking up their prescribed medication from the local pharmacies, not requesting refills as expected, reports of noncompliance with medication and prescribed lifestyle modifications, and frequent emergency room visits and hospitalizations. This doctoral project holds significance for the field of nursing practice because of the focus on implementing ongoing educational programs for nurses aiming to increase their skills in patient teaching and motivation, leading to increased adherence to hypertension management, improved patient outcomes, and lower health care costs.

Purpose Statement

Generally, patients with hypertension are managed in a primary care setting by a physician or nonphysician provider, such as a nurse practitioner or physician assistant (Kronebusch et al., 2020). Although addressing and improving adherence is a crucial aspect of hypertension management, this particularly important aspect of care management may be hindered by a busy clinical workload (Santschi et al., 2017). According to Carter et al. (2012), addressing and improving adherence behaviors may be complex and time-consuming due to barriers, such as time limitations, competing demands, the burden of comorbid illness, and inadequate mechanisms for follow up. The nurses can fill the care gap posed by the busy workload and competing demands of the

physician or nonphysician. Carter et al. noted that nurses, as members of the health care team, had demonstrated successful strategies for improving blood pressure by serving as a bridge to physician care by providing the education and counseling that may be necessary.

Considering the impact of nonadherence to hypertension treatment on patients and society, the practice-focused question for this project was: Does providing staff education about nonadherence to hypertension treatment improve nurses' knowledge and intent to educate their patients? This doctoral project has the potential to address the gap in practice because it provides nurses with evidence-based knowledge and resources to educate their patients on the importance of adherence to hypertension management. According to the USDHHS (2020), the treatment gap can be effectively reduced by programs and interventions that provide clinicians, individuals, and families with knowledge, tools, and resources from evidence-based guidelines.

Historically, nurses have been recognized for their role in the educational interventions that promote hypertension management (Himmelfarb et al., 2016; Spies et al., 2019; USDHHS, 2020). As members of the health care team, nurses are well positioned to effectively educate patients and improve adherence to hypertension management, thereby decreasing associated morbidity and mortality (Kronebusch et al., 2020; Santschi et al., 2017; Spies et al., 2019; USDHHS, 2020). This project is relevant to nursing because of the focus on implementing an educational program to improve the nursing staff's knowledge to address nonadherence to hypertension management. Learning from the educational program will allow nurses to provide better guidance to

their patients, leading to improved patient outcomes and a decreased burden on the health care system.

Nature of the Doctoral Project

The purpose of this doctoral project was to determine if staff education about nonadherence to hypertension treatment will improve nurses' knowledge and intent to educate their patients on the importance of adherence to hypertension management. The sources of evidence for this project were derived from a literature review.

The first step of this project was the review of the literature to discover best practices in hypertension management. Then, I developed the content of the educational program to teach staff nurses about the importance of adherence to hypertension management. The content of the educational project, including the pre- and posttest questionnaires, was submitted to a panel of six experts for review of the fit and usefulness for the clinical setting and made edits based on their feedback. The education program's objectives were guided by relevant, evidence-based sources of information, such as the 2017 guideline for the prevention, detection, evaluation, and management of high blood pressure in adults by Whelton et al. (2018) and best practices from literature. I collected pre- and posteducational session data from the nursing staff, then analyzed the data to determine whether there was an increase in nurses' knowledge and intent to educate their patients on the importance of adherence to hypertension management. I determined if the nurses' knowledge of the importance of adherence to hypertension management increased through comparing their pre- and posttest scores, while the nurses' intent to teach their patients was measured on the posttest.

Significance

The purpose of this doctoral project was to address the gap in care related to improving adherence to hypertension management in adult hypertensive patients. The identified stakeholders for this doctoral project included members of the patient population diagnosed with hypertension, the staff nurses, the nurse practitioners, physicians, and the outpatient clinic where the problem was addressed. Findings from this doctoral project will inform and improve the knowledge base, skills, and competencies of the staff nurses at the project site. The knowledge obtained from this educational program will guide nurses in implementing interventions to improve adherence to hypertension management in the identified population. Effective patient education will improve patients' knowledge of the importance of adhering to hypertension management to prevent complications, such as heart attack and stroke (Bangurah et al., 2017).

The findings from this doctoral project contribute to nursing practice by improving hypertension medication adherence and improving patients' knowledge and outcomes of hypertension management, thereby decreasing the burden of the disease on the health care system and society. Results from this project can also aid providers in implementing future educational programs to improve medication adherence to other chronic diseases.

This doctoral project might be transferable to other ambulatory clinic settings to improve the education of the staff and adherence in the hypertension population. This educational program focused on improving adherence to hypertension management to

support positive social change by reducing the burden of the disease on the identified population, health care system, and society.

Summary

Nonadherence to medications and lifestyle modifications is a major contributor to poor control of hypertension and a key barrier to reducing cardiovascular disease deaths (USDHHS, 2020; Whelton et al., 2018). Nonadherence is associated with higher rates of hospital admissions, suboptimal health outcomes, increased morbidity and mortality, and increased health care costs (Whelton et al., 2018). According to Whelton et al., several factors contribute to nonadherence; therefore, no single intervention is uniquely effective. Consequently, they recommended various strategies, including patient education and lifestyle modification, to address nonadherence. Identifying a problem in nursing practice related to nonadherence to hypertension management provided the foundation for implementing this staff nurse education program.

In Section 2, I will provide the background and context of the project. The model used to inform the project and the importance of improving hypertension outcomes will also be discussed. Finally, I describe my role as a Doctor of Nursing Practice (DNP) student and the role of the project team before concluding Section 2.

Section 2: Background and Context

Introduction

Hypertension affects about 108 million (or 45% of) U.S. adults. It is a major preventable risk factor for heart disease and stroke, which are the first and fifth leading causes of death in the United States (USDHHS, 2020). Although adherence is critical to optimal hypertension management, only 51% of Americans treated for hypertension follow their health care professional's recommendations (USDHHS, 2020). Research has shown that nurses providing patient education facilitates lifestyle modification and promotes patients' adherence to hypertension management (Delavar et al., 2020).

The practice problem addressed through this project was a lack of patient education about nonadherence to hypertension management among patients with hypertension. The problem of nonadherence to hypertension management was identified through an observed pattern of patients' recurring visits for hypertension management and acknowledged by personal communication with a nurse practitioner in the project setting. Nonadherence to hypertension management was evident in patients not picking up their prescribed medication from the local pharmacies, not requesting refills as expected, reports of noncompliance with medication and prescribed lifestyle modifications, and frequent emergency room visits and hospitalizations. Tan (2020) and Herrera et al. (2017) acknowledged that exploring patients' health beliefs is vital to improving adherence and blood pressure control among patients with hypertension. According to Tan, lack of knowledge about medication and various misleading perceptions of hypertension management resulted in poor adherence among community-

dwelling patients with hypertension. Therefore, I developed an educational program to address nonadherence and teaching nurses about how to educate their patients on adherence to hypertension management.

In this section, I describe the theoretical models that provided the framework for this educational project. The local background and context for the project, my role as a DNP student, and the role of the project team members are also discussed.

Concepts, Models, and Theories

Knowles's (1984) theory of adult learning (i.e., andragogy) and the health belief model comprised the theoretical framework for the DNP project. The term *andragogy* originated from a German educator, Alexander Kapp, in 1833 to describe Plato's philosophy of lifelong, self-directed learning (Ekoto & Gaikwad, 2015). The term stemmed from the Greek word *andragogos* which means teaching adults. Andragogy is defined as the art and science of helping adults to learn (Ekoto & Gaikwad, 2015). Although the concept became common among European scholars in the mid-20th century, Knowles (1980) was credited for the growing presence of andragogy in U.S. scholarship (McEwen & Wills, 2014). I have clarified the meaning of this unique term used in the doctoral project to assist readers with understanding the project.

Originally, Knowles's (1973) theory of andragogy was based on four assumptions: self-concept, role of experience, readiness to learn, and orientation to learning. After developing the previously mentioned four assumptions, Knowles (2011) added two additional assumptions: internal motivation and need to know.

The six principles of andragogy, also known as assumptions, have been defined in the following ways:

- *Need to know*: Adults need to know why they need to learn something (Knowles, 2011). In this assumption, Knowles (2011) posited that adults are likelier to put effort into learning when they understand the reasons for the effort. Twaddell (2019) applied the principles of andragogy to educate parents about vitamin K in newborns and specifically acknowledged the andragogic principle of the need to know. Applying this principle to the current study: Nonadherent hypertensive patients need to know that adherence improves outcomes and decreases the morbidity and mortality associated with nonadherence to hypertension treatment. Nonadherent hypertensive patients must be given factual information on the benefits and risks of nonadherence to hypertension management to make an educated decision.
- *Self-concept*: Adult learners are self-directed, autonomous, and independent as they mature (Knowles, 2011). As adult learners mature, they become more self-directed and likelier to recognize their learning needs, set learning goals, locate educational resources, and develop personal learning strategies (Knowles, 1973). Twaddell (2019) acknowledged that adults are in charge of their own learning needs, including what, when, how, and the pace of their learning, implying that adult nonadherent hypertensive patients must be given factual information on the benefits and risks of nonadherence to make an educated decision on whether to be adherent to improve outcomes.

- *Role of experience*: An adult learner's wealth of life experience is a strong learning resource, and adults often learn by drawing on past experiences (Knowles, 2011). In this assumption, Knowles (1980) asserted that adult learners build upon existing knowledge to fill the gaps and complement what they already know. This principle emphasizes the importance of individualized client education (Twaddell, 2019). The implication is that nurses must assess the patient's knowledge by thoroughly assessing the patient's perspective for nonadherence. For example, if the patient has an understanding of the risks of nonadherence, such as knowing someone who had a stroke or other complications due to nonadherence, the patient may have a strong opinion about nonadherence impacting the approach needed to present information. The nurse can utilize this information when teaching.
- *Readiness to learn*: Adults are willing to learn things they believe they need to know; for example, they demonstrate readiness to learn when confronted with real-life problems (Knowles, 2011). According to Knowles (1980), readiness to learn should be the central principle upon which adult learning is based because adults are most receptive to learning skills and knowledge that they can actively apply to real-life situations. Twaddell (2019) emphasized that patient education should be provided at every encounter to allow the patient to learn small pieces of information at a time instead of a large amount of information all at one time. According to Twaddell, information can be

misunderstood or interpreted incorrectly; therefore, time is needed to evaluate the education provided to ensure accuracy.

- *Orientation to learning*: As a person matures, their time perspective changes from postponed application to immediate application to solve real-life problems; in other words, the adult learning orientation is problem centered, task oriented, and life focused (Knowles, 2011). According to Chan (2010), adults learn for immediate application rather than future use. Twaddell (2019) noted that patient education must be task and problem centered. According to Twaddell, patient education is most effective when provided thoroughly and straightforwardly.
- *Internal motivation*: Adults' desire to learn is driven by internal stimuli to solve immediate and practical problem (Knowles, 2011). In this assumption, Knowles (2011) posited that adult learners are driven by intrinsic factors rather than extrinsic factors. Twaddell (2019) acknowledged that intrinsic motivation works better and is essential to increase adult learners' self-esteem and measure true achievement. When applied to the management of hypertension, motivation to learn may include intrinsic factors, such as chest pain, headache, dizziness, and palpitations. The intrinsic factors may motivate patient to learn to prevent problems like stroke or heart attack.

Knowles's principles of andragogy have been widely adopted by scholars in various disciplines (Cohen & Billsberry, 2014). The adult learning theory involves learning through action, experience, and self-direction, and adult learners are motivated

to learn when they see value in the information and seek solutions to problems (Knowles, 2011). Brockett and Hiemstra (2018) acknowledged that adult learners prefer greater autonomy and are more likely to engage with educational materials relevant to their experiences and interests. Albert and Hallowel (2013) noted that adult learners are more committed to learning when they understand the value and reason for learning.

With the health belief model, Hochbaum et al. (1952), provided a context to explain how patient education can improve health care outcomes. The health belief model has been the most commonly used theory in health education and health promotion (Onoruoiza et al., 2015). It is a psychological model used by researchers to explain and predict health behaviors by focusing on the attitudes and beliefs of individuals (Onoruoiza et al., 2015). The underlying tenet of the health belief model is that health behavior is determined by personal belief, and an individual's response can be predicted based on perceived susceptibility, severity, benefits, and barriers (Hochbaum et al., 1952). Furthermore, in the health belief model, Hochbaum suggested that the likelihood of an individual to act on a recommended health action is predominantly based on a change in the individual's perception. The health belief model provides a useful framework as nurses are taught how to address patient perceptions of the importance of adherence to their medical regimes.

I developed the educational program for this project to provide the staff nurses with evidence-based knowledge to educate and motivate their patients who are nonadherent to hypertension management. An expectation was that the staff nurses will then transfer their learning to hypertensive patients. The andragogy concepts of need to

know, experience, and orientation to learning highlighted my rationale for developing the educational intervention. Adult learners are more committed to learning when they understand the value and reason for learning (Albert & Hallowel, 2013). In the health belief model, patient education is emphasized to increase knowledge and improve patient health outcomes. Together, andragogy and the health belief model provided a good foundation for the educational program.

Relevance to Nursing Practice

Nurses have a significant role in reducing adverse health outcomes due to patient nonadherence to hypertension management. As members of the health care team, nurses are well positioned to effectively improve patient education and, thus, adherence to hypertension management, thereby decreasing associated morbidity and mortality (Kronebusch et al., 2020; Santschi et al., 2017; Spies et al., 2019; USDHHS, 2020). Nonadherence or suboptimal adherence to hypertension management contributes to increased morbidity and mortality from cardiovascular disease (USDHHS, 2020; Whelton et al., 2018). Medication nonadherence in hypertensive patients has health and financial implications. In the United States, the total medical costs associated with hypertension, including health care services and medications, are estimated to be $131 billion to $198 billion annually (Virani et al., 2020). This doctoral project is relevant to nursing because it involved implementing an educational program for staff nurses to address patient nonadherence to hypertension management to improve patient outcomes and decrease health care burdens.

Existing scholarship identified patient education as an effective strategy to address the practice problem of nonadherence to hypertension management (Aghakhani et al., 2019; Bangurah et al., 2017; Georgiopoulos et al., 2018; Tam et al., 2020; Whelton et al., 2018; Yazdanpanah et al., 2019). According to Bangurah et al. (2017), the literature is conclusive regarding the effectiveness of an educational intervention on hypertension management. Patient education improves patients' knowledge about the disease process, complications, and management, facilitating lifestyle modification and promoting adherence to hypertension management (Delavar et al., 2020). Nurses can empower patients to manage hypertension by offering educational information to patients (Georgiopoulos et al., 2018; USDHHS, 2020).

In their study of the impact of education intervention on adherence to hypertension management, Bangurah et al. (2017) used evidence-based educational materials developed by the American Heart Association and The National Heart, Lung, and Blood Institute to educate and counsel participants on strategies to help lower blood pressure. Their postintervention evaluation demonstrated a reduction in blood pressure reading to < 140/90 among all participants. They reported increased knowledge and a significant decrease in sodium consumption and increased physical activity among participants postintervention. Georgiopoulos et al. (2018) conducted a systematic review to determine the effects of educational interventions by nurses on adherence to hypertension treatment. Their results demonstrated a strong positive effect of educational intervention on adherence to hypertension management.

Patients with hypertension are generally managed in a primary care setting by a physician or nonphysician provider, such as a nurse practitioner or physician assistant (Kronebusch et al., 2020). Although addressing and improving adherence is a crucial aspect of hypertension management, this important aspect of care management may be hindered by a busy clinical workload (Santschi et al., 2017). According to Carter et al. (2012), addressing and improving adherence behaviors may be complex and time-consuming due to barriers, such as time limitations, competing demands, the burden of comorbid illness, and inadequate mechanisms for follow up (Carter et al., 2012). The gap in care posed by the busy workload and competing demands of the physicians or nonphysicians can be fulfilled by nurses. Carter et al. noted that nurses, as members of the health care team, have demonstrated successful strategies for improving blood pressure by serving as a bridge to physician care by providing the education and counseling that may not necessarily be within the time frame of a busy physician.

In this doctoral project, I focused on using an educational intervention to improve patient adherence to hypertension management. This doctoral project might advance nursing practice through the implementation of an educational intervention to improve patient adherence to hypertension management. The effort to improve nonadherence is a national and public health priority that is addressed by the USDHHS, the ODPHP (2021) and Healthy People 2020 initiatives. Among the objectives of Healthy People 2020 is to increase the percentage of hypertensive adults with adherence to prescribed medications to lower their blood pressure and increase the percentage of adults with controlled hypertension (ODPHP, 2021)

Local Background and Context

The practice setting for this project was an outpatient clinic located in the southern region of the United States. The mission of the practice was to provide safe, comprehensive, and high-quality care to the patients in a culturally sensitive manner. The organization's strategic vision included remaining operational in the community by providing high-quality health services to a diverse patient population with complex health care needs. The practice environment included a collaborating physician, four nurse practitioners, and six registered nurses (RNs). The patient population served in this clinic consisted of those from underserved areas located in this region. The clinic provided care to low-income, underserved patients as well as to insured patients and private payers.

Demographic data on the clinic population indicated that patients are African American, Hispanic, and White. About 60% of individuals within the clinic population had hypertension and/or diabetes. These patients were offered additional services from case management to support the challenges of living and coping with chronic disease process. Health care services are provided to patients 6 days a week using a collaborative, patient-centered team approach. The outpatient clinic is managed by a team of four licensed, independent nurse practitioners.

The educational program was developed resulting from an identified need for educational intervention among nonadherent hypertensive patients in the clinical setting. During a discussion with another healthcare practitioner, they stated that patients who had been diagnosed with hypertension were not consistent with adherence to hypertension management, as evidenced by patients not picking up their prescribed

antihypertensive medication refills from the pharmacy, uncontrolled hypertension measured in subsequent visits, and increased utilization of the emergency department and hospitalizations. The local evidence justified addressing nonadherence in the outpatient clinic setting to improve medication adherence, increase patient knowledge, and reduce the cardiovascular risks, and morbidity associated with the population.

Role of the DNP Student

The doctoral project was developed to educate staff nurses on how to effectively educate their patients to improve adherence to hypertension management. In my practicum and clinical experience as a nurse practitioner, I have witnessed the consequences of nonadherence to hypertension treatment among hypertensive population that I serve, as well as among relatives. I have seen stroke, heart disease and death that could have been prevented through adherence to hypertension management. During a conversation, my preceptor shared the same concern in the clinical practice site where this education intervention took place. The preventable morbidity and mortality related to nonadherence to hypertension was my motivation to develop this educational program to improve adherence among hypertensive patients. My role as the DNP student was to develop and deliver the evidence-based educational program in collaboration with my preceptor and project team.

Role of the Project Team

The project team included the clinical site medical director, a team of four nurse practitioners including my clinical preceptor and one staff RN. The project team reviewed my educational program for content and suitability for application to the

clinical site. Revisions was made based on their feedback. My preceptor reviewed educational program goals and objectives to ensure suitability to the clinical setting. The nurse practitioner clinical administrator coordinated the meeting for the educational program and signed the site approval form for the staff education doctoral project. The involvement of the clinical site team members supported their ownership of the program which was crucial for their eventual acceptance and implementation of the program. My preceptor was presented with timely updates on the progression of the project.

Summary

The purpose of the project was to reduce the knowledge gap among staff nurses in addressing patients' nonadherence to hypertension management. Section two addressed the theoretical framework and the effectiveness of educational intervention to improve adherence to hypertension management. Findings from the literature review suggested that conducting patient education improved adherence to hypertension management and improved patient outcomes. In Section 3 the sources of evidence used for this project, as well as the analysis and synthesis of findings to support and guide the doctoral project will be discussed.

Section 3: Collection and Analysis of Evidence

Introduction

Nonadherence to hypertension management continues to be a challenge that contributes to uncontrolled hypertension and associated cardiovascular complications (Adinkrah et al., 2020; USDHHS, 2020). Nonadherence to hypertension management contributes to negative outcomes and is associated with higher rates of hospital admissions, suboptimal health outcomes, increased morbidity and mortality, and increased health care costs (USDHHS, 2020; Whelton et al., 2018). The educational intervention I developed for this project was intended to increase nursing staff knowledge on effective patient education to improve adherence through the assessment of patients' beliefs and perspectives of nonadherence. This need was determined in the clinical setting and acknowledged by the nurse practitioner site preceptor. Nonadherence to hypertension management was evident in patients not picking up their prescribed medication from the local pharmacies, not requesting refills as expected, reports of noncompliance with medication and prescribed lifestyle modifications, and frequent emergency room visits and hospitalizations. According to Tan (2020) and Herrera et al. (2017), exploring the health beliefs of patients is vital to improving adherence and blood pressure control among the patients with hypertension. Effective educational intervention will lead to an increased patient adherence to hypertension management, improved patient outcomes, and lower health care burdens.

The purpose of this DNP project was to reduce the knowledge gap among staff nurses in addressing patients' nonadherence to hypertension management. I intended this

educational program for staff nurses to increase their skills in patient teaching and motivation, leading to an increased adherence to hypertension management, improved patient outcomes, and lower health care burdens. This project was conducted in an outpatient clinic that provided care to adult patients in the southern United States. In Section 3, I discuss the collection and analysis of evidence to answer the practice-focused question.

Practice-Focused Question

The local practice problem was nonadherence in adult patients with hypertension. Adherence contributes to the effective management of hypertension, reducing health risks, such as cardiovascular disease, stroke, blindness, and kidney disease (USDHHS, 2020). Patients with hypertension are generally managed in a primary care setting by a physician or nonphysician provider, such as nurse practitioner or physician assistant (Kronebusch et al., 2020). Addressing and improving adherence is a crucial aspect of hypertension management, but this aspect of care management may be hindered by a busy clinical workload (Santschi et al., 2017). The gap in care posed by the busy workload and competing demands of the physician or nonphysician can be fulfilled by staff nurses via providing the education and counseling that may not necessarily be within the timeframe of a busy physician (Carter et al., 2012). The practice-focused question concerned whether implementation of staff education about nonadherence to hypertension treatment would improve the staff nurses' knowledge and intent to educate their patients. The purpose of the DNP project was to implement an educational program for staff RNs to address nonadherence in adults diagnosed with hypertension. The

practice-focused question was: Does providing staff nurse education about nonadherence to hypertension treatment improve their knowledge and intent to educate their patients?

Sources of Evidence

I derived the sources of evidence for this project from a literature review conducted to identify the practice problem. The review of literature was conducted using CINAHL Plus with full text, CINAHL & Medline combined search, ProQuest Nursing & Allied Health database, and PubMed search. The Google and Google Scholar search engines were also used to identify pertinent literature. I included studies published within the past 5 years that involved educational interventions to improve adherence or nonadherence to medication or lifestyle modification and written in English as sources of evidence. The literature search was conducted using the following keywords: *adherence or compliance*, *nonadherence or noncompliance*, *hypertension*, *high blood pressure*, *education or intervention*, *training*, and *coaching*. Another source of evidence was the guideline for the prevention, detection, evaluation, and management of high blood pressure in adults developed by American Heart Association Task Force on Clinical Practice Guidelines (Whelton et al., 2018). I used the clinical practice guideline as part of the education content.

Published Outcomes and Research

The Effectiveness of Patient Education on Hypertension

Previous researchers identified patient education as an effective strategy to address the practice problem of nonadherence to hypertension management (Aghakhani et al., 2019; Bangurah et al., 2017; Georgiopoulos et al., 2018; Tam et al., 2020; Whelton

et al., 2018; Yazdanpanah et al., 2019). According to Bangurah et al. (2017), the literature is conclusive regarding the effectiveness of an educational intervention on hypertension management. Patient education improves patients' knowledge about the disease process, complications, and management as well as facilitates lifestyle modification and promotes adherence to hypertension management (Delavar et al., 2020). Nurses can empower patients to manage hypertension by offering educational information that patients can benefit from (Georgiopoulos et al., 2018; USDHHS, 2020).

Bangurah et al. (2017) utilized evidence-based educational materials developed by the American Heart Association and The National Heart, Lung, and Blood Institute to educate and counsel participants on strategies to help lower blood pressure. According to Bangurah et al., postintervention evaluation demonstrated a reduction in blood pressure reading to < 140/90 among all participants. The researchers reported increased knowledge, a significant decrease in sodium consumption, and increased physical activity among participants postintervention.

Georgiopoulos et al. (2018) conducted a systematic review to determine the effects of educational interventions by nurses on adherence to hypertension treatment. They demonstrated a strong positive effect of educational intervention on adherence to hypertension management. These results supported my plan to implement educational interventions for the staff nurses to address the issue of patient adherence to hypertension management.

Ampofo et al. (2020) conducted a systematic review and meta-analysis to determine the effect of educational interventions on improving medication adherence

among patients with hypertension. The results of their study demonstrated that verbal education could improve health literacy and, subsequently, medication adherence among patients with hypertension. Their results support the assumption that nurses need education about how to teach their patients to help improve adherence.

Tam et al. (2020) conducted an integrative review to determine the effectiveness of educational interventions on adherence to lifestyle modifications among hypertensive patients. The result of their meta-analysis revealed a moderate effect of educational intervention on dietary recommendations and physical activity as well as on blood pressure control.

Yazdanpanah et al. (2019) conducted a randomized controlled trial to determine the effect of an educational program based on the health belief model on medication adherence among elderly patients with hypertension. The study results showed that implementing an education program based on the health belief model increased medication adherence by 59%, supporting my plan to improve staff knowledge so nurses can educate their patients.

Evidence-Based Education Content

Several studies described the educational content for the intervention to improve adherence to hypertension management (Bangurah et al., 2017; Georgiopoulos et al., 2018; Javadzade et al., 2018; Mirniam et al., 2019; Whelton et al., 2018; Yazdanpanah et al., 2019). Generally, the literature review supports the inclusion of the following content for the educational intervention: (a) definition of hypertension (i.e., diagnosis and risk factors), (b) management of hypertension (medication and lifestyle), (c) assessment of

adherence and nonadherence (i.e., beliefs, attitudes, and factors affecting medication adherence and barriers to adherence), (d) complications and consequences of nonadherence to treatment, and (e) strategies to teach the patients on the importance of adherence to treatment (Bangurah et al., 2017; Georgiopoulos et al., 2018; Javadzade et al., 2018; Mirniam et al., 2019; Whelton et al., 2018; Yazdanpanah et al., 2019).

Participants

I presented the educational program to the six RNs on the clinic staff. Nurses have a significant role in reducing the adverse health outcomes due to nonadherence to hypertension management. As members of the health care team, nurses are well positioned to effectively improve adherence to hypertension management, thereby decreasing associated morbidity and mortality (Kronebusch et al., 2020; Santschi et al., 2017; Spies et al., 2019; USDHHS, 2020). This education intervention was intended to increase the staff RNs' knowledge of patient teaching and motivation as evidenced by the nurses' inadequate to lack of assessment and documentation of the patients' beliefs and perspectives for nonadherence. The knowledge obtained from this educational program might guide nurses in implementing interventions to improve adherence to hypertension management in the identified population, thereby improving patient outcomes and decreasing associated morbidity and mortality as well as the burden of the disease on the health care system.

Procedures

I designed the educational project to increase the staff RNs' knowledge in educating the patients on the importance of adherence to hypertension management. The

educational content was derived from practice guidelines and best practices identified in the literature. As part of designing the content, I presented the education session to a panel of medical directors, four nurse practitioners, and one RN. The panel evaluated and assessed the educational program on adherence to hypertension management based on best practices identified from the literature and the guidelines for the prevention, detection, evaluation, and management of high blood pressure in adults as well as the appropriateness of the content for the staff of the clinic. Recommendations and suggestions from the expert panel were incorporated to improve the educational program.

The educational program was presented to the staff RNs at a time deemed appropriate by the clinic management. I delivered the educational program via a 30-minute Microsoft PowerPoint presentation. During the presentation, a handout that supplemented the current information on hypertension in terms of diagnosis management and outcomes of nonadherence was given to each attendee. Through lecture, demonstration, and discussion, I taught the staff RNs how to assess and educate the patients at the patient's level of understanding using appropriate educational materials. I developed the pre- and posttest questions based on the content of the educational program. Participants completed the pretest survey before the presentation. After the presentation, I asked the participants to answer a posttest survey and a complete handout summarizing what they had learned.

The survey questions focused on participants' knowledge about the diagnosis and management of hypertension, assessment of nonadherence, consequences of nonadherence to treatment, and how to teach the patients the importance of adherence to

treatment. Best practices were based on information from the literature and the guidelines for the prevention, detection, evaluation, and management of high blood pressure in adults from the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines (Whelton et al., 2018). The participants were asked to answer 15 questions based on a Likert-type scale ranging from 1 to 5, with 1 as *completely disagree*, 2 as *somewhat disagree*, 3 as *neither agree nor disagree*, 4 as *somewhat agree*, and 5 as *completely agree*. The first 15 questions in both the pre- and posttest survey included the same statements to test participants' knowledge regarding assessing and educating patients who are nonadherent to treatment, while the posttest survey including five additional questions to provide a summative evaluation of the educational program and a question about their intent to educate. I analyzed pre- and posttest data using descriptive statistics and transferred the data into a Microsoft Excel table for visualization in which each row indicated a specific category. According to Gray et al. (2017), descriptive statistics, such as percentages, are appropriate for analyzing ordinal data.

Protections

The project began after I received approval from the Walden University Institutional Review Board # 05-02-22-1039493.. The site agreement was submitted for approval before the panel of experts evaluated the project. The nursing staff was at risk for harm in this educational project in that when teaching staff, they might feel comfortable having their supervisors know their scores on the pre- and posttests and might worry that future promotions could be affected if they scored low. Therefore, I

provided and had them complete an informed consent form for the questionnaire to ensure their anonymity.

Additionally, I assigned the participants unique identifiers to compare their pre- and posttest scores to further protect their anonymity. All documents, data, and information from the panel evaluation and staff survey were kept confidential by securing them in a locked cabinet, where they will remain until they are destroyed once the project is completed. Additionally, the confidentiality of the project site was maintained over the course of the project.

Analysis and Synthesis

The systems used for recording, tracking, organizing, and analyzing the evidence included the Likert-type questionnaire and Excel spreadsheets. I organized all the collected data in an Excel spreadsheet to record, track, and analyze it. The education program's impact on nurses' knowledge was measured by comparing their pre- and posttest scores. I assessed the nurses' intent to educate their patients on the importance of adherence to hypertension management using a posttest questionnaire.

I conducted descriptive analyses with percentages to assess whether the educational intervention increased the nurses' knowledge and intent to educate patients on the importance of adherence to hypertension management. Pre- and posttest results were calculated based on 20 questions. The study sample sizes of the panel evaluation (N = 6) and for the staff RN survey (N = 6) were small because they depended on participation from one outpatient clinic, which posed the limitation of generalization. Because of the small sample size, I used descriptive statistics to analyze the pretest,

posttest, and nurses' intent to educate their patients. Results of the data analysis were placed in Excel tables.

Summary

In Section 3, I addressed the sources of evidence and the collection and analysis of data utilized to explore the effect of an educational program on nonadherence to hypertension management. The educational program to address nonadherence in hypertension management encourages positive social change in both the staff nurses and patients by extending evidence-based knowledge on improving adherence in hypertension management and positively impacting patient health outcomes. In Section 4, the project findings and interpretations were presented. Additionally, the implications, recommendations, limitations, and strengths of the project were also discussed.

Section 4: Findings and Recommendations

Introduction

Adherence to hypertension management through medication and lifestyle modification improves outcomes in patients diagnosed with hypertension by controlling blood pressure and reducing associated morbidity and mortality (USDHHS, 2020). I developed an educational program to improve staff RNs' knowledge related to patient adherence to hypertension management in response to the observed pattern of patients' recurring visits for hypertension management and an observed knowledge gap among staff nurses in addressing patients' nonadherence to hypertension management.

The purpose of the educational program was to reduce the knowledge gap among staff nurses by providing them with knowledge and resources from best practices and evidence-based guidelines. The practice-focused question addressed was: Does providing staff nurse education about nonadherence to hypertension treatment improve nurses' knowledge and intent to educate their patients? The review of the literature indicated that patient education was an effective strategy to address patient nonadherence to hypertension management (Aghakhani et al., 2019; Bangurah et al., 2017; Georgiopoulos et al., 2018; Tam et al., 2020; Whelton et al., 2018; Yazdanpanah et al., 2019). Patient education improves patients' knowledge about disease processes, complications, and management, facilitating lifestyle modification and promoting adherence to hypertension management (Delavar et al., 2020).

I utilized evidence-based clinical practice guidelines for the prevention, detection, evaluation, and management of high blood pressure in adults and best practices from the

literature to develop an evidence-based educational program to reduce the gap in knowledge among staff nurses and improve patient adherence to hypertension management. The content of the educational program was submitted to an expert panel to review for content suitability and appropriateness for the clinic staff nurses in the local setting. Six nurses participated in the education program. They first completed a pretest questionnaire using a 5-point, Likert-type scale ranging from *completely disagree* to *completely agree* that was followed by a PowerPoint presentation. They also completed posttest questionnaires using a 5-point, Likert-type scale. I used descriptive statistic to analyze the pretest, posttest, differences in pretest and posttest scores, and staff nurses' intent to educate their patients. Nursing staff knowledge before and after the educational program was measured to answer the project's practice-focused question. In this section, the findings and implications are discussed. I also offer recommendations, consider the strength and limitations of the project, and summarize key points in the conclusion.

Findings and Implications

The content of the educational program was derived from practice guidelines and best practices identified in the literature. I first presented the educational program to a panel of the medical director, four nurse practitioners, and one RN as part of designing the content. The expert panel was given a Likert-type questionnaire (see Appendix A) with a 5-point scale to measure their evaluation of the educational project content. All expert panel members completely agreed with each of the evaluation questions.

The participants first took a pretest to determine their current level of baseline knowledge to measure the knowledge obtained from the educational program (see

Appendix B). To maintain anonymity, I instructed the participants not to include any identifying information, so I gave them numeric codes for the identification of their questionnaires. The educational program was delivered using a 30-minute PowerPoint presentation, demonstration, and discussion. After completing the program, participants had the opportunity to ask questions. I then provided all participants with posttest questionnaires (Appendix C) and instructed them to answer all questions presented in the questionnaire. The posttest questionnaire was identical to the pretest questionnaire except for the addition of five questions asking for the participant's evaluation of the educational program. All six participants completed their questionnaires regarding the impact of educational intervention and the intent to teach and motivate their patients on the importance of adherence to hypertension management. A designated staff nurse collected all the questionnaires, put them in an envelope, and handed them directly to my preceptor, who delivered the envelope to me.

I created a table that listed the numbers and proportions of correct answers obtained for each item on the questionnaires to perform the study analysis. Answers of *completely agree* and *somewhat agree* were collapsed into one dependent variable of agree, and *somewhat disagree* and *completely disagree* were collapsed into the dependent variable of disagree. Inferential statistics were not used to discover statistical significance owing to the small sample size for the study. I used descriptive statistics to indicate differences in pre- and posttest scores (see Table 1 in Appendix D).

I conducted an impact evaluation of the educational program to answer the practice-focused question. Analysis of the impact evaluation of the educational program revealed a generalized increase in percentage of correct answers among staff nurses. The percentage of correct answers increased as much as 50%, and all participants achieved 100% correct answers on the posttest per descriptive statistical analysis of differences in pretest and posttest scores. Additionally, the staff nurses' intent to teach and motivate patients on the importance of adherence to hypertension management was noted to be 100%, which implied that they were enthusiastic about the educational program (see Table 2 in Appendix E).

The implications were that the project successfully eliminated the staff nurses' knowledge gap by providing an evidence-based educational program to increase patient adherence to hypertension management in the outpatient primary care clinic setting. The potential implications for positive social change were that the staff education might improve patient care and teaching because of the nurses' improved knowledge. The nurses indicated the perception of increased knowledge (i.e., Question 16) and that after the educational program they feel prepared and knowledgeable on the importance of patient education. Therefore, they feel empowered to improve patient education. Further research will be needed to measure differences in patient education and motivation for adherence to treatment after the staff nurses' participation in the education program and, ultimately, if there is a reduction in patients' nonadherence to hypertension management. There were no unanticipated outcomes or limitations. The educational project may also be replicated in other outpatient clinics in the community to improve patient outcomes.

Recommendations

I developed the educational program in response to the knowledge gap observed among the staff nurses at the primary care clinic project site. A panel of experts deemed that the education program I developed from evidence-based clinical guidelines for the prevention, detection, evaluation, and management of high blood pressure in adults and best practices from the literature was adequate and appropriate for staff nurse education to improve patient teaching for their adherence to hypertension management. The expert panel also determined that the staff education content aligned with the program objective to increase staff nurse knowledge related to adherence to hypertension management. It is expected that the staff nurses will then teach and motivate their patients on the importance of adherence to hypertension management, which could improve outcomes in the identified population. Therefore, I recommend that the clinic management develop clinical practice policies that include scheduled, in-service education to improve nursing knowledge. Adding a continuing education policy will ensure that new employees improve their knowledge on the importance of patient teaching regarding improving adherence to hypertension management. I also recommend studying staff retention of knowledge and the resulting motivation of their patients to improve adherence to hypertension management.

Contributions of the Doctoral Project Team

The project team included my DNP project chair, the project committee members who guided me, and the expert panel who reviewed my educational program for content and suitability for application to the clinical site. The expert panel evaluated the learning

activities and objectives and ensured their validity and alignment with the educational program. My preceptor coordinated the meeting for the delivery of the educational program and signed the site approval form for the staff education doctoral project. After graduation, I plan to work with the clinic staff to disseminate knowledge on current, evidence-based practice guidelines related to primary care. My research focus for the future includes identifying ways to provide ongoing staff education opportunities.

Strengths and Limitations of the Project

The strengths of the DNP project are attributed to its approval by the expert panel, who reviewed and approved the educational content before the material was presented to the participants. The panel reviewers provided me with guidance on the evidence-based content that fit the needs of the target audience. The expert panel's input proved effective because the posttest survey results showed an increase in nurses' knowledge and intent to teach and motivate their patients on the importance of adherence to hypertension management.

A major limitation of the project was the inability to follow up with the staff nurses to determine the long-term impact of the staff education. An important note is that some of the questions had poor discrimination scores, which posed limitations because they were answered correctly on the pretest. Another limitation of this project was the small sample size. Additionally, participation was limited to one primary care clinic. The small sample size and a single location for data collection limited the generalizability to other settings. Despite the small sample size, it was evident in the study results that the

main goal of filling the knowledge gap of the staff nurses at the project site clinic was achieved.

Section 5: Dissemination Plan

The results of the DNP project indicated a positive change in nursing knowledge. Dissemination of academic scholarly work is an expected outcome for DNP scholars who impact clinical operations (Becker et al., 2018). Effective dissemination increases the awareness of the project outcomes and maximizes the impact of project findings on the targeted audience (Humbles, 2019). New evidence must be communicated quickly to the appropriate audience to affect timely access to best practices and positive social change (Kesten & Hoover, 2022).

I provided the project site with hard copies of the PowerPoint presentation. I also plan to provide them with an electronic copy after completing the project. The project findings can also be disseminated to other local primary care clinics, which may benefit from the educational project through presenting the content in staff in-services. I will present the findings as a poster presentation during a local nurse practitioner meeting and/or conference to communicate the findings of the staff nurse education project to a broader audience. Additionally, I view the project as appropriate for dissemination in scholarly journals, such as the *Journal of Hypertension Management* or the *Journal of Nursing Scholarship*. Publishing the project results will provide other nurses with an evidence-based health intervention on nursing education to improve nursing staff knowledge and, ultimately, improve patient outcomes.

Analysis of Self

My passion for adherence to hypertension management started early in my career as a rehabilitation nurse caring for patients who had suffered from hemorrhagic and

ischemic strokes, heart attacks, and other complications due to nonadherence to hypertension management. In my experience as a nurse practitioner, I have professionally witnessed the consequences of nonadherence to hypertension treatment among the hypertensive population I serve and my family members. I have seen stroke, heart disease, and death that could have been prevented through adherence to hypertension management. The preventable morbidity and mortality related to nonadherence to hypertension management was my motivation to develop this educational program to improve staff knowledge that can improve patient education and adherence among hypertensive patients.

The DNP journey has helped me develop library search skills and acquire the knowledge to develop a staff nurse educational program to improve adherence to hypertension management. These skills are based on the American Association of Colleges of Nursing's (2006) *DNP Essentials of Doctoral Education for Advanced Nursing Practice*, specifically: Essential III: Clinical scholarship and analytical methods for evidence-based practice, Essential IV: Information systems/technology and patient care technology for the improvement and transformation of health care, and Essential VII: Clinical prevention and population health for improving the nation's health. I used information systems and technology to locate evidence-based clinical guidelines and best practices from literature to develop an educational program to improve the health of the identified population.

As an advanced practice nurse, I understand the importance of patient education. Advanced practice nurses are responsible for successfully contributing to and transferring

knowledge and skills to other health care providers and clinicians (Bakerjian, 2022). This educational program confirmed my experience as a nurse leader and competency in developing a staff educational program to positively impact patient care. As a scholar, practitioner, and project manager, I used evidence-based clinical guidelines and best practices from the literature to develop an effective educational intervention for the staff nurses. My goal was for the staff nurses to implement what they have learned to educate their patients on the importance of adherence to hypertension management. After graduation, I plan to work with the clinic staff to disseminate knowledge on current, evidence-based practice guidelines related to primary care. In addition, I will focus on ways to provide ongoing evidence-based staff education opportunities.

It is important to note that the project was not without challenges. The COVID-19 pandemic posed obstacles in communicating with and organizing the education project at the practice site. Despite the challenges encountered, I successfully completed the project and achieved my goals with patience and perseverance. I gained insight from this doctoral journey that hard work, determination, and effective communication are essential in any project. I intend to use the skills, knowledge, and experience I gained during my DNP journey to advance my career and the discipline of nursing by educating and mentoring the current and future generations of RNs and nurse practitioners to succeed in their careers.

Summary

I developed the staff nurse educational program to close the knowledge gap among staff nurses in addressing patients' nonadherence to hypertension management.

The focus of the DNP project was to investigate the impact of the educational program on staff nurses' knowledge and their intent to educate their patients on adherence to hypertension management. In this project, I implemented an evidence-based staff nurse educational program to improve patient adherence to hypertension management through expert panel-approved questionnaires and a PowerPoint presentation. I used evidence-based guidelines for the prevention, detection, evaluation, and management of high blood pressure in adults and best practices identified from the literature in developing the educational program. The goal to increase the staff nurses' knowledge and close their knowledge gap was achieved as evidenced by posttest questionnaire results that revealed the knowledge acquisition of the staff nurses in every area addressed. The posttest questionnaire results also indicated that 100% of the staff nurses intended to educate their patients on adherence to hypertension management. The project outcome also demonstrated that staff education is an effective strategy for addressing the issue of nonadherence among hypertensive patients to improve clinical outcomes.

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Appendix A: Expert Panel Questionnaire

Directions: Please check in the box if you completely disagree, somewhat disagree, neither agree nor disagree, somewhat agree, or completely agree.

Questions	Completely Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Completely Agree
1. The content of staff nurse education to improve adherence in hypertension management will appropriately prepare the staff nurse to improve patients' adherence to hypertension management					
2. The teaching content aligns with learning objectives and will increase staff nurses' knowledge on how to improve patients' adherence to hypertension management.					
3. The contents and style of the PowerPoint will be easy for the staff nurses to understand.					
4. The content of staff nurse education to improve adherence in hypertension management will help the staff nurses to provide evidence-based care					
5. The content of staff nurse education to improve adherence in hypertension management will be easy for the patients and the staff to understand and use.					
6. I am likely to recommend the staff nurse education to improve patients' adherence to hypertension management.					

Comments:_____

_____

_____

Appendix B: Pretest Questionnaire

Please complete the survey question by checking the box with response based on your current knowledge before the staff nurse education to improve adherence to hypertension management.

Questions	Completely Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Completely Agree
1. Patients' beliefs, attitudes, and adherence to hypertension and treatment can be assessed by interview or self-report questionnaires.					
2. Patient-clinician relationship, communication style, and failure to detect clues can contribute to nonadherence.					
3. Lack of knowledge and perception of illness severity contribute to nonadherence.					
4. Hypertension can be controlled by adherence to medications and lifestyle modifications.					
5. Nonadherence to hypertension treatment can cause complications such as heart disease, heart attack, stroke, chronic kidney disease, peripheral vascular disease.					
6. Several factors that contribute to nonadherence can be identified by assessment.					
7. Understanding patients' values and beliefs that sustain their nonadherence will help to motivate them more effectively.					
8. Nurses can serve as educators and facilitators to improve nonadherence to treatment regimen.					
9. Perception hypertension severity and fear of dependence on treatment are reasons for nonadherence.					
10. Concerns about the adverse effects of medications and the stigma associated with illnesses are reasons for nonadherence.					
11. Patients' perspective on hypertension and treatment affects adherence to treatment.					
Questions	Completely Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Completely Agree

12. Health Belief Model provides a useful framework to understand patient' beliefs and perceptions on the importance of adherence to hypertension treatment.					
13. Adults need to know why they need to learn something.					
14. An empathic understanding of patients' perspective for nonadherence could help modify wrong perception or beliefs to improve adherence.					
15. An empathic understanding of patients' perspective for nonadherence could contribute to personalized adherence interventions that favor their active collaboration.					

Appendix C: Posttest Questionnaire

Please complete the survey question by checking the box with response based on your current knowledge after the staff nurse education to improve adherence to hypertension management.

Questions	Completely Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Completely Agree
1. Patients' beliefs, attitudes, and adherence to hypertension and treatment can be assessed by interview or self-report questionnaires.					
2. Patient-clinician relationship, communication style, and failure to detect clues can contribute to nonadherence.					
3. Lack of knowledge and perception of illness severity contribute to nonadherence.					
4. Hypertension can be controlled by adherence to medications and lifestyle modifications.					
5. Nonadherence to hypertension treatment can cause complications such as heart disease, heart attack, stroke, chronic kidney disease, peripheral vascular disease.					
6. Several factors that contribute to nonadherence can be identified by assessment.					
7. Understanding patients' values and beliefs that sustain their nonadherence will help to motivate them more effectively.					
8. Nurses can serve as educators and facilitators to improve nonadherence to treatment regimen.					
9. Perception hypertension severity and fear of dependence on treatment are reasons for nonadherence.					
10. Concerns about the adverse effects of medications and the stigma associated with illnesses are reasons for nonadherence.					
11. Patients' perspective on hypertension and treatment affects adherence to treatment.					

Questions	Completely Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Completely Agree
12. Health Belief Model provides a useful framework to understand patient' beliefs and perceptions on the importance of adherence to hypertension treatment.					
13. Adults need to know why they need to learn something.					
14. An empathic understanding of patients' perspective for nonadherence could help modify wrong perception or beliefs to improve adherence.					
15. An empathic understanding of patients' perspective for nonadherence could contribute to personalized adherence interventions that favor their active collaboration.					
16. The education program has increased my knowledge on the importance assessment of patient's perspective for nonadherence.					
17. This program will help me to empathically understand patients' perspective for nonadherence and modify wrong perceptions or beliefs to improve adherence.					
18. This educational program has prepared me to improve adherence in hypertension management.					
19. This program has increased my intent to teach and motivate patients on adherence to hypertension treatment.					
20. This program has increased my knowledge on educating patients on the importance of adherence to hypertension management.					

Appendix D: Table 1

Comparison of Percentages of Correct Answers for the Pretest and Posttest Knowledge

Questions	Correct Answers Pretest	Correct Answers Posttest	Difference in Percentage
1. Patients' beliefs, attitudes, and adherence to hypertension and treatment can be assessed by interview or self-report questionnaires	67% (*n* = 4)	100% (*n* = 6)	33%
2. Patient-clinician relationship, communication style, and failure to detect clues can contribute to nonadherence	50% (*n* = 3)	100% (*n* = 6)	50%
3. Lack of knowledge and perception of illness severity contribute to nonadherence.	67% (*n* = 4)	100% (*n* = 6)	33%
4. Hypertension can be controlled by adherence to medications and lifestyle modifications	67% (*n* = 4)	100% (*n* = 6)	33%
5. Nonadherence to hypertension treatment can cause complications such as heart disease, heart attack, stroke, chronic kidney disease, peripheral vascular disease.	67% (*n* = 4)	100% (*n* = 6)	33%
6. Several factors that contribute to nonadherence can be identified by assessment.	67% (*n* = 4)	100% (*n* = 6)	33%
7. Understanding patients' values and beliefs that sustain their nonadherence will help to motivate them more effectively.	83% (*n* = 5)	100% (*n* = 6)	17%
8. Nurses can serve as educators and facilitators to improve nonadherence to treatment regimen	67% (*n* = 4)	100% (*n* = 6)	33%
9. Perception hypertension severity and fear of dependence on treatment are reasons for nonadherence	*n* 50% (*n* = 3)	100% (*n* = 6)	50%
10. Concerns about the adverse effects of medications and the stigma associated with illnesses are reasons for nonadherence	67% (*n* = 4)	100% (*n* = 6)	33%
11. Patients' perspective on hypertension and treatment affects adherence to treatment	50% (*n* = 3)	100% (*n* = 6)	50%
12. Health Belief Model provides a useful framework to understand patient' beliefs and perceptions on the importance of adherence to hypertension treatment.	67% (*n* = 4)	100% (*n* = 6)	33%
13. Adults need to know why they need to learn something.	83% (*n* = 5)	100% (*n* = 6)	17%
14. An empathic understanding of patients' perspective for nonadherence could help modify wrong perception or beliefs to improve adherence.	50% (*n* = 3)	100% (*n* = 6)	50%
15. An empathic understanding of patients' perspective for nonadherence could contribute to personalized adherence interventions that favor their active collaboration.	50% (*n* =3)	100% (*n* = 6)	50%

Appendix E: Table

Results of Impact Evaluation of Educational Project

Questions	Agree	Disagree
16. The education program has increased my knowledge on the importance assessment of patient's perspective for nonadherence	100% (*n* = 6)	0% (*n* = 0)
17. This program will help me to empathically understand patients' perspective for nonadherence and modify wrong perceptions or beliefs to improve adherence.	100% (*n* = 6)	0% (*n* = 0)
18. This educational program has prepared me to improve adherence in hypertension management	100% (*n* = 6)	0% (*n* = 0)
19. This program has increased my intent to teach and motivate patients on adherence to hypertension treatment.	100% (*n* = 6)	0% (*n* = 0)
20. This program has increased my knowledge on educating patients on the importance of adherence to hypertension management	100% (*n* = 6)	0% (*n* = 0)