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Early Onset Hypertension Objective Structured Clinical Examinations

Katrina Morace
The University of Southern Mississippi

EARLY ONSET HYPERTENSION OBJECTIVE STRUCTURED CLINICAL EXAMINATIONS

by

Katrina Morace

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Approved by:

Dr. Lisa Morgan, Committee Chair
Dr. LaWanda Baskin

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ABSTRACT

Hypertension is known as a condition in which raised blood vessel pressure persists. On a normal day, the pressure can rise and fall causing damage to the heart. When the pressure stays at higher readings, damage can be caused to the heart and can also lead to additional health problems. Another word for high blood pressure is hypertension. The blood is carried to all body parts from the heart by the arteries. The harder the heart pumps the higher the blood pressure (Centers for Diseases Control and Prevention [CDC], 2020). When hypertension is not diagnosed and treated at an early age many patients will experience morbidity and mortality.

An objective structured clinical examination (OSCE) is an educational tool in healthcare settings and universities used to further educate health care professionals. The OSCE can be used to improve the students' feelings of autonomy and confidence and assure each student is educated about human rights and social accountability. The purpose is to make sure the students have become knowledgeable in this area (Aronowitz et al., 2017). The OSCE could be used to evaluate the College of Nursing and Health Professions graduates and faculty's attitudes as reliable and valid methods of competent assessment tools (Omu, 2016).

The purpose of the doctoral project was to provide an evidenced-based OSCE to The University of Southern Mississippi Family Nurse Practitioner Program using The International Association for Clinical Simulation and Learning (INACSL) standards and the 2020 International Society of Hypertension (ISH) Guidelines. Thus, an OSCE was based on the best recommendations supported by INACSL and the 2020 ISH guidelines. The OSCE includes outcomes, objectives, and a case scenario. A written dialogue was

done for a video produced at USM's Simulation Lab. The video and survey were sent via email to a panel of experts stating that the OSCE would be beneficial. The video, online standard consent, prequestionnaire, and postquestionnaire were sent through Qualtrics® to FNP students from USM via email. Data was collected anonymously through Qualtrics® and the participants stated that the early onset hypertension OSCE is a beneficial tool.

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I would like to thank my committee chair, Dr. Lisa Morgan, for her help, kindness, and guidance throughout this journey. I would also like to acknowledge and sincerely thank my committee member, Dr. LaWanda Baskin, for her guidance through this process.

DEDICATION

I would like to dedicate my doctoral project to my mother, Kathy Morace, and my children, Peyton and Parker Tarver. You have been here for me for the entire time. Without your encouragement, I would not have finished not only the doctoral project but the entire program. Thanks for supporting me throughout my entire life and encouraging me to reach my goals.

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LIST OF ABBREVIATIONS

APRN	Advanced Practice Registered Nurse
CDC	Centers for Disease Control
DNP	Doctor of Nursing Practice
FNP	Family Nurse Practitioner
INACSL	International Association of Clinical Simulation and Learning
ISH	International Society of Hypertension
OSCE	Objective Structured Clinical Examination
USM	The University of Southern Mississippi

CHAPTER I – INTRODUCTION

Background

The Objective Structured Clinical Examination (OSCE) was developed and used as a mechanism to test students. Harden et al. (1975) introduced the OSCE to be used by medical students in the clinical setting in order to evaluate skills. Students were given standardized tests based on judgment, skills, and tasks. Now OSCEs are used as educational tools in healthcare settings and universities to educate future healthcare providers (Aronowitz et al., 2017).

An objective structured clinical examination (OSCE) has been developed by this researcher to educate future advanced practice registered nursing (APRN) students about diagnosing early onset hypertension. OSCEs are informative and provide an educational approach to nursing care. The OSCE is used as an evaluation tool at the College of Nursing and Health Professions at The University of Southern Mississippi for students, graduates, and faculty members and is seen as a reliable and valid method of competency assessment for the past 10 years. New nursing graduates with OSCE experience have the confidence to work in health care fields as registered nurses and as advanced practice nurses (Omu, 2016).

APRN students in simulation practice the clinical role in a controlled environment. The OSCE can be used to present more complex cases within the APRN program, improve the students' feelings of autonomy and confidence in the program, and assure each student is educated about social justice, human rights, and social accountability. The purpose of OSCEs is to make sure the students have gained

knowledge and experience. OSCEs have been used by many healthcare providers for cardio-pulmonary resuscitation certification (Aronowitz et al., 2017).

As APRN students' progress toward graduation, a required number of clinical hours are needed. The clinical hours must be supervised. Only a few APRN programs consider the OSCE as part of the curriculum because OSCEs can be time-consuming and complex. OSCEs take time out of the student's day but in the future, they are helpful because of the educational aspects the student reaps by using the OSCE. The benefits of the OSCE outweigh the fact that it is a time-consuming and complex tool. OSCEs are beneficial for students to prepare for clinical skills, interpret findings, and understand the barriers of difficult procedures (Aronowitz et al., 2017).

One of the most common diagnoses in the United States is hypertension (Alexander, 2019). Hypertension is known as high blood pressure and contributes to risk factors such as kidney disease, stroke, vascular disease, and myocardial infarction (Alexander, 2019). The treatment and prevention of hypertension are crucial to the public because of the increasing costs and deaths associated with hypertension (Alexander, 2019). With the diagnosis of early-onset hypertension in young adults between the ages of 18 and 35, future mortalities may be prevented. Young adults should be made aware of the diagnosis of hypertension and the necessary steps to take after a diagnosis. The patient needs to exercise regularly, eat a balanced diet, and maintain a healthy lifestyle (Mayo Clinic, 2020).

The 2020 International Society of Hypertension (ISH) Guidelines are both practical and sensible. For a patient to be diagnosed with hypertension, the patient shows a pattern of elevated blood pressure during a combination of office visits and at-home

blood pressure monitoring. When hypertension is diagnosed, medication is prescribed in combination with lifestyle changes. The guidelines can help prevent mortality caused by heart disease and help reduce hypertension (Unger et al, 2020).

Significance of the Problem

APRNs work with registered nurses to help teach safe and effective ways to recognize hypertension in patients, influencing patients across their lifespans. The higher the blood pressure tends to be in an individual at a younger age, the stronger the abnormalities tend to be on the heart and brain, and the likelihood of the individual developing cardiovascular problems is greater by the time the patient is of middle age (Hinton et al.,2020). The diagnosis, as well as treatment, is delayed in younger patients. Therefore, the lack of evidence shows lowering blood pressure in young adults can improve the outcome of cardiovascular function later in life (Hinton et al., 2020). OSCEs would be a beneficial tool to teach RNs and APRNs to diagnose early-onset hypertension in individuals between the ages of 18 and 35. By developing an early onset hypertension OSCE, students can be clinically prepared to treat the patients before the patient becomes critically ill.

The students at The University of Southern Mississippi (USM) in the Family Nurse Practitioner Program were taught the significance of the simulation through an OSCE; including how to diagnose and treat hypertension earlier. Many young individuals do not experience any signs or symptoms of hypertension and many individuals do not know the signs or symptoms of hypertension (Mayo Clinic, 2020). The early onset hypertension OSCE will be a beneficial tool to prevent young individuals from developing further hypertension which can lead to a more debilitating disease.

For the construction of the OSCE, the simulation-based experiences to be both upheld and demonstrated referred to professional integrity. Such attributes as compassion, commitment, confidentiality, honesty, and respect are needed for the person's internal system. The International Association for Clinical Simulation and Learning (INACSL) standards are used to maintain and create a learning environment safe for learning with standards to follow best practice standards, principles, guidelines, and professional ethics (INACSL Standard Committee, 2016).

An important part of the healthcare simulation is pre-briefing. Pre-briefing standards provide a pre-briefing guide for best practices. INACSL (2016) released the *Healthcare Simulation Standard of Best Practice Pre-Briefing: Preparation and Briefing.* Not following the INACSL standards affects the simulation-based outcome causing careers to be affected, a sense of distrust in the environment could be created, a person's career could be changed, self-esteem and distrust can be created and the feeling of having a safe environment might be destroyed (INACSL Standard Committee, 2016).

Problem Statement

There was no current or consistent objective measure to evaluate FNP student diagnosis and management of young adult patients aged 18-35 with pre-hypertension during a simulated office visit scenario. The aim of this doctoral project was to demonstrate the effectiveness of the OSCE in training APRN students to recognize the onset of hypertension in young adults at an earlier stage. The OSCE is an educational simulation used by students in a safe environment preparing them for clinical practice to effectively diagnose and treat patients with signs and symptoms of hypertension. The students were enrolled in the Doctor of Nursing Practice (DNP) Family Nurse

Practitioner Program at The University of Southern Mississippi in Hattiesburg, Mississippi. The main purpose of this OSCE was to train and educate APRN students to diagnose and manage hypertension in patients between the ages of 18 and 35. Early intervention of hypertension may prevent future mortalities. In addition, the prevention of future devastating hypertension-related diseases later in life may be accomplished. By implementing this OSCE for early-onset hypertension, the family nurse practitioner students would be able to use the OSCE to diagnose hypertension at an earlier age, which could prevent the patient from having devastating complications later in life. The use of the OSCE can be very educational, lifesaving, and informative (Siddaram & Anil, 2018).

Available Knowledge

Hypertension is known as a condition in which raised blood vessel pressure persists. On a normal day, the pressure can rise and fall to unhealthy levels causing damage to the heart. When the pressure stays at higher readings, damage to the heart may be the result, as well as cause additional health problems. The blood is carried to all body parts from the heart by the arteries. The harder the heart pumps the higher the pressure (CDC, 2020). New guidelines were published in 2017, by the American Heart Association and the American College of Cardiology concerning hypertension management. The hypertension guidelines specified high blood pressure to be at or above 130/80 mm Hg, whereas stage two hypertension is at or above 140/90 mm Hg (CDC, 2020).

Cardiovascular diseases, such as strokes and heart disease are classified as the leading causes of death in the United States. Patients that have hypertension are at a greater risk of developing cardiovascular disease (CDC, 2020). There are approximately

37 million adults with uncontrolled hypertension in the United States. Hypertension is considered 140/90 mm Hg or above. According to the CDC (2020), there were 30 million adults prescribed medications to treat hypertension, and 19 million patients diagnosed with hypertension have a blood pressure of 140/90 or higher. Medication and lifestyle changes need to be initiated when treating hypertension. Hypertension was one of the main causes of death for 494,873 people in 2018 in the United States (CDC, 2020). Over an average of 12 years, hypertension has cost approximately 131 billion dollars each year for the United States (CDC, 2020). For every five adults, at least one is not aware of having hypertension which results in the lack of statistics for those patients (CDC, 2020).

Out of every eight young adults between the ages of 20 and 40, one is affected with hypertension. The number of people being diagnosed with hypertension can decrease with lifestyle changes. Patients who are not diagnosed with hypertension earlier in life can develop cardiovascular abnormalities by middle age. Treatment and diagnosis of hypertension tend to be delayed in the younger population. Fear of being misdiagnosed with hypertension causes many people to be non-compliant with their prescribed medications. Because hypertension is not being diagnosed and is not treated early in life, a lack of improvement and a lack of a better outcome in cardiovascular treatments are found to exist (Hinton et al., 2020).

A secondary reason should be investigated for the cause of young patients developing high blood pressure. Some of the secondary reasons are hypothyroidism, renal insufficiency, Cushing Syndrome, renovascular disease, and primary hyperaldosteronism (Hinton, et al., 2020). Young patients lack the validation to be prescribed medication for hypertension. Diet and exercise are recommended to achieve

the recommended blood pressure for the patient's age. The advantages and disadvantages of prescribing medication for hypertension are addressed (Hinton et al., 2020). By getting diagnosed with hypertension at an early enough stage medication can be prescribed before the patient becomes ill with any of the secondary diseases. The medication can help treat and prevent the patient from ever getting any of the diseases at all if taken properly and diagnosed early enough.

All OSCEs must be scrutinized for validity and reliability. The OSCE assists in the development of student reasoning skills using technical fidelity and standardized patients. Some advantages of the OSCE simulation over traditional graduate education include hands-on training in real-life standardized patient scenarios, exposure to complicated clinical events as well as immediate student feedback during debriefing. Another advantage provided to students is the ability to complete the OSCE scenario an unlimited number of times. The OSCE is considered a more reliable and equitable assessment tool as compared to the traditional clinical setting (Eze et.al., 2020).

Traditional clinical experiences have additional disadvantages including a significant time constraint. In addition, the clinical practice setting may have a deficit of clinical resources available to the student. Traditional clinical settings may be less cost-effective and provide the challenge of finding clinical sites and preceptors.

Needs Assessment

This OSCE was developed with the purpose of educating students to diagnose and manage early-onset hypertension in patients between the ages of 18 and 35. The University of Southern Mississippi Family Nurse Practitioner Program students will benefit from using the early onset hypertension OSCE educational tool developed for this

doctoral project. The OSCE is a reliable and valid tool students are encouraged to use (Aronowitz et al., 2017). Students can use the experience gained from the OSCE in the clinical setting to properly manage patients. Before entering the clinical settings, students will be more educated and build competence, and confidence by practicing in simulation labs. The use of simulation labs in nursing schools is a new practice skill for nurse practitioner students. The students become more efficient with diagnostic reasoning, physical documentation, and assessment skills. Family nurse practitioner students will function better in the clinical setting with this additional training (Loomis, 2016).

Young adults need to be aware of the importance of a well-balanced diet and exercise to maintain a healthy heart. Awareness of the genetic occurrence of hypertension, cardiovascular disease, obesity, and diabetes is important for young adults. For patients under the age of 40, the diagnostic rate of hypertension is slower. Obtaining normal blood pressure levels occurs less often in the younger population in comparison to older adults. The management of certain patients including women of childbearing age includes appropriate drugs for treatment. Many people were concerned about the risks and benefits of the treatments, they fear being misdiagnosed, and question the impact on the cost of life insurance once diagnosed with hypertension (Hinton et al., 2020).

Synthesis of Evidence

OSCE Definition

OSCEs are simulations used to communicate necessary knowledge and information to APRN students. Clinical skills can be evaluated with the OSCEs by using simulated patients. In addition, cognitive abilities, psychomotor skills, and attitudes are also evaluated (Siddaram & Anil, 2018). APRN students' knowledge is first assessed by

using the OSCE to introduce clinical skills. Students are allowed to practice the compromising changes in the patient to detect potential abnormal defects. Students will be allowed to detect the complexity of the patient's anatomy while being in a controlled environment. In the world today, fundamental inadequacies exist in health education. Due to the noted inadequacies, the challenges nurses are facing are in clinical placements (Aronowitz et al., 2017).

OSCEs can be a beneficial tool for the education of APRNs. The student becomes a better practitioner, a more skillful communicator, culturally humble, and respectful of the patient's religious values when the OSCE is used appropriately. OSCEs are simulation tools used by students. Students use the OSCEs to help diagnose a clinical problem presented by the nursing faculty to demonstrate various medical situations presented in a safe clinical setting. OSCEs have been known to be both valid and reliable by examiners and students (Aronowitz et al., 2017).

Early Onset Hypertension Overview

The simple definition of hypertension is high blood pressure. Many individuals have hypertension and are unaware of this condition, therefore are unaware that they may be affected by this condition, better known as "the silent killer" (World Health Organization [WHO], 2021). Hypertension can be hereditary and runs in families (Mayo Clinic, 2020). When a young patient experiences hypertension for an extended period, the probability of the patient experiencing organ damage is likely later in life. The likelihood of mortality increases when hypertension is diagnosed at an early age. In certain patients, crucial decisions need to be made by health care providers to increase the chance of the patients living long and healthy lives (Hinton et al., 2019).

Normal blood pressure ranges between 120/80 mm Hg to 129/80 mm Hg or less. Hypertension is divided into two stages. In stage one, the readings are 130-139/80-89 mm Hg. In stage two the readings are >140/>90 mm Hg (Rubenfire, 2018). Blood pressure should be checked in both arms with the proper size cuff to assure the blood pressure is being read properly (Mayo Clinic, 2020). Several risk factors can lead to hypertension such as unhealthy diets, obesity, sleep apnea, smoking, dyslipidemia, low fitness, psychosocial stress, and diabetes. Diagnostic evaluation for hypertension includes a lab for complete blood cell counts, thyroids stimulating hormone, uric acid, fasting blood glucose, lipids, urinary albumin-to-creatinine ratio, electrocardiogram with an optional echocardiogram, and urinalysis (Rubenfire, 2018).

Risk factors for patients under the age of 30 include uncontrolled hypertension causing organ damage, left ventricular hypertrophy, retinopathy, kidney disease, coronary artery disease, hypokalemia, sleep apnea, and peripheral artery disease. Other co-morbidities include Cushing's Syndrome, hyperthyroidism, and hypothyroidism which may require evaluation by an endocrinologist (Rubenfire, 2018). Patients must be encouraged to stop using tobacco products, reduce sodium and alcohol intake, eat a healthy diet, and exercise regularly (Mayo Clinic, 2020).

Complications of uncontrolled hypertension can lead to heart failure, stroke, heart attack, aneurysm, vision loss, kidney malfunction, and dementia (Mayo Clinic, 2020). Patients with hypertension should be aware of symptoms including, but not limited to, shortness of breath, dizziness, blood in the urine, headaches, nosebleeds, chest pain, flushing, and visual changes (Holland, 2021). Not all the listed symptoms require medical attention.

Framework

Bloom's Taxonomy was originally developed in 1956 as a framework for categorizing educational goals (Armstrong, 2010). A revised taxonomy was published in 2001. The six categories of Bloom's Taxonomy are a guiding force in the development of the OSCE simulation. Students first develop a knowledge base related to the topic of the OSCE in their coursework and clinical experiences. The revised taxonomy focuses on action verbs rather than nouns. Words such as recognizing, exemplifying, implementing, and organizing are used to formulate the revised taxonomy. In the application of OSCE simulation, students first recall previously learned processes and develop an understanding of the presented case. Through this understanding, the students can interpret, classify and explain the presented disease process. Students then begin to apply the information obtained by developing a final and differential diagnosis. Next, the students will analyze the data and evaluate the expected outcomes of the scenario. Finally, the students generate an ongoing and evolving plan of care adjusting to the patient's needs and outcomes (Armstrong, 2010). Bloom's taxonomy is designed to be hierarchical beginning with basic knowledge and progressing to a higher level of understanding in which students may generate and create new knowledge (Armstrong, 2010).

Rationale

The prevalence of hypertension in young adults is on the rise, but the morbidity and mortality associated with the disease will increase when the FNP students and healthcare providers are not educated properly in identifying the diagnosis. Hypertension in young adults is becoming more common and early recognition of the warning signs is

crucial to prevent future complications. Using the OSCE to create an early-onset hypertension scenario will allow students to gain the knowledge required to recognize, diagnose, and manage young adults with hypertension earlier. This OSCE will give students the competence and confidence needed to safely manage the patient.

Many providers are overly cautious in prescribing blood pressure medication to young adults for a fear of overtreatment and overdiagnosis. Many patients are concerned about the risks and benefits of the treatments, fear being misdiagnosed, and question the impact of life insurance costs once diagnosed with hypertension. Most patients below the age of 40 are not aware of their elevated blood pressure, therefore, the patient is not seeking medical attention (Hinton et al., 2020). Since high blood pressure is considered a *silent killer*, many people do not recognize the symptoms. Hypertension can cause serious complications such as strokes, heart attacks, and heart failure (Mayo Clinic, 2020).

Purpose

This doctoral project focuses on young patients newly diagnosed with hypertension between 18 and 35. Many of the patients have not been diagnosed but have family members with hypertension. The patient's blood pressure may be elevated, and the patient may not be aware of the situation. The patients may experience severe headaches, vision problems, irregular heartbeat, and chest pain. When young adults experience symptoms of hypertension, the young adult should seek the aid of a qualified health care provider. Serious diseases such as kidney failure, heart disease, or stroke can occur when hypertension is left untreated (Beckerman, 2020).

Family nurse practitioner students at The University of Southern Mississippi can benefit from an early onset hypertension OSCE. The OSCE helps students become aware

of and implement hypertension treatment guidelines. Patients may be on prescribed medication, but not be aware of the hypertension diagnosis. The OSCE introduces the hypertension scenario allowing the student to make decisions regarding medication and management of the disease. The OSCE was created in a safe environment to increase the student's skills to form more accurate responses for patients in a clinical setting. The purpose of the OSCE is to make assure patients will receive accurate and appropriate care from APRN students and future healthcare providers (Aronowitz, 2017).

Measurable Objectives

The primary objective for developing the early onset hypertension OSCE was to educate FNP students to recognize, diagnose and manage hypertension in those ages 18-35. Using Bloom's Taxonomy framework to formulate the objectives, students will:

- Recall the pathophysiology and pharmacodynamics of hypertension.
- Describe and discuss pertinent components of the history and physical exam of a patient with hypertension.
- Implement an appropriate plan of care for a patient with early-onset hypertension.
- Analyze data collected in the diagnostic process.
- Evaluate patient outcomes and adjust as needed to meet patient needs.
- Develop an ongoing patient-provider relationship in order to maintain compliance with the plan of care (Armstrong, 2010).

As an APRN, the measurable objective is to assure the patient maintains a proper diet and stays within a proper weight, especially when the patient has a family history of hypertension. The patient does not want to have a future with cardiac issues involving

heart attacks, strokes, diabetes, and obesity (Mayo Clinic, 2020). By maintaining a healthy lifestyle and eating healthy, the patient may not need medication for hypertension and will benefit from lifestyle changes. The patient will need to be prescribed medication to prevent serious cardiovascular ailments later in life when hypertension remains elevated.

DNP Essentials

All Doctor of Nursing Practice (DNP) Essentials are met for this doctoral project. For this doctoral project Domain I, which is the knowledge of nursing practice, was addressed. As an APRN, the knowledge and skills obtained were developed to allow diagnosis and management appropriate for hypertensive patients. Domain 2, which is person-centered care, is addressed by the APRN being compassionate, respectful, and culturally competent to newly diagnosed patients with hypertension. The healthcare team will collaborate to diagnose and manage the disease. For Domain 3, population health, the DNP project focus on the health of the young adult population with early onset hypertension. The desired outcome is collaborative activities for the communities with improved health outcomes. In Domain 4, scholarship for the nursing discipline is addressed by using the OSCE to continue the education of APRN students. In Domain 5, quality and safety are addressed in the doctoral project by students using the simulation lab before entering the workforce. Patient safety is always first when taking care of a patient and prescribing medication as an APRN. In Domain 6, interprofessional partnerships are addressed when the APRNs and patients work together in diagnosing hypertension. In Domain 7, systems-based practice addresses a safe environment, and OSCEs are used by nurse practitioner students to help with patient safety. In Domain 8,

informatics and healthcare technologies are used by APRNs by using appropriate data collection and documentation in the electronic health record. Domain 9, professionalism includes accountability and reflects characteristics and values. APRNs are responsible for any action taken for the patient. Professionalism should always be considered. Domain 10, personal, professional, and leadership development is addressed in the development of the hypertension OSCE by using a professional, personal, and leadership approach. The OSCE is developed to teach students at an early stage of hypertension so more critical illnesses will not develop in the future (American Association of Colleges of Nursing [AACN], 2021).

Summary

The early onset hypertension OSCE can be a beneficial tool for future APRN students. The tool can help the students diagnose early-onset hypertension and prevent cardiovascular diseases. This OSCE was presented as a simulation to educate students to recognize the characteristics of early-onset hypertension. OSCEs provide a safe practice environment to provide APRN students the competence and confidence needed to effectively manage their patients. Before being placed in difficult and stressful and lifesaving situations, OSCEs will help APRNs feel better prepared for the job and ensure that their patients are safe.

CHAPTER II - METHODS

Context

Early onset hypertension in young adults between the ages of 18 and 35 is evident when blood pressure remains elevated especially when the patient is unaware of the issue. Nurse practitioners can more effectively make the diagnosis in a clinical setting once they have completed the early onset hypertension OSCE. OSCEs are learning tools beneficial to future APRNs and will help educate the students to better prepare for clinical situations.

The young patient, newly diagnosed with hypertension, should maintain a normal weight by eating a healthy diet. When the patient does not maintain normal blood pressure with diet and exercise, medication will need to be prescribed. As a healthcare provider, educating the patient about the benefits of maintaining good blood pressure could prevent future cardiovascular diseases. Young adults who do not receive the recommended treatment for hypertension may develop adverse outcomes such as stiffening of the arteries which could result in strokes, brain damage, and kidney damage (Mammoser, 2017). Anytime the patient is evaluated in a healthcare setting, the patient should inform the provider of any signs or symptoms being experienced. By providing this information to the provider, the young adult will receive prompt and adequate treatment following recommended hypertension treatment guidelines.

Intervention

After background research and development of the project intervention, the doctoral project was proposed, and the PowerPoint® presentation was approved by the USM-FNP program on July 1, 2022. Development of the OSCE for Early Onset

Hypertension for patients between 18 and 35 was completed on October 27, 2022. Development of the Online Standard Consent, Prequestionnaire, and Postquestionnaire was completed. The Early Onset Hypertension OSCE was emailed to a panel of experts on November 2, 2022, and the proposed project was submitted to the Institutional Review Board (IRB) for approval. IRB was submitted initially on November 12, 2022, and the Institutional Review Board approved the study on January 26, 2023 (Protocol # 22-1573).

The INACSL best practice standards for simulation guided the OSCE development. The facilitator needed skills, ability, and education to seek participants to achieve the outcomes. The skills are necessary to educate students to be able to work effectively and efficiently in the clinical work field by using clinical reasoning and judgment. (International Association for Clinical Simulation and Learning Standards Committee [INACSL], (2016).

The ISH Council consists of members of a hypertension committee. The ISH developed guidelines to manage hypertensive adults older than 18 years of age. The ISH guideline made the format easy to use for nurses and healthcare workers to use in low- and middle-class communities. The ISH guideline concentrates on the importance of proper diet to decrease the hypertension issue which will lead to cardiovascular diseases in the future. In the guideline, hypertension is diagnosed when a person has a systolic pressure of >140 and a diastolic pressure > 90. Generally, a single office visit cannot diagnose hypertension. The patient's blood pressure needs to be taken at one-to-four-week intervals in the office to be able to diagnose hypertension. A patient should be diagnosed with hypertension and prescribed medication upon entering the clinic for the first time with a blood pressure of >180/110 cardiovascular disease (Unger, (2020).

An expert panel was selected consisting of two skilled professors from USM that have OSCE experience to participate and give input for this doctoral project. The survey was sent via email. The questions for the expert panel consisted of:

Table 1

Questionnaire for the Panel of Experts

	Response Options				
Was the OSCE helpful in the diagnosis and treatment of early-onset hypertension?	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Did the OSCE follow the hypertension guidelines?	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Was the physical exam pertinent to the diagnosis of early-onset hypertension?	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Do you think the labs were pertinent in diagnosing the onset of hypertension?	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Do you think that a hypertension OSCE will be a beneficial tool to help students diagnose and treat patients earlier with hypertension?	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree

The expert panel's evaluation of the doctoral project via the survey was examined and no changes were needed. The proposed doctoral project was submitted for IRB approval. After IRB approval was received, The Early Onset Hypertension OSCE was emailed to FNP students along with the standard online consent, pre, and post-questionnaire.

- Was the OSCE helpful in the diagnosis and treatment of early and onset hypertension?
- Did the OSCE follow the hypertension guidelines?
- Was the physical exam pertinent to the diagnosis of early-onset hypertension?
- Did you think the labs were pertinent in diagnosing the onset of hypertension?
- Do you think that a hypertension OSCE will be a beneficial tool to help students diagnose and treat patients earlier with hypertension?

The pre-questionnaire and post-questionnaire range from strongly agree to strongly disagree once the OSCE was viewed. The OSCE was recorded at the USM simulation lab which includes a clinical setting, and the process was practiced with a professor present to give feedback. The OSCE consisted of participants acting as patients who were coming in for a follow-up visit with elevated blood pressure (BP). In the OSCE, the proper technique of taking a BP was discussed. Patients experiencing elevated BP when seeing a healthcare provider in the office are considered to have white coat syndrome. Normal BP which is 120/80 and elevated BP which is >130/90 were discussed. The patient was asked to keep a log of the BPs and to bring the log back to the clinic for follow up a month after the initial appointment. In addition, diet, exercise, and lifestyle changes were discussed. The patient has not changed diet habits or lifestyle

changes and, as a result, is now experiencing symptoms. Over-the-counter medication does not help with the symptoms of headaches, palpitations, and swelling of the legs. Lab work was ordered consisting of a complete blood count to rule out heart disease. A complete metabolic panel was ordered which consisted of sodium potassium, calcium, and estimated glomerular filtration to check for kidney and liver functions. The urine dipstick checked for protein in the urine. A 12 lead EKG (electrocardiogram) was performed which checked for heart abnormalities. After elevated BP at home, after two visits to the office with lifestyle changes, and symptoms the patient was diagnosed with hypertension and prescribed a low-dose medication. Symptoms of hypotension and hypertension were discussed with the patient. With a BP of 220/120 with symptoms, the patient would need to go to the emergency room because the patient is at risk of having a heart attack. The patient's history was discussed with no previous history report besides obesity, smoking tobacco, and being newly diagnosed with hypertension. Then the post-questionnaire questions are asked to obtain the necessary data. The patients have a family history of heart attack, diabetes, hypertension, and myocardial infarction. Options were discussed to decrease stressful situations which may cause hypertension and lead to myocardial infarctions in the future. A physical exam was performed on the patient to check the effects of an elevated BP on the kidney and heart at the time of the exam. The exam was done to prevent hypertension co-morbidities in the future.

The data were anonymously collected through a Qualtrics® survey link and evaluated. The OSCE surveys were analyzed, and the results were evaluated. The Early Onset Hypertension OSCE will be reviewed by the faculty of the USM FNP program and adjustments made. The doctoral project was presented at the DNP Scholarship Day on

March 3, 2023. All anonymous electronic files will be destroyed according to university and federal guidelines. Data was gathered using a Qualtrics® questionnaire survey, scored anonymously to determine the success or failure of the OSCE to train and evaluate The University of Southern Mississippi (USM) Family Nurse Practitioner students.

Measures of Intervention

The panel of experts consisted of Family Nurse Practitioners with knowledge of hypertension, experience with OSCEs, and work in a clinical setting which provided valuable feedback. Because the panel had knowledge about OSCEs, the nurse practitioners were chosen to give quality feedback. The survey questions were specific regarding the OSCE as a hypertensive tool.

The impact of the doctoral project will be determined in the future as it is used by APRN students to help diagnose hypertension in young adults. With the expected success of the hypertension OSCE used as an educational tool, APRN students will be better prepared to diagnose and manage young adult patients diagnosed with hypertension earlier.

Analysis

Qualitative data was collected for the OSCE education simulation tool in this doctoral project. The data was collected by using questionnaires for the panel of experts via email and the FNP student at USM through a Qualtrics® survey with the data analyzed anonymously. The Likert scale is a survey using a 5-point scale to answer questions from strongly agree to strongly disagree with the middle question being neutral like neither agree nor disagree (Cooper & Johnson, 2016). In addition, the hypertension OSCE will help students gain knowledge through simulation scenarios. The qualitative

data was collected and evaluated through an anonymous survey to provide valuable information to determine whether the OSCE is a beneficial tool.

Ethical Considerations

Human safety is a priority when creating an OSCE simulation. Ethical rights and dilemmas are considered when a person is dealing with any medical crisis that can involve death. Hypertension can lead to cardiovascular disease in the future. The disease can lead to death when hypertension is left untreated. After being reviewed by the panel of experts, the early-onset hypertension OSCE was submitted to the IRB for approval by meeting all the criteria for human subjects research (IRB Protocol # 22-1573).

Ethical considerations to consider can be students not participating in the OSCE Qualtrics® survey for fear the teacher may penalize the students' grades although the survey is anonymous. Nurses are not allowed to discuss a patient's information without the patient's permission which is considered a Health Insurance Portability and Accountability Act (HIPPA) of 1996 violation. As an APRN student, the patient's privacy must be respected at all times.

Summary

The APRN students will reap many benefits by using the hypertension OSCE to help diagnose patients with early-onset hypertension. Without early recognition of hypertension, the patients otherwise may not be diagnosed. The patient suffers needlessly and may eventually develop cardiovascular diseases if the patient goes undiagnosed. Therefore, the hypertension OSCE is a beneficial tool to the patient and future APRN students to help reduce the risk of future co-morbidities.

CHAPTER III – RESULTS

A panel of experts consisting of two professional faculty members from USM with OSCE experience viewed the early onset hypertension OSCE. The panel of experts had 14 days to respond to the questionnaire via email after viewing the OSCE. The responses were unanimously submitted with positive results stating that early onset hypertension OSCE would be a beneficial tool in the education of FNP students.

Table 2

Questionnaire Results for the Panel of Experts

Was the OSCE helpful in the diagnosis and treatment of early-onset hypertension?	Agree	Strongly Agree
Did the OSCE follow the hypertension guidelines?	Agree	Agree
Was the physical exam pertinent to the diagnosis of early-onset hypertension?	Agree	Neither Agree nor Disagree
Do you think the labs were pertinent in diagnosing the onset of hypertension?	Agree	Agree
Do you think that a hypertension OSCE will be a beneficial tool to help students diagnose and treat patients earlier with hypertension?	Agree	Strongly Agree

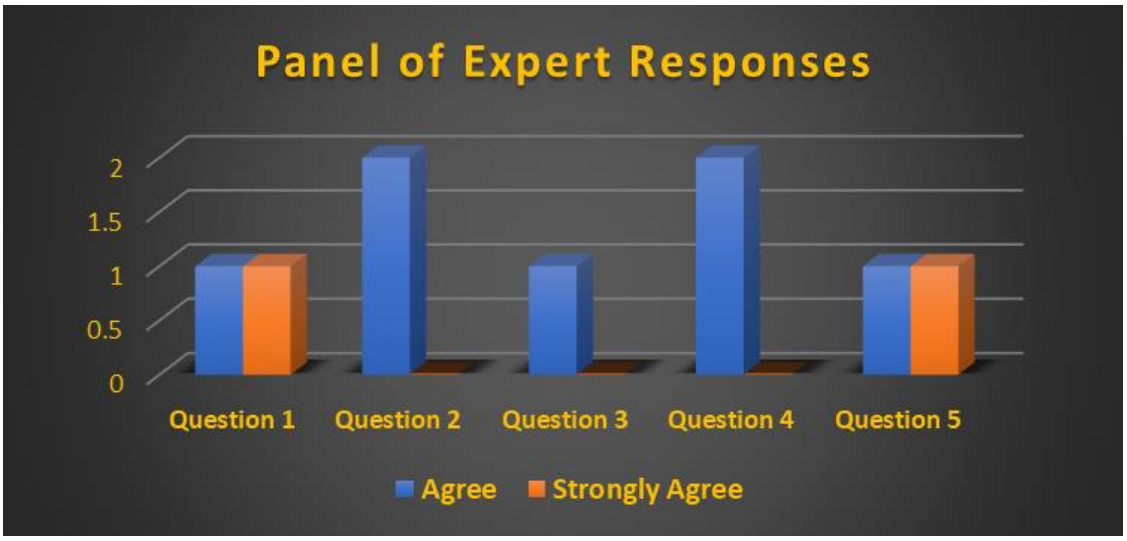

Figure 1. Panel of Experts Responses

The FNP students at USM were sent a letter via email with a Qualtrics® link. The Qualtrics® link consisted of the standard online consent, the early onset hypertension OSCE, the prequestionnaire, and the postquestionnaire. The items noted here can be found in the appendices of this doctoral project. The students had 14 days to respond to the questionnaires.

Table 3

Prequestionnaire Results for FNP Students

	FNP 1 Response	**FNP 2 Response**	**FNP 3 Response**	**FNP 4 Response**
Do you consent to participate?	Yes	yes	Yes	Yes
Do you as a student know the guidelines for hypertension?	Strongly Agree	Agree	Agree	Agree
Do you agree that untreated hypertension can lead to future illnesses?	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Would you know how to treat your patient suffering from hypertension?	Strongly agree	Agree	Agree	Agree
Do you know what labs and tests are pertinent in diagnosing hypertension?	Agree	Agree	Agree	Agree
Do you think that a hypertension OSCE will be a beneficial tool to help students diagnose and treat patients earlier with hypertension?	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree

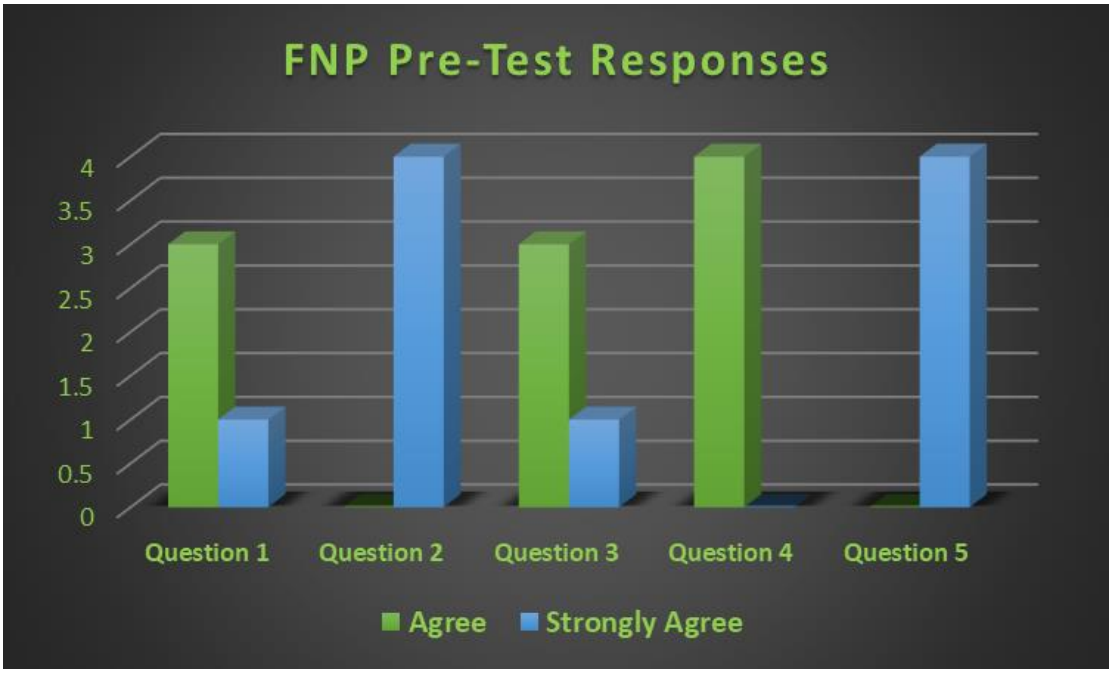

Figure 2. FNP Pre-Test Responses

Table 4

Postquestionnaire Results for FNP Students

	FNP 1 Response	**FNP 2 Response**	**FNP 3 Response**
As a student after viewing the OSCE, I have increased knowledge of the guidelines for hypertension.	Strongly Agree	Agree	Agree
After viewing the OSCE, I understand that untreated hypertension can lead to future illnesses.	Strongly Agree	Strongly Agree	Strongly Agree
After viewing the OSCE, I know how to treat hypertension.	Strongly Agree	Strongly Agree	Strongly Agree
After viewing the OSCE, I know what labs and tests are pertinent in diagnosing hypertension.	Strongly Agree	Strongly Agree	Agree
I believe the implementation of an early-onset hypertension OSCE will be beneficial to family nurse practitioner students learning how to treat and diagnose hypertension at an earlier age.	Strongly Agree	Strongly Agree	Strongly Agree

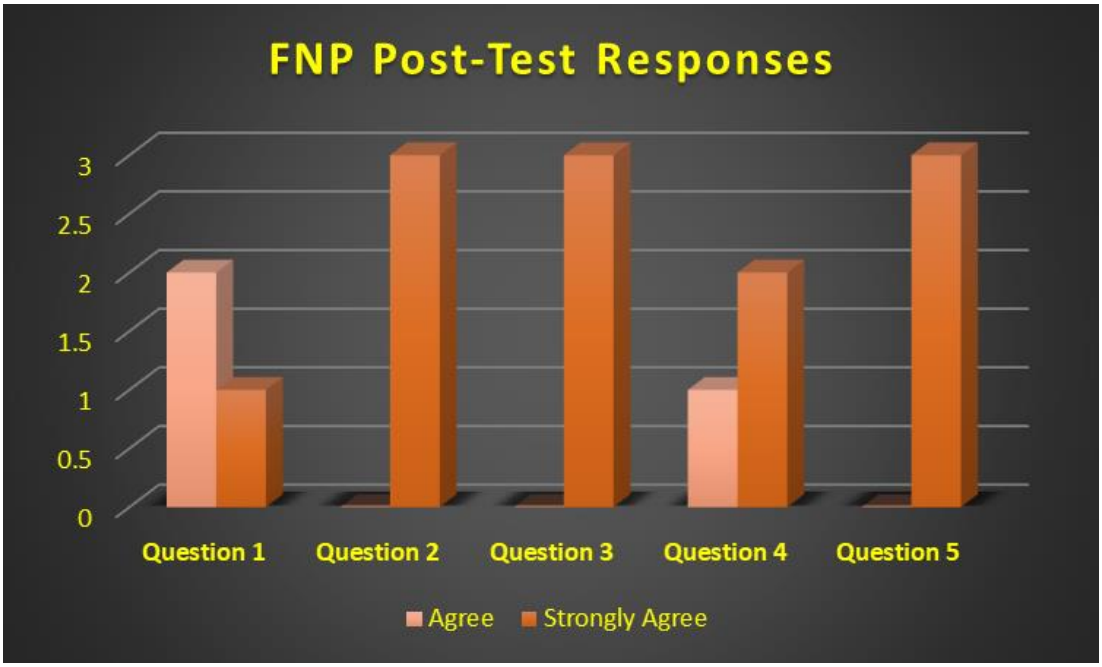

Figure 3. FNP Post-Test Responses.

Outcome and Limitations

The purpose of Chapter III is to consider the outcome of FNP student knowledge of diagnoses and management of patients with hypertension between 18 and 35. Many young adult patients are unaware of the diagnosis of hypertension. After being trained with the OSCE simulation tool, the FNP students will become aware of the disease process and can educate patients in regard to education, exercise, and proper diet. Hypertension affects many age groups and unless a patient is diagnosed early, treatment cannot begin. One form of treatment is medication. Some patients cannot afford medication or to see a healthcare provider; therefore, the patient does not take any medication or receive treatment for the disease. Hypertension is a hereditary disease. Some of the risk factors for hypertension are stroke, kidney disease, aneurysm, headaches, and heart attacks. Hypertension is known as the silent killer when hypertension is left untreated. Many young people die from hypertension due to the lack

of awareness of the disease, because patients believe hypertension cannot affect a patient in the 18 to 35 age range. Although hypertension can affect everyone, with the proper use of the OSCE simulation tool, FNPs will be better prepared to save lives.

The expert panel's purpose was to gain feedback before submission to the IRB. After the expert panel reviewed the OSCE via email, the results received were unanimous stating the OSCE would be a beneficial tool to use for early-onset hypertension. One of the expert panel members provided the only feedback received, stating the OSCE was very well done. The goal of the early onset hypertension OSCE is for students to be able to use the educational tool to increase the FNP student's confidence before entering the workforce. As evidenced by the Qualtrics® survey completed by the students, the early onset OSCE can be a beneficial tool used for FNP students. Only 14 DNP-FNP students were enrolled at The University of Southern Mississippi in Hattiesburg, Mississippi at the time of this study. The goal for the OSCE was set for four out of 14 FNP students to participate in the survey which 28.6% of the students. The goal was met by four FNP students participating in the prequestionnaire, but only three participants completed the postquestionnaire. Of the participating students completing the survey, all the participants strongly agreed the OSCE will be beneficial.

Summary

The early onset hypertension OSCE is a beneficial tool based on the panel of experts and participating students who completed the Qualtrics® survey. The OSCE is a useful tool when used by APRN students who learn the importance of hypertension diagnosis in young patients between the ages of 18 and 35. Hypertension is a deadly

disease and with the use of the early onset hypertension OSCE, many lives can be saved when this tool is used properly.

CHAPTER IV – CONCLUSION

The goal of this OSCE was to provide the FNP students with a valuable educational tool using an evidence-based simulation video. The OSCE has been presented to a panel of experts via email and FNP students at The University of Southern Mississippi in Hattiesburg, Mississippi through a Qualtrics® survey. Feedback from the panel and students was received through surveys emailed and completed by students and the panel of experts. The results from the survey were recorded on graphs, and all the participants did respond positively to all the questions on the survey. The OSCE, according to the panel of experts and participating FNP students at USM, states that the OSCE will be a beneficial tool to be used in the simulation lab at The University of Southern Mississippi and any other clinical setting.

This DNP project Early Onset Hypertension OSCE can serve to bridge the education gap, providing simulated experiences to FNP students. An Executive Summary (Appendix G) will be presented to the FNP leadership for adoption into the program. The executive summary summarizes the significance of the OSCE and a summary of the goals and objectives. The evidence indicates the benefits of incorporating OSCE simulation into advanced practice nursing education. This OSCEs purpose is to prepare students for practice through simulation, providing a safe environment and ensuring safe practices are taught to the FNP students before entering the workforce. The OSCE is a beneficial educational tool for students to receive feedback and feel safe at the same time. In the future, it is expected to expand the availability of student led OSCEs in many areas of healthcare.

Limitations

The results from the study are limited due to the small number of participants that completed the survey. At the time of the study, 14 FNP students were enrolled in the program at USM in Hattiesburg, Mississippi. More participants could have provided more significant data. After the students viewed the video and answered the survey, the questions provided valuable feedback. The questions were limited to decrease interaction time and inconvenience for the participants.

Recommendations for Future Research

In the future, additional research and scenarios could be developed and incorporated into an OSCE. If the FNP students use the OSCE, they may be able to treat hypertension in the noted population more successfully. The questions asked on the prequestionnaire and postquestionnaire could have been more detailed and specific to the age group of the patients in which the OSCE simulation tool focused. In future projects, the surveys should concentrate on questions pertaining to the disease studied in the project. The following question should be asked in future studies “can you recognize and treat a patient with hypertension in young adults?” By asking the question the student’s knowledge is being tested. A need exists for more participants to use the OSCE to perfect the tool. FNP students and registered nurses should be encouraged to try this beneficial tool. The OSCE can be placed in clinical settings and will help improve educational outcomes for students and their patients using the tool. As the early onset hypertension OSCE is used more often, the OSCE will help future APRNs improve their skills. Delivering more in-depth questions in the future could produce better feedback for the OSCE.

Summary

In conclusion, the early onset hypertension OSCE was created to help diagnose and treat patients between the ages of 18 and 35. The patients can be recognized and treated at an earlier age because students can recognize some of the risk factors and help prevent the high morbidity and mortality in the patients. APRNs can better treat younger patients and be able to diagnose the patient by completing the OSCE. The early onset hypertension OSCE will better prepare FNP students before entering the workforce. After completing this simulation, the student can feel more confident and be more skillful in diagnosing and saving a patient's life. Therefore, the early onset hypertension OSCE is a beneficial tool to use in all clinical settings.

APPENDIX A – Pre-Questionnaire

Participation in the early onset hypertension OSCE project will begin with a brief questionnaire from the NP students and the professor at the USM sitting on the board. Pre-questionnaire:

Do you consent to this study?	Yes No	Comments
Do you as a student know the guidelines for hypertension?	Strongly agree. Agree Neither agree nor disagree Somewhat disagree. Disagree Strongly Disagree	
Do you agree that untreated hypertension can lead to future illnesses?	Strongly agree. Agree Neither agree nor disagree Somewhat disagree. Disagree Strongly Disagree	
Would you know how to treat your patient suffering from hypertension?	Strongly agree. Agree Neither agree nor disagree Somewhat disagree. Disagree Strongly Disagree	
Do you know what labs and tests are pertinent to diagnosing hypertension?	Strongly agree. Agree Neither agree nor disagree Somewhat disagree. Disagree Strongly Disagree	
Do you think that a hypertension OSCE will be a beneficial tool to help students diagnose and treat patients earlier with hypertension?	Strongly agree. Agree Neither agree nor disagree Somewhat disagree. Disagree Strongly Disagree	

APPENDIX B – Post-Questionnaire

Participation in the early onset hypertension OSCE post-questionnaire from the NP students and professors at the USM sitting on the board.

		Comments
As a student after viewing the OSCE, I have increased knowledge of the guidelines for hypertension.	Strongly agree. Agree Neither agree nor disagree Somewhat disagree. Disagree Strongly Disagree	
After viewing the OSCE, I understand that untreated hypertension can lead to future illnesses.	Strongly agree. Agree Neither agree nor disagree Somewhat disagree. Disagree Strongly Disagree	
After viewing the OSCE, I know how to treat hypertension.	Strongly agree. Agree Neither agree nor disagree Somewhat disagree. Disagree Strongly Disagree	
After viewing the OSCE, I know what labs and tests are pertinent to diagnosing hypertension.	Strongly agree. Agree Neither agree nor disagree Somewhat disagree. Disagree Strongly Disagree	
I believe the implementation of an early-onset hypertension OSCE will be beneficial to family nurse practitioner students learning how to treat and diagnose hypertension at an earlier age.	Strongly agree. Agree Neither agree nor disagree Somewhat disagree. Disagree Strongly Disagree	

APPENDIX C – Invitation to the Panel of Experts

I am conducting an objective structured clinical examination (OSCE) for the treatment of early-onset hypertension in patients between the ages of 18 and 35. I am inviting you to be a participant since you are a clinical or academic nurse practitioner healthcare provider. Participation in this project will include reviewing an OSCE video about hypertension. Once you view the video, a questionnaire will be included for you to complete. It is estimated to take about 20 minutes to complete. Participation is voluntary. Questions can be asked by contacting my email. Please respond as quickly as possible as this is reliant on the submission of my IRB application. Thank you in advance for your participation.

Please circle your answers.

Do you consent to this study?	Yes No	Comments
Was the OSCE helpful in the diagnosis and treatment of early-onset hypertension?	Strongly agree. Agree Neither agree nor disagree Somewhat disagree. Disagree Strongly disagree	
Did the OSCE follow the hypertensive guidelines?	Strongly agree. Agree Neither agree nor disagree Somewhat disagree. Disagree Strongly disagree	
Was the physical exam pertinent in diagnosing early-onset hypertension?	Strongly agree. Agree Neither agree nor disagree Somewhat disagree. Disagree Strongly disagree	
Do you think the labs were pertinent in diagnosing the onset of hypertension?	Strongly agree. Agree Neither agree nor disagree Somewhat disagree. Disagree Strongly disagree	
Do you think that a hypertension OSCE will be a beneficial tool to help students diagnose and treat patients earlier with hypertension?	Strongly agree. Agree Neither agree nor disagree Somewhat disagree. Disagree Strongly disagree	

ORI | Office of Research Integrity

INSTITUTIONAL REVIEW BOARD
STANDARD (ONLINE) INFORMED CONSENT

STANDARD (ONLINE) INFORMED CONSENT PROCEDURES
• ***Use of this template is optional.*** However, by federal regulations (45 CFR 46.116), all consent documentation must address each of the required elements listed below (purpose, procedures, duration, benefits, risks, alternative procedures, confidentiality, whom to contact in case of injury, and a statement that participation is voluntary). Last Edited May 18th, 2022

Today's date:11/17/2022		
PROJECT INFORMATION		
Project Title: Early Onset Hypertension Ojective Structured Clinical Examination		
Protocol Number: 22-1573		
Principal Investigator: Katrina Morace	Phone: 601-334-1192	Email: katrina.morace@usm.edu
College: Nursing and Health Professions	School and Program: The University of Southern Mississippi Hattiesburg, MS and BSN-DNP program	
RESEARCH DESCRIPTION		
1. **Purpose**: The DNP project is an Objective Structured Clinical Examination (OSCE) to identify to help students identify patients with early onset hypertension between the ages of 18 and 35. The goal of the project is to educate family nurse practitioner students at The University of Southern Mississippi, how to diagnose and treat hypertension in young patients to prevent future diseases such as strokes, heart attacks, aneurysms, and kidney diseases. The family nurse practitioner students at USM are educated about lifestyle changes, such as diet and exercise. The 2020 International Society of Hypertension Guidelines were used for the contributing risk factors for hypertension for the project.		

The OSCE was recorded and viewed by a panel of experts which consisted of two members of the USM educational staff, who have knowledge in the Objective Structured Clinical Examination and medical background. According to the results of the two members the OSCE tool will be beneficial for the students to use for early onset hypertension. With the use of the early onset hypertension OSCE tool, many young patients will be diagnosed and treated for hypertension. The OSCE tool can be very beneficial for students treating and diagnosing patients with hypertension.

The family nurse practitioner students at USM will watch the Objective Structured Clinical Examination (OSCE) video and evaluate to see how effective the tool will be. The goal of the project is to effectively educate the family nurse practitioner (FNP) students with the OSCE in a safe environment prior to the students entering the work force, so the students can successfully treat and diagnose patients with the use of the OSCE tool. By using the OSCE, the students can be successful when future diseases can be prevented. Diagnosing the patient earlier and treating the patient at an earlier age can result in a greater success rate for the patient. The International Association for Clinical Simulation and Learning (INACSL) standards were used to provide the students with the knowledge needed to prepare for clinical education.

2. **Description of Study:**
An objective structured clinical examination will be developed for the purpose of saving lives in the future with the help of nurse practitioner students. A family nurse practitioner students can participate voluntarily by viewing the OSCE video and completing a survey anonymously. Participation will take less than 30 minutes.

3. **Benefits:**
Potential benefits for the diagnosis of early onset hypertension are preventing future heart attacks, strokes, diabetes, brain aneurysms, and kidney disease. By diagnosing hypertension and making lifestyle changes or getting prescribed medication and lowering your blood pressure early in life, mortality and morbidity

may be prevented by not getting a future illness caused by hypertension.

4. **Risks:**
[There is no risk in participating in the early onset hypertension OSCE. The participant will watch a video lasting approximately 25 minutes and do a pre and post survey through qualtrics resulting in no risk to the participant.

5. **Confidentiality:**
A survey will be used through Qualtrics anonymously and the surveys will be sent to the school and then later destroyed. No personal information will be collected.

6. **Alternative Procedures:**
N/A

7. **Participant's Assurance:**
This project and this consent form have been reviewed by the Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5125, Hattiesburg, MS 39406-0001, 601-266-5997.

Any questions about this research project should be directed to the Principal Investigator using the contact information provided above.

CONSENT TO PARTICIPATE IN RESEARCH

I understand that participation in this project is completely voluntary, and I may withdraw at any time without penalty, prejudice, or loss of benefits. Unless described above, all personal information will be kept strictly confidential, including my name and other identifying information. All procedures to be followed and their purposes were explained to me. Information was given about all benefits, risks, inconveniences, or discomforts that might be expected. Any new information that develops during the project will be provided to me if that information may affect my willingness

to continue participation in the project.

()

CONSENT TO PARTICIPATE IN RESEARCH

By clicking the box below, I give my consent to participate in this research project. ***If you do not wish to participate in this study, please close your browser now.***

☐ Yes, I consent to participate.

APPENDIX E – OSCE Script

Early-Onset Hypertension Script for OSCE

NP: Hello, Mrs. Glitch, how are you? CC: What brings you in today?

Patient: Hello, I'm doing okay. I'm here for a follow-up on my blood pressure.

NP: So, at your last appointment you were here for your yearly physical and you had elevated blood pressure in one arm of 154/94 and the opposite arm of 160/96. You stated you were just nervous about coming to the doctor, that was why your blood pressure was elevated which is considered white coat hypertension. You were asked to keep a record of your blood pressure at home and to return to the clinic in a month. Normal blood pressure is when the top or systolic number is less than 120 and the bottom number (diastolic) is less than 80, you are considered to have high blood pressure when your top number is higher than 130 and the bottom number is higher than 80. How has your blood pressure been running at home?

Patient: My blood pressure readings at home have been ranging from 150-160s on the top over the upper 80s to 90s on the bottom.

NP: Your BP is still elevated at 165/95 at this appointment also. At the last visit, we discussed decreasing your sodium intact (which includes no fast foods and low-salt potato chips), changing your diet (eating a DASH diet- whole grains, fresh fruit, and vegetables, eating low-fat dairy products, lean meats, fish, and nuts, eliminating foods high in saturated fats, like processed foods and fatty meats), and exercising. How has that been working for you?

Patient: I am still eating fast food and not able to exercise because of how I work. I don't have the time or energy to exercise.

NP: Have you had any other symptoms like a headache or blurred vision?

Patient: Yes, at times I have had headaches and blurred vision.

NP: When your head was hurting, did you take your blood pressure?

Patient: Not every time, but when I did, my blood pressure would be high.

NP: Did you take any medication to help with your headaches?

Patient: I took Tylenol with really no relief.

NP: How are the headaches affecting your life?

Patient: The headaches are causing me to miss work or leave work early.

NP: Do you have any palpitations (racing of the heart)?

Patient: I have had palpitations while doing certain activities.
NP: Do you have any chest pain?

Patient: Not currently.

NP: Do you have any swelling in your legs?

Patient: At the end of the day my legs are swollen.

NP: Well, I'm going to order some lab work. 1) CBC is ordered which may indicate anemia due to chronic renal disease or a risk factor of ischemic heart disease. Remember HTN is always a risk factor for coronary artery disease. 2)CMP which consists of sodium, potassium, serum creatinine (calcium), and estimated glomerular filtration (eGFR) which will check the kidney and liver function, 3) dipstick urinalysis test may reveal proteinuria for you to get done, and 4) a 12-lead EKG which may show abnormalities. Since you still have elevated BP after 2 visits and at home, with lifestyle changes the recommendation would be to start a low-dose BP medication. The medication I am going to start you on is Lisinopril 10 mg PO daily for a month then get you to come back to see how your BP is doing. Lisinopril is an angiotensin-converting enzyme (ACE) inhibitor which works by decreasing certain chemicals that tighten blood vessels, so blood flows more smoothly and the heart can pump blood more efficiently. If your BP gets too low you may have some of the following symptoms such as confusion, blurred vision, feeling sick, fainting, dizziness, or lightheadedness. If your BP ever gets 220/120 with symptoms including headaches, visual disturbances, chest pain, SOB, neurologic symptoms (some of the signs of this are lack of coordination, memory loss, double vision or loss of vision, loss of feeling, or tingling, headache is worse), dizziness, and sweating you need to go to the emergency room because you are experiencing a hypertensive emergency.

NP: At the previous visit we discussed your past medical, surgical, social, and family history. Besides being obese and having a new diagnosis of hypertension, do you have any other medical problems? Have you ever had a stroke, heart attack, stents placed, heart murmur, A. fib, or migraines?

Patient: Besides being obese, smoking, and the new hypertension diagnosis, I have no other medical issues currently.

NP: Has any of your family members had heart disease, HTN, DM, MI, Cancer (type), Stroke, or an Aneurysm?

Patient: My mother had a heart attack, diabetes mellites, and hypertension.

My father had hypertension.
My sister died at a young age from myocardial infarction (heart attack)

NP: Have you had Stent placement, valve replacement, heart ECHO, or coronary artery bypass graft?

Patient: NO, I have never had any previous surgeries.

NP: You don't drink alcohol or use illicit drugs and are not on any prescribed medications currently. You are currently overweight and smoke 1 pack of cigarettes daily. Smoking, a family history of hypertension, and being overweight increases your risk of heart disease. Have you decreased your smoking habits since our last visit?

Patient: No, I have not currently decreased my cigarette smoking due to stress, but I plan to soon. I am trying to eat healthier, but I have a hard time eating right with my stressful lifestyle and job.

NP: Try to find ways like trying to stay away from stressful situations when possible, going for walks, talking to friends, exercising, and breathing techniques (whatever works for you to keep the stress down) because stress is another factor that leads to hypertension which could lead to heart disease.

Now I'm going to do the Physical Exam:

NP: To do the physical exam Mrs. Glitch is in the sitting position, I will check her blood pressure with her feet flat on the floor and if BP is elevated, check the BP in the opposite arm. I listen to her chest at the aortic (right second intercostal space), pulmonic (left second intercostal space close to the sternum), tricuspid (left lower sternal border), mitral valve (at and around the cardiac apex), and Erb's point. I will get the patient to hold her breath and listen for a bruit in her neck bilaterally, and check for distended neck veins, and pulses. I will listen to her lung sounds. I will get the patient to lie down and listen to her abdomen for a bruit. An exam of the legs for edema and pulse.

The reason all these physical exams are being done is to check for the effects of elevated blood pressure on organs such as the kidney and heart and help determine if you are at risk for heart disease or stroke.

Link to video: https://www.youtube.com/watch?v=p6QAcMhLdUo

APPENDIX F – Executive Summary

Executive Summary-

Learners Outcomes: FNP students will be able to:

1. Recognized, diagnose, and treat early onset hypertension in young adults.
2. Correctly demonstrate knowledge and importance of lifestyle changes, healthy diet, and exercise to help maintain hypertension in young adults.
3. Properly order lab work to help diagnose hypertension.
4. Appropriately know when to prescribe medication when lifestyle changes are not maintaining hypertension.

Purpose: Exposure to hypertension in younger aged patients between 18 to 35 is rising, future illnesses are occurring from hypertension in clinical situations and the OSCE (Objective Structured Clinical Examination) will help FNP students improve critical thinking and clinical performance.

Learner Objective:

1. Demonstrate understanding of the pathophysiology of hypertension in young patients.
2. Identify risk factors of hypertension.
3. Appropriately demonstrates proper diagnosis and treatment for early onset hypertension in younger patients, including lifestyle changes, diet, exercise, and medication.
4. Appropriately analyze clinical skills and evaluate techniques.

Context:
The OSCE is designed to teach FNP students diagnosis and management of hypertension in young adults between the age of 18 and 35.

OSCEs are an educational tool used in simulation settings by healthcare professionals to teach students clinical skills. The OSCE will provide an objective as well as reproductive information in wide range ways, so the healthcare professionals can use the tools in versatile ways. The OSCE can also evaluate unpredictable behavior of patients and communication skills. The OSCE can help diagnose patients with hypertension between the ages of 18 to 35, be treated at an earlier age to prevent illnesses, normally not be diagnosed without the OSCE. The tool (OSCE) can be beneficial to not only patients, but healthcare providers.

Mrs. Glitch, a 23-year-old female, is scheduled for a physical. She is 74 kg, with no known allergies. She has a family history of hypertension and heart problems. She smokes 1 pack of cigarettes per day. Mrs. Glitch states she is experiencing a lot of stress from work. Her vital signs are as follows: a blood pressure of 154/94, heart rate 72 bpm, respiration rate 20, oxygen saturation 98% on room air with a registered temperature of

97.8 degrees F. She experiences intermittent palpitations on exertion. She has no blurred vision, headaches, shortness of breath (SOB), or swelling to the legs. Mrs. Glitch states she was just nervous about coming to the doctor and has an elevated blood pressure (White coat hypertension). Her blood pressure was rechecked in the opposite arm prior to leaving with a blood pressure of 160/96. The patient is told to keep a log of her blood pressures at home for two weeks to monitor her readings. Lifestyle changes need to be made such as eating healthy and exercising. Mrs. Glitch needs to eat a low sodium, high potassium diet. Some foods good to eat are dried beans, chicken, turkey, fruits (apples, bananas), and whole wheat pastas. After two weeks the patient needs to return to the clinic for a re-evaluation.

Upon returning to the clinic, Mrs. Glitch's blood pressure log had readings that demonstrated the need for medication (Angiotensin-converting enzyme ACE inhibitor such as Lisinopril) to be started to treat hypertension. At this appointment, her blood pressure is 170/95. Mrs. Glitch is now experiencing symptoms of headaches, blurred vision, and SOB. She had an episode of palpitations, pain that started in her chest and radiated down her left arm with sweating a few days ago but did not radiate to other parts of the body. The pain was relieved with rest. Life sometimes presents different changes in a person's life that can cause pain, especially chest pain. Mrs. Glitch didn't think there was an issue. She states her blood pressure has been around 200/120 since the chest pain episode. She did not realize she needed to go to the emergency room with such severe symptoms. With such a high blood pressure and excruciating chest pains, a hypertensive crisis is considered. Mrs. Glitch was putting her life in danger by not getting medical attention. To prevent putting the patient's life in danger, attention in educating the patient about the risk of a heart attack and strokes is crucial to save the patient's life. Mrs. Glitch is at a higher risk, because of the greater hereditary risk factors present in her life such as being an overweight smoker and having stress in her life. By losing weight with diet and exercise, quitting smoking, and reducing stress in her life, the reduction of her blood pressure can possibly help prevent strokes, heart attacks, and other illnesses in the future. Lifestyle changes is beneficial for Mrs. Glitch.

Equipment and Supplies:

- Blood pressure cuff
- Stethoscope

Site Selection: USM simulation lab

Task Statement: The task is to demonstrate an understanding of properly diagnosing hypertension and treatment in patients between the ages of 18 and 35, to prevent future illnesses associated with hypertension.

Process:

1. Identify that the patient has hypertension.
2. Family history and blood pressure are done.

3. Physical exam is performed.
4. Lab work needs to be ordered to rule out kidney and heart problems.
5. Some of the lab work ordered can be CBC, CMP, estimated glomerular filtration rate, urinalysis, and electrocardiogram.
6. Keep a log of blood pressures at home. Normal blood pressure is 120/80. Elevated blood pressure is 130/90.
7. Lifestyle changes and exercise are encouraged.
8. Proper diet which includes such foods as low sodium chips, fruits, vegetables, low carbohydrate, and high diet. Stay away from fried foods and fast-food restaurants.
9. Drink plenty of water and stay away from soft drinks.
10. Once lifestyle change, diet, and exercise with symptoms do not control blood pressure, medication is prescribed.

Debriefing form:

1. What is the concern in the scenario?
2. What can be done differently to make the outcome better?
3. Were all interventions appropriately done?

Solution Value: The FNP students will properly diagnose and treat the patient by recognizing signs and symptoms of hypertension before developing severe hypertension with the use of the OSCE.

Conclusion: The patient maybe can be treated without the use of medication when exercising and proper diet is maintained, thus preventing heart attacks and strokes.

Lifestyle changes does not work for everyone, so medication must be prescribed.

Implication: The OSCE is a beneficial tool for USM students. The OSCE is beneficial in teaching safe and efficient skills a simulated clinical setting. The more the OSCEs are used the more the students will benefit from the OSCEs. Educational providers can view the students' progress and give feedback to the student before the student enters the workforce. The student will have more confidence after the feedback.

APPENDIX G – IRB Approval Letter

Office *of*
Research Integrity

THE UNIVERSITY OF SOUTHERN MISSISSIPPI

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NOTICE OF INSTITUTIONAL REVIEW BOARD ACTION

The project below has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services regulations (45 CFR Part 46), and University Policy to ensure:

- The risks to subjects are minimized and reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered involving risks to subjects must be reported immediately. Problems should be reported to ORI via the Incident submission on InfoEd IRB.
- The period of approval is twelve months. An application for renewal must be submitted for projects exceeding twelve months.

PROTOCOL NUMBER:	22-1573
PROJECT TITLE:	Early Onset Hypertension Objective Structured Clinical Examination
SCHOOL/PROGRAM	Leadership & Advanced Nursing
RESEARCHERS:	PI: Katrina Morace Investigators: Morace, Katrina~Morgan, Lisa~
IRB COMMITTEE ACTION:	Approved
CATEGORY:	Expedited Category
PERIOD OF APPROVAL:	26-Jan-2023 to 25-Jan-2024

Donald Sacco Jr.

Donald Sacco, Ph.D.
Institutional Review Board Chairperson

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