Spring 2022

A Telehealth Blood Pressure Education Program on Hypertension Knowledge, Selfcare, and Behavior

Cheynnie N. Burnett MSN, APRN, FNP-C

The George Washington University School of Nursing

Doctor of Nursing Practice Program

DNP Project

TITLE: A Telehealth Blood Pressure Education Program on Hypertension Knowledge, Selfcare, and Behavior

Student Name: Cheynnie N. Burnett, MSN, APRN, FNP-C

DNP Project Primary Advisor: Cynthia L. Allen, PhD, APRN, FNP-BC

DNP Project Second Advisor: Qiuping (Pearl) Zhou, Ph.D., RN

Date: Spring 2022

Table of Contents

Abstract……4

Introduction……..……5

Background and Significance……..……5

Needs Assessment……6

Problem Statement……...7

Aims/Objectives……...8

Review of Literature……9

EBP Translation Model……..11

Methods……..13

Setting……13

Participants……13

Recruitment……14

Costs and Compensation……15

Outcomes Measured……..……..……16

Project Intervention.……..……..17

Human Subject Determination and IRB Status/Timeline ……18

Resources Needed……..19

Evaluation Plan……..20

Data Analysis Plan....……..……19

Results……..……..22

Summary of Key Findings…..……...……26

Discussion……..……25

Conclusion…….28

References……..…29

Appendix A: Evidence Table…..…..…….……40

Appendix B: Gant Chart.……...……59

SWOT Analysis Figure……..39

Tools……. 50

Consent for Participation……...51

A Telehealth Blood Pressure Education Program on Hypertension Knowledge, Selfcare, and Behavior

Abstract

Background: Hypertension poses a significant risk for morbidity and mortality. Regular blood pressure monitoring, medication compliance, and/or lifestyle modifications have shown to improve control. Digital communication in healthcare, such as telemedicine provides patients and primary care offices an opportunity to improve access to care and education.

Objectives: This Quality Improvement (QI) Project aimed to answer the question: In adult patients with a diagnosis of hypertension, what is the effectiveness of implementing an evidence-based telehealth blood pressure management program in a primary health care setting, when compared to baseline, on blood pressure knowledge, management, and self-care over a nine-week period.

Methods: A same subject, pretest/posttest design was used. The American Heart Association /American Medical Association, "Lower Your Blood Pressure Questionnaire" and the Hypertension Evaluation of Lifestyle Management Scale were used to evaluate outcomes. Following the pretest survey, participants were scheduled for two one-on-one educational sessions. Two weeks post intervention, participants received posttest questionnaires (same measure).

Results: Twenty-eight participants completed all activities. Scores indicated a significant increase in the frequency of taking blood pressure ($p<0.05$). Diastolic blood pressure decreased significantly from pre-intervention ($M=89.17$, $SD=8.40$) to post-intervention ($M= 84.86$,

SD=7.90), t = 1.819, p<.05, two-tailed. Furthermore, a paired t-test determined a statistically significant relationship between pre and post intervention self-care (p<.05).

Conclusions: The project identified an association between utilizing digital communication to provide hypertension education and improving participant knowledge, self-care, and management of hypertension These improvements suggest by implementing a telehealth-based hypertension management program, morbidity and mortality related to hypertension may be reduced.

Introduction

Telehealth or telemedicine, used interchangeably for the purposes of this paper, encompasses a wide range of disease management strategies. The mainstay being that medicine is practiced at a distance in lieu of traditional face-to-face office visits. Telehealth involves disease management via virtual visits or video conferencing in real time, by phone or internet applications (Wooten, 2012). This method of care delivery may improve patient health outcomes, access to care, and potentially reduce costs to both patient and practice site (Flodgren, 2015, p. 2). This DNP project utilized telehealth to deliver a blood pressure education and management program over two, one-on-one educational sessions.

Background and Significance

The Centers for Disease Control and Prevention (CDC) reports nearly half of all adults (approximately 108 million) in the United States (US) have hypertension (2020). Hypertension is defined as having a systolic blood pressure of greater than or equal to 130 mm hg or a diastolic blood pressure of greater than or equal to 80 mm hg or taking medication for hypertension. Hypertension places a person at increased risk for heart disease and stroke, two of the leading causes of death in the US. Between 2003 and 2014, hypertension cost the US approximately

$131 billion annually and played an integral part in the cause of death for 494,873 people in 2018. Of those with a diagnosis of hypertension, only about 1 in 4 have the condition under control (CDC, 2020). In the US, there exists a gap between the number of people with hypertension and those who have the condition adequately managed.

Traditionally, hypertension management involves the patient returning to their primary care office every two to four weeks for blood pressure measurement and medication titration and/ or initiation until an agreed upon goal blood pressure measurement has been reached. During brief in-person encounters, patients may or may not receive the education necessary to take a more holistic approach to blood pressure management. The DNP project allowed the patient/participant to receive two, one-on-one educational sessions focused on blood pressure knowledge, improving self-care through medication compliance, lifestyle management, and improving blood pressure management through regular home or pharmacy monitoring.

A needs assessment identified a gap in practice. Currently, the organization does not have a formal method for hypertension management or education. Hypertension management is included within the quality metrics requirements for providers organization wide, however, this metric is frequently left unmet. A need was identified to implement an evidence-based intervention utilizing telehealth to improve blood pressure management, knowledge, and self-care.

Needs Assessment

Hypertension knowledge, self-care, and management were the primary foci for the outcomes of the DNP project. A thorough Strengths Weaknesses Opportunities Threats (SWOT) analysis was completed, and primary themes/outcomes were identified as facilitators of the project. The DNP project which focused on aspects of the Triple Aim by; improving the health

of populations one patient at a time and improving the patients experience of care through planned follow-up and individualized management of hypertension. Although this SWOT analysis served as a catalyst to facilitate the DNP project, it has also served as a tool to illustrate potential organizational barriers to the successful implementation of the DNP project. Primary barriers identified were increased provider workload and patient dissatisfaction. These barriers illustrated the importance of stakeholder buy-in, to successfully implement the DNP project to improve hypertension management, knowledge, and self-care.

Problem Statement

Hypertension or high blood pressure is often considered "the silent killer" as the condition can be present without any symptoms. When blood pressure is not appropriately managed, over time, even without symptoms it can have detrimental effects to multiple organ systems of the body. Hypertension can result in renal failure, heart disease, and/or lead to stroke, heart attack, and death (National Institute on Aging, 2015). These are some of many reasons for managing hypertension. Treatment and management of hypertension results in significant decreases in morbidity and mortality (Kitt, Fox &Tucker et al., 2019). There is sufficient evidence supporting the use of telehealth in educating patients about hypertension management, however, to-date this has not been adopted as a standard of care within the organization. The purpose of the DNP Project was to answer the following clinical question: In adult patients (ages 18-85) with a diagnosis of hypertension, what is the effectiveness of implementing an evidence-based telehealth blood pressure management program in a primary health care setting, when compared to baseline, on blood pressure knowledge, management, and self-care over nine weeks?

Aims

Aim 1: Improve blood pressure knowledge utilizing American Heart Association (AHA) Guidelines

Aim: 2: Improve self-care (medication compliance, lifestyle modifications)

Aim 3: Improve blood pressure management through regular home or pharmacy monitoring to decrease blood pressure measurements.

Objectives

- Identify participants' baseline/gaps in knowledge using the HELM Knowledge Scale and the AHA/AMA Lower Your Blood Pressure Questionnaire by September 19, 2021.
- Obtain participants baseline blood pressure measurements by September 19, 2021
- Utilizing participants responses to the HELMS Knowledge Scale and the AHA/AMA Lower Your Blood Pressure Questionnaire, provide individualized teaching to participants regarding high blood pressure over two sessions during September and October 2021.
- Educate participants on the importance of blood pressure management utilizing AHA guidelines during September and October 2021.
- Obtain participants blood pressure 3 weeks after they receive the education.
- Measure participants knowledge, management, and self-care using the same questionnaires, 3 weeks after the education.
- Compare participants blood pressure knowledge, management, and self-care to evaluate the education program.
- The goals were to decrease systolic blood pressure and/or diastolic blood pressure measurements by 10 mm hg, improve knowledge, management, and self-care.

Review of Literature

An appraisal of evidence including 10 articles was performed to provide evidence to address the PICOT question. Eight research articles and two-non-research articles were appraised utilizing the Johns Hopkins Nursing Evidence-Based Practice Model and Guidelines. Each study was assigned an evidence level and quality rating utilizing Appendix E and Appendix F as illustrated in the Dang and Dearholt (2018) textbook. Each research study received a quality level of good or high quality and an evidence level of I or II. The two non-research articles were of good to high quality as illustrated in Appendix G.

In effort to select the most appropriate studies related to the use of telehealth/telemedicine in hypertension management, searches were performed utilizing The Cumulative Index to Nursing and Allied Health Literature (CINAHL), Medline and PubMed computerized databases through the Himmelfarb Health Sciences Library Website. These databases were utilized at the suggestion of The George Washington University Librarian. Data base searches occurred between the dates of February 22nd and 27th, 2021. To efficiently and expeditiously screen articles, abstracts were carefully reviewed from each data base, based on predetermined inclusion and exclusion criteria. Following the screening process, selected articles were saved to designated folders, duplicates removed, thorough cross-referencing of suitable articles was performed, and a final list was created.

Search terms used in each database search included: chronic illness management, hypertension, telemedicine, telehealth, blood pressure, blood pressure management, virtual visit and virtual medicine. Medline and PubMed were consistently found to display similar search results, resulting in a large number of duplicates. The search details for all databases were: chronic illness management AND telemedicine AND telehealth {(“hypertension”[MeSH Terms] OR (“high blood pressure”)} AND virtual visit OR virtual medicine.

In most of the research studies the evidence presented high quality data supporting the implementation of digital interventions for blood pressure management in the primary care setting (Cottrell, Cox & O'Connell et al., 2015). Digital blood pressure management in each study was done by the patient, monitoring their blood pressure from home, with a form of digital communication, and clinician oversight and review. In all studies, improvement in blood pressure management was measured by the improvement of systolic and/or diastolic blood pressure measurements.

Two of the research studies reported significant gains in blood pressure reduction by instituting nutrition and lifestyle counseling. One study went further to report an improvement in patient knowledge and self-care, as a result of increasing patients' awareness related to the more frequent checking of blood pressure (Pan et al., 2018). Furthermore, one of the non-research articles by Omboni et al, 2020, which was a conglomerate of research evidence, discussed the use of telemedicine for chronic disease management. This article concluded that the most effective telemedicine studies involve an exchange of information between clinicians and patients using internet, emails, text messaging, and/or video conferencing combined with education on lifestyle, risk factors and medication compliance (See Appendix B).

In summary, the literature reviewed to address the PICOT question was of good to high quality with evidence ratings from I to II. The implementation of an evidence-based telehealth blood pressure management program demonstrated clear advantages over or traditional blood pressure management strategies involving in-person visits (Pan et al., 2018). Therefore, implementing a telehealth/digital blood pressure management program in a primary health care setting is recommended to address the clinical question presented herein.

Evidence Based Translation Model

The Iowa Model of Evidence-Based Practice to Promote Quality Care (Iowa Model) was selected to guide implementation of the DNP project for hypertension management. The Iowa Model developed by Marita Titler, PhD, RN, FAAN provides a seven-step approach which hinges on translating research into practice (Doody, C.M. & Doody, O., 2011). The seven steps include: Identifying triggering issues/opportunities, statement of the question or purpose, determining if the issue is a priority, forming a team, assemble, appraise, and synthesize body of evidence, design, and pilot the practice change, integrate and sustain the practice change, and disseminate results (Doody, C.M. & Doody, O., 2011).

Triggering Issue: To date, the organization does not have a formal method for hypertension management or education. Hypertension management is included within the quality metrics requirements for providers (Nurse Practitioners (NP), Medical Doctors (MD), and Doctors of Osteopathy (DO), however, this metric is frequently left unmet. Hypertension is defined as having a systolic blood pressure of greater than or equal to 130 mm hg or a diastolic blood pressure of greater than or equal to 80 mm hg or taking medication for hypertension. The goal for most patients is to reach a blood pressure of <130 systolic and <89 diastolic.

Statement of the question: In adult patients (ages 18-85) with a diagnosis of hypertension, what is the effectiveness of implementing an evidence-based telehealth blood pressure management program in a primary health care setting, when compared to baseline, on blood pressure knowledge, management, and self-care over a nine-week time period.

Determine if the issue is a priority: Blood pressure management is a priority for both the practice and organization, as evidenced by its inclusion in the quality metrics

providers are encouraged to meet quarterly.

Form a team: The project was conducted solely by the DNP student/NP.

Assemble, appraise, and synthesize a body of evidence: A thorough assembly, appraisal, and synthesis of a body of evidence was conducted as discussed in the review of literature and illustrated in Appendix B. Evidence was determined to be sufficient to move forward with the DNP project based on the findings.

Design and pilot the practice change: A quality improvement project was implemented in a pretest-posttest design utilizing the same participants. The pretest was used to collect baseline data, the intervention was implemented, and the data was collected again using the same measure.

Integrate and sustain the practice change and disseminate results: Project implementation utilized Lewin's Change Management Theory. Lewin's Change Management Theory set the tone for change in three stages: Unfreezing, Movement/Change, and Refreezing (Hussain, Lei, & Akram, et al., 2018).

Unfreezing: Hypertension management is a key quality metric for providers to meet, however, the organization does not have a standardized process involving its management. Each provider manages their hypertensive patients utilizing their own best practice based on evidence-based practice. Management of hypertension is a quality metric that is seldomly met. Month-to-month providers are supplied with quality metrics and hypertension management is consistently below the benchmark. Bringing these points to the forefront aided in disrupting the status quo.

Movement/Change: The change phase involved the implementation of the project. No changes were made for providers except for the DNP student. Providers were only asked

to identify potential participants and provide them with the pretest questionnaires if in office.

Refreezing: Refreezing occurred once results were disseminated, and a positive correlation was made between implementation of the project and participant outcomes.

Methods

Design

A same subject, pretest and posttest design was used. This design is most frequently utilized in quality improvement projects to assess change after implementing an intervention.

Setting

The study was implemented in a primary care office in the Mid-Atlantic region of the United States, which cares for patients across the life span. The office hosts four providers: two physicians and two nurse practitioners. Each provider sees on average fifteen to twenty patients daily.

Participants

A convenience sample was obtained. Patients were included if they had a diagnosis of hypertension, were aged 18-85 years old, and had a systolic blood pressure greater than140 and/or diastolic blood pressure greater than 89 (Stage 2 hypertension or above). Patients were excluded if they had hypertension controlled through diet, exercise and/or medications, if they did not have a home blood pressure monitor or access to a monitor outside of the primary care office, if they did not have the ability to digitally meet/communicate with provider by phone, telehealth, patient portal, and/or email, and if they had cognitive impairments.

The sample size was guided by a statistical power analysis. The pretest-post, repeated measure design used a medium effect size, 0.05 type I error rate, and 80% power. We ideally needed to recruit 34 participants.

Recruitment

Participants were identified in two ways. The following are the details.

In office visits: Patients meeting the inclusion criteria in an office visit as a result of two elevated blood pressure readings (taken by medical assistants), in the same visit and/or historically elevated blood pressure readings were offered the opportunity to participate in the project by the provider at the end of their visit while in the exam room. The provider briefly explained the project to the patient to determine if he/she met the inclusion criteria. If the patient decided to participate, they were asked to complete the consent form, the HELM Scale, and the Lower Your Blood Pressure questionnaires' (pretest data), at the visit or given the option to provide an email address. If an email address was provided, the questionnaires and consent form were sent to them electronically within 24 hours. The patient was provided with a date to complete the questionnaires' by. The provider explained to the patient the need to complete the questionnaire to be included in the program. Once the questionnaires were received either in paper form or through REDCap by the provider/DNP-student the patient was scheduled while in the office or contacted by phone or email to schedule their first educational session.

Telehealth/Digital Visits: Patients meeting with providers via telehealth were first triaged by medical assistants and asked if they have their blood pressure reading available, those readings were entered into the electronic medical record (EMR)for the provider to review and follow-up as needed. For this project, patients who met the inclusion criteria as a result of home blood pressure monitoring over the past two weeks or more, were offered the opportunity to participate

in the project by the provider at the end of their telehealth visit. The provider briefly explained the project to the patient to determine if he/she met the inclusion criteria. If the patient decided to participate, he/she was be asked to complete the consent form, the HELM Scale, and the Lower Your Blood Pressure questionnaires' (pretest data), by providing an email address to have the questionnaires sent to them electronically within 24 hours. The patient was provided with a date to complete the questionnaires. The provider will then explained to the patient the need to complete the questionnaire to be included the program. Once the questionnaires were received through REDCap, by the provider/DNP-student, the patient was contacted by phone or email to schedule their first educational session. The second educational session was scheduled at the conclusion of the first.

Risk/Harm

There were no potential harms or risks identified through the planning or implementation of the DNP project.

Costs and Compensation

The project incurred minimal cost. Expenses totaled less than $100.00 which included the printing of questionnaires and folders. No cost was incurred to the patient unless the patient chose to purchase a blood pressure cuff for use to participate in the program. Participants were not compensated for their participation.

Project Interventions

Baseline data including demographics, clinical variables and blood pressure were obtained from the questionnaires or the patients home monitor (if the initial visit was a telehealth visit) by the student investigator. Blood pressure knowledge, level of self-care, and frequency of blood pressure measurement outside of the primary care were obtained from the pretest

questionnaires. After obtaining patients agreement to participate and collecting the baseline data, the intervention was implemented by the DNP-student over a two-week period. Each participant received two one-on-one education sessions running on average 30 minutes each. Posttest questionnaires (same measure) were emailed via REDCap, patient portal, answers were also obtained via phone if needed by the provider/DNP-student two weeks following the patients second and final educational session. Outcome data was obtained from all forms of the questionnaires by the DNP-student two weeks following the completion of the second educational sessions.

Outcomes Measured

Measured outcomes included improving blood pressure knowledge, improving self-care through medication compliance and lifestyle modifications, and improving blood pressure management through regular home or pharmacy monitoring.

Blood pressure knowledge and management through regular home or pharmacy monitoring was measured using the American Heart Association (AHA)/American Medical Association (AMA), "Lower Your Blood Pressure Questionnaire". The self-report questionnaire contained 5 items. Each answer option was assigned a score between 0-5. The higher the score the better the knowledge and management insight of the participant.

Self-care was measured using the Hypertension Evaluation of Lifestyle Management Scale (HELM) (Schapira, Fletcher & Hayes, 2012). Self-care is defined as "the practice of individuals looking after their own health using the knowledge and information available to them" (Global Self-care Federation.org, 2021, p.1). HELM consists of 14 items. Each items' correct answer received a point. A higher score was indicative of higher self-care knowledge.

There was positive correlation from a baseline using the HELM scale of 8.7 (2.2) increasing to 9.2 (2.2) (P<.001) (Schapira, Fletcher & Hayes, 2012, p. 1).

Basic participant demographic and clinical data was gathered by the DNP-student from the EMR and questionnaires such as age, gender, race/ethnicity, education, body weight, height (For BMI when analyzing data), whether the patient was taking antihypertensives, and how many years with a diagnosis of hypertension.

Improving blood pressure knowledge and management is explained as the participant recognizing:

- How to manage their blood pressure at home (home blood pressure monitor)
- What blood pressure readings constitute hypertension
- How sodium and diet effect blood pressure
- How weight loss can improve blood pressure
- The effect hypertension can have on vital organs (ie., cardiovascular system, kidneys, eyes)
- The importance of taking medications for hypertension as prescribed
- The importance of taking blood pressure measurements regularly to manage hypertension

Project Intervention

The intervention was one-on-one patient education delivered virtually/digitally via telehealth platform (video) or phone, if needed. Implementation took place over two sessions per participant running on average 30 minutes each, depending on questions or concerns the participant may have had. The first session covered the basics of home blood pressure monitoring and frequency of monitoring. Participants were educated on improving blood pressure management utilizing AHA's guidelines entitled as follows:

- Monitoring Your Blood Pressure at Home
- Understanding Blood Pressure Readings

The second session provided education on blood pressure knowledge and management utilizing AHA's guidelines entitled as follows:

- Health Threats from High Blood Pressure
- Changes You Can Make to Manage High Blood Pressure

(See Appendix for Educational Links)

Human Subject Determination and IRB Status/Timeline

The DNP proposal was submitted to and reviewed by The George Washington University School of Nursing Research Department for Human Subject and Determination and IRB status prior to the project's implementation. On July 7th, 2021, it was determined that this project did not meet the definition of research, as it does not aim to inform new theories or standards of practice. Further review by the IRB was not warranted. The project was deemed a systematic investigation intended to contribute to generalizable knowledge.

The project began with two weeks of participant recruitment from September 7th, 2021 through September 17, 2021. Eligible participants selected a date and time between weeks 3 and 4 (September 20, 2021 through October 1, 2021) to participate in Session 1. Participants with session one in week 3, were assigned to group one, participants with session one in week 4, were assigned to group 2. Two weeks after participants attended session one, they attended Session 2, during weeks 5 and 6 (October 2, 2021 through October 16, 2021). Week 7, On October 18, 2021, posttest questionnaires were sent to participants from Group 1. Week 8, October 25, 2021, through October 30, 2021, questionnaires were due. On October 25, 2021, posttest questionnaires were sent to Group 2 participants. Week 9, November 1, 2021, through November

6, 2021, Group 2 posttest questionnaires were due, with final date for submission and REDCap questionnaire deactivation on Saturday, November 6, 2021. (See Gant Chart in the Appendix).

Cost/Benefit Analysis

The project budget was set at $150.00 for the purchasing of folders, printing of questionnaires, printer ink, and any other miscellaneous item. Less than $100.00 was spent at the culmination of the project. This budget was covered entirely by the student researcher. The cost of the project was minimal when compared to the estimated $2000 more per year in annual healthcare costs a patient with hypertension pays when compared to their normo-tensive counterparts (Kirkland, Heincelman & Bishu et al., 2018).

Resources Needed

Resources to guide the project from implementation to completion were already in place at the project site. The project primarily utilized the telehealth platform already in place at the project site, which allowed one-on-one live communication with participants for each educational session. Patients were also given an opportunity to utilize the patient portal, which was already in place for any questions that may arise following educational sessions. The electronic medical record was also be utilized from the project site to collect any participant demographic data missing from questionnaires. The DNP-student also utilized technology in the form of a laptop with access to the EMR. The DNP-student accessed the REDCap program to create electronic versions of questionnaires which they are granted access to through the GW School of Nursing. Additional resources included paper, ink, and laptop. The DNP student was provided with access to the EMR systems via remote capability for any research, data gathering, or analysis that took place away from the project site.

Evaluation Plan

The success of the project was evaluated by comparing participants' hypertension knowledge, self-care, and blood pressure measurements before and after the educational intervention. The details are discussed in data analysis plan. In addition to the outcome measures, we documented the implementation process such as participation issues, dropouts, and patients' reactions to the education.

Alignment of Aims and Outcomes

The first aim, to improve blood pressure knowledge utilized The American Heart Association (AHA) Guidelines to educate patients to recognize:

- What blood pressure readings constitute hypertension
- How sodium and diet effect blood pressure

The second aim, to improve self-care (medication compliance, lifestyle modifications) focused on the improving participants knowledge of:

- The importance of taking medications for hypertension as prescribed
- The effects hypertension can have on vital organs (ie., cardiovascular system, kidneys, eyes)
- How weight loss can improve blood pressure

Finally, the third aim, to improve blood pressure management through regular home or pharmacy monitoring to decrease blood pressure measurements focused on increasing participants self-monitoring of blood pressure and improving knowledge of:

- How to manage their blood pressure at home (home blood pressure machine)
- The importance of taking blood pressure measurements regularly to manage hypertension

The project was designed to improve participants overall knowledge of how to effectively manage their blood pressure through education. This two-session program provided participants

the ability to spend dedicated time with a health care professional from their own primary care practice to gain knowledge in effort to improve their blood pressure utilizing materials from the American Heart Association. The overarching goal of the program was to improve participants knowledge of how lifestyle can impact blood pressure. Each aim worked in concert with the same goal. Comparing pre and post implementation data provided an understanding of whether the program impacted the participants ability to improve their knowledge and management of their hypertension through improving self-care.

Data Analysis Plan

All data was collected by the DNP-student from participants via multiple avenues in office by form, electronically by email, patient portal or dictated to the questionnaires from patients' responses by phone. Data was first entered into REDCap either manually by the student researcher or by participant questionnaire. Once all data was collected and entered into REDCap, it was then exported into an excel spreadsheet for analysis and maintenance. All data was de-identified in excel and stored on password protected media.

SPSS version 26 was utilized to analyze the data. Descriptive statistics was utilized to analyze sample characteristics. Given continuous variables, mean, standard deviation, minimum and maximum was recorded. In categorical variables, percentage and frequency was recorded. A paired t test was used to compare the difference before and after the intervention on knowledge and self-care. The McNemar's test was used for the paired nominal data.

Data Accuracy

To ensure accuracy of data transcribed from paper to REDCap, data was double checked by a fellow DNP student researcher from the same cohort via read back method to maintain participant privacy. To accurately compare pre and post test data missing data such as missing

posttest required that the participants pretest was removed from the data set as well. To ensure all questions related to Aims and Outcomes required an answer be submitted before the questionnaire could be completed online. Furthermore, questionnaires completed on paper were reviewed for completion prior to being accepted allowing for minimal missing data. Deidentified data was also double checked by a statistician for accuracy once uploaded to SPSS. There was no concern for outliers for the data set.

Results

Participant Demographics

Table 1 and table 2 depict the demographics of the sample. There were 28 participants with complete data. Most participants identified themselves as female. Participants were largely educated through high school or equivalent (GED). The average age of participants was 51 years old, with a minimum age of 22, and a maximum age of 75. A large majority of participants identified as African American or black with the smallest percentage reporting their background as Hispanic or Latino.

Table 1. participants' age, height, and weight (n=28)

	Mean	Std. Deviation	Minimum	Maximum
Age (Years)	51.04	14.235	22	75
Feet	5.07	.262	5	6
Weight (lbs)	208.39	62.368	119	360

Table 2. Frequency Distribution of Demographic Data

		Frequency	Percent
Ethnicity	Hispanic or Latino	1	3.6

	Not Hispanic or Latino	24	85.7
	Unknown/Not Reported	2	7.1
Race	Black or African American	17	60.7
	More Than One Race	2	7.1
	Unknown/Not Reported	4	14.3
	White	5	17.9
Gender	Female	20	71.4
	Male	7	25.0
	Prefer not to say	1	3.6
Education	College or higher	1	3.6
	High school or	13	46.4
	GED	14	50.0

The results regarding aim 1 and aim 3 are presented in table 3. There is a statistically significant increase in frequency of number of times participants' check their blood pressure after the intervention from 1.57 to 2.39 (p=0.012). Meanwhile, there is a decrease of the frequency of time medication is being taken (1.14 to 0.79) which is not statistically significant (p=0.246).

There was a significantly greater decrease in dietary sodium after the intervention. The mean post-intervention decreases in dietary sodium (M=2.57, SD=1.260) is greater than the pre-intervention of getting less salt in the diet (M= 1.32, SD=.772), t = 4.710, p<.001. From this data, we can conclude that the telehealth blood pressure education program had a significant impact to decreasing participants salt intake.

Table 3. Change of Behavior

	Pre	Post	t	P value
How often do you check your blood pressure	1.5714	2.3929	-2.697	0.012
Are you taking your medication as prescribed	1.1429	.7857	1.187	0.246
Decreasing sodium intake	1.32	2.57	4.71	<0.001
Blood pressure checking	1.86	3.00	2.458	0.021
Logging blood pressure	0.54	1.15	2.309	0.029
Systolic blood pressure (mmHG)	150.64	141.54	3.770	0.001
Diastolic blood pressure(mmHG)	89.1786	84.86	1.819	.030
Self-care knowledge	6.14	10.11	12.266	<0.001

As shown in table 3, the mean post-intervention of checking blood pressure (M=3.00, SD=1.805) was higher than pre-intervention of checking blood pressure (M= 1.86, SD=1.938), t = 2.458, p<.05, two-tailed. It can be concluded from this data that the telehealth blood pressure education program has a significant impact to improve the frequency of checking blood pressure. In addition, the mean post-intervention of logging blood pressure (M=1.15, SD=1.008) was higher than pre-intervention of logging blood pressure (M= .54, SD=1.15), t = 2.309, p<.05, two-tailed. It indicates that the telehealth blood pressure education program has a significant impact to improve logging blood pressure.

We also compared systolic blood pressure. The mean post-intervention of systolic blood pressure (141.54 mmHG) was significantly lower than preintervention readings of systolic blood pressure (M= 151.64 mmHG), t 3.77, p<.01. This leads to the indication that a telehealth-based blood pressure education program can have a significant impact on reducing systolic blood pressure. For diastolic blood pressure, the pattern is similar. The mean post-intervention diastolic blood pressure (M=84.86, SD=8.40) was lower than preintervention diastolic blood pressure (M= 89.18, SD=7.90), t = 1.819, p<.05, indicating the effectiveness of the educational intervention. For aim 2, selfcare knowledge, post-intervention mean of 10.11 was higher than the pre-intervention mean of 6.14 (t = 12.266, p<.05), again, indicating that the telehealth blood pressure education program has a significant impact on improving participant self-care (Table 3).

Summary of Key Findings

The hypertension management program discussed herein resulted in statistically significant improvement of hypertension knowledge, management, and self-care. Furthermore, a reduction in systolic and diastolic pressures was also noted.

Discussion

Implications for Practice

Providing patients with the knowledge to self-manage their hypertension provides them with the tools necessary to take control of the condition. Appropriate control of hypertension results in a reduction in complications and may lead to a decrease on overall morbidity and mortality over time.

Implication for Healthcare Policy

This project is in line with the 2020 "Surgeon General's Call to Action to Control Hypertension" (DHHS, 2020). More Specifically Strategy C of the publication which states "Empower and equip patients to use self-measured blood pressure monitoring and medication adherence strategies" (DHHS, 2020, p.24). The project directly aligns with empowering patients with hypertension to actively engage in self- management through self-blood pressure measurements, medication adherence, and lifestyle modifications. Strategy C goes further to include the use of telemonitoring as an effective method to aide in hypertension management, as mounting evidence continues the effectiveness.

Implications for Executive Leadership

The project illustrated the benefits of a Nurse Practitioner led hypertension management program, to patients, providers, and the organization. Hypertension management is a key quality component for the organization. Hypertension management improves patient outcomes, provider quality metrics, and organizational goals by working to improve the health of communities one

patient at a time. Furthermore, project results demonstrate a need to highlight hypertension education and management to stakeholders in the organization who may aide in working to allocate the resources necessary to bring a program such as the one presented in this project to fruition.

Implications for Healthcare Quality/Safety

This DNP project follows the framework set forth by the Institute of Medicines (IOM) Six Domains of Health Care Quality. Healthcare should be safe, effective, patient-centered, timely, efficient, and equitable. The project was safe in that it aimed to increase patient knowledge of hypertension management, thus improving the chances of appropriately controlled hypertension. Appropriately controlled hypertension decreases the risk of complications, in turn, decreasing morbidity and mortality. The effectiveness domain was met through providing evidence-based education backed by the AHA. The project was patient-centered given that patients were provided with one-on-one instruction with respect to their individual needs and knowledge base. The use of telehealth aided in meeting the timeliness domain. Patients were able to receive care where they were by any means they had available phone, desktop computer, or laptop. Furthermore, this afforded the student researcher the same ability in providing care. This also spoke to the domain of efficiency. There was little to no waste given that the project was telehealth based and most participants already owned a blood pressure cuff or had access to one. Finally, the project was equitable- all participants who met the inclusion criteria were offered the opportunity to participate without prejudiced based on gender, identity, personal characteristics, or socioeconomic status. Further, each patient received instruction from the same AHA website.

Plans for Sustainability and Future Scholarship

The project herein was completed at a very small monetary cost. The greatest cost was the time of the student researcher. In order for the project to be truly sustainable, consideration would need to be made of the time needed to provide one-on-one education to each participant. On average each session was 30 minutes in length. The organization currently boasts other chronic condition management programs that have been successful. These programs are equipped with dedicated providers to provide education and disease management for specific conditions. A hypertension management program such as the one detailed in this project could potentially be just as successful. Given that the sample size for this project was small, but yielded statistical significance, further research would be needed to determine the true generalizability of the study.

Limitations

Some limitations were encountered while implementing the project. Recruitment of each participant posed some challenges. Some participants found it difficult to navigate the multiple paper questionnaire pages in office in a timely manner. The researcher often spent a few minutes in the first session reviewing questionnaires to ensure completion. Another limitation was that the project was conducted in a very busy, fast-paced office this made recruitment difficult when potential participants needed more information than could be provided in the moment. This may have led to fewer participants and a smaller than ideal sample size. Further, the timing of the educational sessions. Educational sessions were about 2 weeks apart. This lag likely resulted in the loss of a few participants, further decreasing the sample size. The project started with 32 participants and ended with 28.

In future research to improve this project, an increase in participants would be ideal. This project would also benefit from at least two researchers on site to assist specifically in the

process of onsite recruitment. Condensing the educational sessions from two to one and decreasing the time frame as to when the posttest questionnaires are sent could aide in participant retention.

Conclusion

As a leading cause of morbidity and mortality in the United States, hypertension is a chronic condition that can be managed. Management of hypertension begins with knowledge of the disease, its effect on the body, management through monitoring, and self-care through medication compliance, appropriate diet, and exercise. The hypertension management program discussed throughout this project aimed to identify gaps in knowledge to equip patients with the knowledge to take control of, and appropriately manage their condition. As a result of improving hypertension management patients may decrease their risk of complications which could result in an overall decrease in morbidity and mortality.

References:

Agency for Healthcare Research and Quality. AHRQ (2018). Six domains of healthcare quality. https://www.ahrq.gov/talkingquality/measures/six-domains.html

American Heart Association. (2017, November 30). *Monitoring Your Blood Pressure at Home*.www.heart.org. https://www.heart.org/en/health-topics/high-blood- pressure/understanding-blood-pressure-readings/monitoring-your-blood-pressure-at-home.

American Heart Association. (2016, October 31). *Health Threats From High Blood Pressure*. www.heart.org. https://www.heart.org/en/health-topics/high-blood-pressure/health-threats-from-high-blood-pressure.

American Heart Association. (n.d.). *Understanding Blood Pressure Readings*. www.heart.org. https://www.heart.org/en/health-topics/high-blood-pressure/understanding-blood-pressure-readings.

Bove, H. (2013). Managing hypertension in urban underserved subjects using telemedicine—A clinical trial. The American Heart Journal, 165(4), 615–621. https://doi.org/10.1016/j.ahj.2013.01.004

Centers for Disease Control and Prevention. (2020, September 8). *Facts About Hypertension*. Centers for Disease Control and Prevention. https://www.cdc.gov/bloodpressure/facts.htm.

Cottrell, E., Cox, T., O'Connell, P., & Chambers, R. (2015). Implementation of simple telehealth to manage hypertension in general practice: a service evaluation. *BMC family practice*, *16*, 83. https://doi.org/10.1186/s12875-015-0301-2

Dang, D., & Dearholt, S. (2018). *Johns Hopkins nursing evidence-based practice: model and guidelines* (3rd ed.). Sigma Theta Tau International.

Department of Health and Human Services [DHHS]. (2020). *Call to action to control hypertension – hhs.gov*. Retrieved April 12, 2022, from https://www.hhs.gov/sites/default/files/call-to-action-to-control-hypertension.pdf

Doody, C., & Doody, O. (2011). Introducing evidence into nursing practice: using the IOWA model. *British Journal of Nursing (Mark Allen Publishing)*, *20*(11), 661–664. https://doi.org/10.12968/bjon.2011.20.11.661

Flodgren, R. (2015). Interactive telemedicine: effects on professional practice and health care outcomes. Cochrane Database of Systematic Reviews, 2015(9), CD002098–CD002098. https://doi.org/10.1002/14651858.CD002098.pub2

Global Self-Care Federation. (2021). *What is self-care?* Global Self-Care Federation. https://www.selfcarefederation.org/what-is-self-care.

Kirkland, E. B., Heincelman, M., Bishu, K. G., Schumann, S. O., Schreiner, A., Axon, R. N., Moran, W. P. (2018, May 30). *Trends in Healthcare Expenditures Among US Adults With Hypertension: National Estimates, 2003–2014*. Journal of the American Heart Association. https://www.ahajournals.org/doi/10.1161/JAHA.118.008731.

Hussain, S. T., Lei, S., Akram, T., Haider, M. J., Hussain, S. H., & Ali, M. (2018). Kurt Lewin's change model: A critical review of the role of leadership and employee involvement in organizational change. *Journal of Innovation & Knowledge*, *3*(3), 123-127.

Kitt, J., Fox, R., Tucker, K. L., & McManus, R. J. (2019). New Approaches in Hypertension

Management: a Review of Current and Developing Technologies and Their Potential Impact on Hypertension Care. *Current hypertension reports*, *21*(6), 44. https://doi.org/10.1007/s11906-019-0949-4

Levine, D. M., Dixon, R. F., & Linder, J. A. (2018). Association of Structured Virtual Visits for Hypertension Follow-Up in Primary Care with Blood Pressure Control and Use of Clinical Services. *Journal of General Internal Medicine*, *33*(11), 1862–1867. https://doi-org.proxygw.wrlc.org/10.1007/s11606-018-4375-0

Margolis, K., Asche, S., Bergdall, A., Dehmer, S., Groen, S., Kadrmas, H., Kerby, T., Klotzle, K., Maciosek, M., Michels, R., O'Connor, P., Pritchard, R., Sekenski, J., Sperl-Hillen, J., & Trower, N. (2013). Effect of Home Blood Pressure Telemonitoring and Pharmacist Management on Blood Pressure Control: A Cluster Randomized Clinical Trial. JAMA : The Journal of the American Medical Association, 310(1), 46–56. https://doi.org/10.1001/jama.2013.6549

Milani, R., Bober, R., & Lavie, C. (2015). The Role of Technology in Chronic Disease Care. Control and Patient Engagement Using Digital Tools. The American Journal of Medicine, 130(1), 14–20. https://doi.org/10.1016/j.amjmed.2016.07.029

Milani, R., Lavie, C., Bober, R., Milani, A., & Ventura, H. (2016). Improving Hypertension Progress in Cardiovascular Diseases, 58(6), 579–583. https://doi.org/10.1016/j.pcad.2016.01.001

National Institute on Aging. *High blood pressure*. (2015). Department of Health and Human Services USA, NIH.

Omboni, Stefano, McManus, Richard, Bosworth, Hayden, Chappell, Lucy, Green, Beverly, Kario, Kazuomi, et al. (2020). Evidence and Recommendations on the Use of

Telemedicine for the Management of Arterial Hypertension: An International Expert Position Paper. *Hypertension*, ***76***, 1368-1383. https://doi.org/10.1161/HYPERTENSIONAHA.120.15873

Pan, F., Wu, H., Liu, C., Zhang, X., Peng, W., Wei, X., & Gao, W. (2018). Effects of home telemonitoring on the control of high blood pressure: a randomised control trial in the Fangzhuang Community Health Center, Beijing. *Australian Journal of Primary Health*, *24*(5), 398–403. https://doi-org.proxygw.wrlc.org/10.1071/PY17187

Schapira, M. M., Fletcher, K. E., Hayes, A., Eastwood, D., Patterson, L., Ertl, K., & Whittle, J. (2012). The development and validation of the hypertension evaluation of lifestyle and management knowledge scale. *Journal of clinical hypertension (Greenwich, Conn.)*, *14*(7), 461–466. https://doi.org/10.1111/j.1751-7176.2012.00619.x

Wootton, R. (2012). Twenty years of telemedicine in chronic disease management – an evidence synthesis. Journal of Telemedicine and Telecare, 18(4), 211–220. https://doi.org/10.1258/jtt.2012.120219

Yatabe, Y. (2018). A6090 Randomized, prospective trial of hypertension telemedicine through home blood pressure monitoring and video conferencing: Interim report of POATRAND trial. *Journal of Hypertension*, *36 Suppl 3*, e175–e175.

SWOT Analysis	**Helpful** To achieving the objective	**Harmful** To achieving the objective
Internal Origin {Attributes of the organization}	**Strengths** • Commitment to building the ideal environment for advanced practice clinicians and physicians to promote growth professionally and personally, from well-being, to career growth and research • Engagement of all clinicians and teams, in creating effective and efficient clinical practices which utilize best practices and shared experiences in care delivery and operations • Leadership which values and models evidence-based practice and care	**Weaknesses** • Lack of provider availability for timely and adequate patient follow-up • Time constrains of patient encounters/appointments • Providers overburdened with administrative tasks and patient portal messages • Lack of a formal plan/guideline for hypertension management • Large patient panels • High primary care provider turnover
External Origin {Attributes of the organization}	**Opportunities** • Improving access to care and care management though telemedicine • Provider ability and expertise to effectively manage hypertension and improve patient outcomes • Improved patient satisfaction • Centers for Disease Control and Prevention Guidelines and Recommendations for hypertension management • American Heart Association Guidelines and Recommendations for hypertension management	**Threats** • Competing health systems in the area • Potential increased work-load concerns • Increased demand on providers • Increased compliance demands • Concern for compromised data/Cyber threats • Patient dissatisfaction

Appendix A

Evidence Table

(Use Appendix G in Johns Hopkins Book)

Article #	Author & Date	Evidence Type	Sample, Sample Size, Setting	Study findings that help answer the EBP Question	Observable Measures	Limitations	Evidence Level & Quality
1	Bove, H. et al., 2013	Randomized controlled trial (RCT)	Participants were from an urban population of primarily African Americans with a high incidence of hypertension and diabetes. Participants were recruited from Temple University Medical Center in Philadelphia, PA and Christiana Health Care Center in Wilmington, Delaware. There were a total of 241 participants in the study. The sample size was 241 with N=121 in the control group and N=120 in the telemedicine/intervention group.	The proportion of participants reaching BP goal of <140 was the same in both the control and telemedicine group, however, reduction in systolic and diastolic was greater in the telemedicine group for a p = .430	Reduction in systolic BP to a goal of <140 mm Hg	The study utilized urban underserved subjects who were primarily African American, therefore the results may not be generalizable to all populations or socioeconomic backgrounds	JADAD Score: 3 Evidence Level: I Quality Rating: Good quality

			Out of 241 total participants, 206 participants completed the 6- month study. There were 35 dropouts which did not return at 6 months, 14 from the control group and 21 from the intervention group Participants were included who had a systolic blood pressure (BP) of 140 mm Hg or above without known cardiovascular disease.				
2	Cottrell et al., 2015	Pretest posttest evaluation	Participants were selected from general/primary care practices across England Participants included those who either had or were suspected of being	Telemonitoring is associated with reduction in BP in hypertensive patients Telehealth can be an acceptable method in the primary care setting for	Reduction in systolic BP to a goal of <140 mm Hg	Over time, specifically after the first two months participant responsiveness declined immensely,	JADAD Score: 0 Evidence Level: III

			hypertensive BP >140/80. There were a total of 2963 participants separated into 4 groups based on their hypertensive status AIM01: n=1468 New diagnosed, not yet confirmed hypertensive AIM02: n=1114 Poor control AIM03: n=208 Stable control AIM10: n=173 Poor control, CKD/diabetes or albumin to creatinine ratio >/= 70 mg/mmol Participants utilized text messaging and their own mobile phones to communicate with a blood pressure monitoring and medication reminder system “Florence”	diagnosing and monitoring hypertension		particularly in for AIM01 and AIM02 who had no remining active participants at the end of the study in week 12 Participants were unscreened and there was no exclusion criteria	Quality Rating: Good quality

3	Kitt, et al., 2019	Systematic Review	n= 55 studies	Self-monitoring of blood pressure has the ability to improve control Interactive digital interventions such as video visits enhance compliance with lifestyle changes	Impact of digital and/or telehealth on decreasing blood pressure.	Some studies may have been left out Specific study information is not included	Evidence Level: I Quality Rating: Good quality
4	Levine et al., 2018	Quasi-experimental	Participants were from community and hospital based primary care clinics in Eastern Massachusetts 1051 virtual visit patients and 24,848 usual care patients were propensity score matched 893 patients from each group Usual care n= 893 Virtual visit patients n=893 Participants in each group were	Mean improvement in decreasing systolic blood pressure in 56% of virtual visit patients as compared to 52% of usual care patients. Virtual visit participation was associated with equivalent blood pressure control when compared with in office visits Virtual visits are at least an equivalent method to manage hypertension	Systolic and diastolic blood pressure	Study utilized primarily white, privately insured participants and results may not be generalizable to all populations Quasi-experimental study design Groups were not randomized,	JADAD Score: 1 Evidence Level: II Quality Rating: Good quality

			approximately 61 years old, 44% female an 85 % white			clinicians selected participants for each group.	
5	Margolis et al., 2013	Randomized controlled trial (RCT)	Participants selected from medical records from 16 primary care clinics in Minneapolis-St. Paul, Minnesota Eight clinics were randomized to for usual care n=222 Eight clinics randomized for telehealth n=228	Home blood pressure telemonitoring coupled with pharmacist case management resulted in better blood pressure control when compared to usual care over a 12-month intervention time frame and a 6-month post intervention follow up	Goal of systolic blood pressure <140 mm Hg and diastolic <90 mm Hg In those with diabetes or chronic kidney disease <140/80	Participants were primarily Caucasian (82%)	Evidence Level: I Quality Rating: Good quality
6	Milani et al., 2016	Quasi-Experimental	Participants were adult patients with a diagnosis of hypertension from the Ochsner Health System with elevated blood pressure (systolic pressure >140 or diastolic pressure >90 mm Hg at each of the 3 most recent office visits	Blood pressure, systolic and diastolic, mean arterial pressure, and pulse pressure improved in both groups At 90 days 71% of patients in the digital medication group achieved blood pressure control, compared with	systolic and diastolic blood pressure, mean arterial pressure, pulse pressure, and lifestyle changes	Intervention participants were required to have a smartphone- and purchase a wireless cuff this causes concern regarding	Evidence Level: II Quality Rating: Good quality

			in the previous 18 months Total of 556 participants n=156 intervention /digital group, matched to n=400 patients who were matched to age, sex, BMI, and blood pressure in the usual care group over 90 days.	31% of the usual care group (P< .001) The intervention group improved significantly on blood pressure control and lifestyle changes Excess sodium consumption (P= .004) Patient activation increased (P=.03). A digital. Hypertension management program is associated with significant gains in blood pressure control and improvement in lifestyle changes		socioeconomic background Non-randomized study utilizing a single medical center	
7	Milani, et al., 2016	Non-research	N/A	Compared to usual care patients working with their care team utilizing technology have demonstrated a larger decrease in systolic blood pressure and a higher frequency of controlled blood pressure	Impact of digital/telehealth on chronic disease management	Types and cost of digital health and wearable technology	Evidence Level: V Quality Rating: Good quality

8	Omboni, et al., 2020	Expert Position Paper based on a review of research evidence	n= 13 studies	Discussed telemedicine has been shown to improve blood pressure control Majority of studies took place in a community health or primary care setting The most successful telemedicine studies involve information exchange between patients and clinicians through web, emails, text messaging or video consultation combined with education on lifestyle, risk factors and proper use of antihypertensive medications Telehealth/digital interventions aide in reinforcing and individualizing the clinician-patient relationship which can improve BP and cardiovascular risk control	Effects of telehealth/telemedicine on blood pressure management,	Majority of studies reviewed focused on Black Americans in medically underserved areas.	Evidence Level: V Quality Rating: High quality

				Greatest effect observed is when interventions are clinician driven opposed to patient driven			
9	Pan et al., 2018	Randomized controlled trial (RCT)	Participants were from Fangzhuang Community Health Center (Primary care center) in the Fengtai District of Beijing China 110 Total participants n=55 Home telemonitoring n=55 No home monitoring/usual care There were 3 dropouts from the intervention group, 1 withdrew from the study and 2 moved out of the community their cases were subsequently deleted	When compared to the usual care group the intervention group (home telemonitoring) achieved a greater reduction in blood pressure. Telemonitoring/telehealth improved patient participation in self-care. Intervention group also received counseling with regard to diet, exercise and other lifestyle factors	On average the intervention group (home telemonitoring) achieved a greater reduction in blood pressure when compared to the usual group. BP was reduced by 8.0 mm Hg (95% CI: 3.5–13.2) on day 30. 6.9 mm Hg (95% CI: 2.2–11.8) on day 90. 6.6 mm Hg (95% CI: 2.7–10.9) on day 180 in systolic blood pressure; and by 0 mm Hg (95% CI: –2.9–4.6) on day 30, 3.4 mm Hg (95% CI: 0.34–7.3) on day 90 and 3.0 mm Hg (95% CI: 0.31–6.9) on day 180 in diastolic blood pressure. Overall, bp control was higher in the intervention group where 63.6-72.2% of participants saw a	Relatively small sample size Declining hypertension control over time in the control group	Evidence Level: I Quality Rating: Good quality

					reduction, compared to 36.5-41.8% in the usual care group over a period of 180 days. P=0.029, for the reduction in blood pressure and use of telemonitoring.		
10	Yatabe et al., 2009	Randomized controlled trial (RCT)	Participants with hypertension were recruited through web advertising in Japan. 47 Participants total n=24 Telemedicine n=23 Usual Care	Telemedicine utilizing home blood pressure monitoring coupled with video visits proved to be safe and achieved better blood pressure control when compared to usual care group.	Systolic bp was determined to be 4mmHg lower in the telemedicine group than the usual group. BP control was greater in the telemedicine group at 88.2% compared to 66.7% in the usual group.	Small sample size	Evidence Level: I Quality Rating: Good quality

This assignment is used during the DNP Project Planning Course to evaluate the Table of Evidence. It is adapted from Dearholt, S. & Dang, D. (2018). *Johns Hopkins Nursing Evidence-Based Practice Model and Guidelines*. Indianapolis, IN: Sigma Theta Tau International, Chapters 5,6,7, Appendices D, E, F, and G. Refer to the text for expanded explanation.

Appendix B

Gantt Chart:

Weeks

Week #	Tasks
Week: 1	Recruit Participants*
Week: 2	Recruit Participants*
Week: 3	Session 1, Group 1
Week: 4	Session 1, Group 2
Week: 5	Session 2, Group 1
Week: 6	Session 2, Group 2
Week: 7	Send posttest questionnaires to participants from Group 1
Week: 8	*Due date for Group 1 posttest questionnaires this week.* Send posttest questionnaires to participants from Group 2
Week: 9	*Due Date Due date for Group 2 posttest questionnaires this week.*

*Participant may initially sign up for either group one or two based on their availability.

Education Links

Session 1

- Monitoring Your Blood Pressure at Home
  https://www.heart.org/en/health-topics/high-blood-pressure/understanding-blood-pressure-readings/monitoring-your-blood-pressure-at-home (AHA, 2017)
- Understanding Blood Pressure Readings
  https://www.heart.org/en/health-topics/high-blood-pressure/understanding-blood-pressure-readings (AHA, n.d)

Session 2

- Health Threats from High Blood Pressure
  https://www.heart.org/en/health-topics/high-blood-pressure/health-threats-from-high-blood-pressure (AHA, 2016)
- Changes You Can Make to Manage High Blood Pressure
  https://www.heart.org/en/health-topics/high-blood-pressure/changes-you-can-make-to-manage-high-blood-pressure (AHA, 2017)

THE GEORGE WASHINGTON UNIVERSITY
WASHINGTON, DC

Study Assigned Consent Version #/Date: GW OHR Document Revision Date: 04Jan2019

Informed Consent for Participation in a Doctoral Project

Title of Project: Hypertension Management Through the use of Telehealth
IRB #:
Principal Investigator Name: Cheynnie Burnett MSN, APRN, FNP-C
Version Date: 03/18/21

You are invited to participate in a doctoral project under the direction of Cheynnie Burnett MSN, APRN, FNP-C of the Department of Nursing, George Washington University (GWU). Taking part in this project is entirely voluntary. Further information regarding this project may be obtained by contacting Cheynnie Burnett (Doctoral Candidate) at telephone number [redacted]

The purpose of this project is to implement an evidence-based telemedicine hypertension management program.

What are the reasons you might choose to volunteer for this study?

This study uses education and lifestyle teaching to teach you to better manage your hypertension.

What are the reasons you might not choose to volunteer for this study?
This study does require a time commitment of 2-4 hours total depending on the participant.

This time commitment will include two, one-on-one educational sessions two weeks apart both with Ms. Burnett.

You will be asked to complete two questionnaires twice, once before we begin the two educational sessions and again, two weeks after the sessions are complete.

Possible risks or discomforts you could experience during this study include:

Learning to make lifestyle changes can be uncomfortable, but worth the discomfort to improve your overall health.

You will benefit by this project by increasing your knowledge related to:

THE GEORGE WASHINGTON UNIVERSITY
WASHINGTON, DC

Study Assigned Consent Version #/Date: GW OHR Document Revision Date: 04Jan2019

- Blood pressure monitoring
- The effects high blood pressure has on your body
- How lifestyle (eating habits, exercise) effects your blood pressure
- How to make lifestyle changes to improve your blood pressure

Participants, if results of this project are reported in journals or at scientific meetings, the people who participated in this project will not be named or identified.

The Office of Human Research of George Washington University, at telephone number (202) 994-2715, can provide further information about your rights as a research participant.

To ensure anonymity your signature is not required unless you prefer to sign it.

*Please keep a copy of this document in case you want to read it again.