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Janet Bathini
University of St. Augustine for Health Sciences

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**Improving Blood Pressure in Adults 65 Years and Older via
Weekly Telehealth Coaching**

Janet M. Bathini, BSN, RN

School of Nursing, University of St. Augustine for Health Sciences


This Manuscript Partially Fulfills the Requirements for the
Doctor of Nursing Practice Program and is Approved by:

Sheri Jacobson, PhD, RN

Raina M. Rochon, DNP, RN

November 26, 2023

**University of St. Augustine for Health Sciences
DNP Scholarly Project Signature Form
Signature Form**

Student Last Name: Bathini	First Name: Janet	Middle Initial: M.
E-mail: j.bathini@yahoo.com		
Title of DNP Project: Improving Blood Pressure in Adults 65 Years and Older via Weekly Telehealth Coaching		
<p><i>My signature confirms I have reviewed and approved this final written DNP Scholarly Project.</i></p> <p><i>DocuSign electronic signature or wet signature required.</i></p>		
Type Name in Blue Box Below	Signature	Date
DNP Project Primary Faculty: Sheri Jacobson, PhD, RN	Dr. Sheri Jacobson	12/3/2023
DNP Project Preceptor: Raina Rochon, DNP, RN	 <p>DocuSigned by: Raina Rochon, DNP, RN F6C22C5AF2483...</p>	2/4/2023
DNP Project Preceptor:		

Abstract

Practice Problem: Hypertension is a significant modifiable risk factor for CVD and is on the rise with advancing age. The management at the VA hospital's GEC clinic acknowledged the importance of managing HTN in veterans to lower their CVD risk and were open to implementing EBP to enhance HTN management.

PICOT: The PICOT question that guided this project was: In the primary care setting, in older adults ≥ 65 years with BP $\geq 140/90$ (P), does weekly telehealth coaching (I) compared to no telehealth coaching (C), decrease their BP (O) over a 6-week period (T)?

Evidence: The evidence that guided this project was synthesized from eight scholarly articles which show weekly telehealth coaching to be an effective intervention in decreasing BP in the elderly.

Intervention: The Telehealth Coaching Intervention (TCI) consisted of receiving a call from RNTC who followed the supervisory checklist for making the telehealth calls. The RNTC instructed the patients about lifestyle management, medication adherence, and self-management of their BP.

Outcome: The primary outcome of the DNP project is achieving a BP lower than that measured on enrollment in week "0" and is compared with post TCI data obtained in week 2, week 4, and week 6. The result of the two-tailed paired samples t-test was significant based on an alpha value of 0.05, $t(8) = 8.92$, $p < .001$, showing a significant difference between week "0" and week "6".

Conclusion: This DNP project implemented TCI, an EBP change in older adults ≥ 65 years of age with high BP $\geq 140/90$ in the primary care setting and evaluated the effectiveness of the intervention in a 6-week period. The results show that the goal of the TCI was met in improving patients' BP within a 6-week period.

Improving Blood Pressure in Adults 65 Years and Older via Weekly Telehealth Coaching

Hypertension (HTN) is a major modifiable risk factor for cardiovascular diseases (CVDs). It is defined as systolic blood pressure (BP) of 130 mm Hg or higher or diastolic BP of 80 mm Hg or higher by the American College of Cardiology and the American Heart Association. A BP reading of 140/90 mm Hg is considered stage 2 HTN, according to the Centers for Disease Control (CDC). Stroke and heart disease are the two major causes of death in the U.S., both increasing in individuals with HTN. Hypertension affected over half of adult Americans (47%, or 116 million) and was directly or indirectly responsible for about 670,000 fatalities in the United States (U.S.) in 2020 (CDC, 2023).

Several studies show that the nurse-led telehealth coaching intervention (TCI) of providing continuous education or guidance significantly reduced BP compared to the standard care provided by face-to-face consultation with physicians (Yu et al., 2019). Telehealth coaching also significantly improves medication adherence, self-management behavior, and BP (Kim, 2019). Self-management behaviors such as eating a healthy diet, maintaining a healthy weight, and engaging in regular physical activity are emphasized in the Eighth Report of the Joint National Committee (JNC8) recommendation for treating HTN (Kim, 2019).

This DNP Project Proposal paper sought to answer the clinical question that directed the implementation of evidence-based practice (EBP) change by using the synthesized evidence of nurse-led weekly TCI on improving BP in older adults ≥ 65 years of age in the primary care setting at the VA hospital.

Significance of the Practice Problem

Hypertension is one of the key modifiable risk factors associated with CVDs. The prevalence of HTN and the severity of the condition are rising with advancing age (Kulkarni et

al., 2020). Nearly 30% of the world's population, over a billion people, have HTN, of which more than 639 million people live in developing countries (Kappes et al., 2023). In 2019, CVDs, strokes, renal failure, heart arrhythmias, and dementia accounted for 32% of all deaths. In 2021, 17.9 million people worldwide died of CVDs. The World Health Organization (WHO) has set a goal of reducing HTN by 33% between 2010 and 2030 due to its association with CVDs (WHO, 2021). Those of lower and middle incomes are disproportionately affected by HTN due to the higher prevalence of dietary (incredibly saturated fat and salt) and behavioral risk factors (smoking and sedentary activity) (Kappes et al., 2023).

Even though there have been great strides in treating HTN with pharmacological and lifestyle changes, only about 1 in 4 adults (24%) with HTN have their condition under control. About 45 percent of people with uncontrolled HTN have BPs of 140/90 mm Hg or higher. Approximately thirty-seven million adults in the U.S. fall under this category. A staggering \$131 billion in average annual costs have been attributed to high BP in the U.S. between 2003 and 2014 (CDC, 2023). Hypertension prevalence increased with age, from 7.5% in adults aged 18–39 to 33.2% in those aged 40–59 to 63.1% in those aged sixty and older. Men had a higher prevalence of HTN than women among adults aged 18–39 (9.2% versus 5.6%, respectively) and 40–59 (37.2% versus 29.4%, respectively), but a lower prevalence among adults aged 60 and older (58.5% versus 66.8%, respectively) (Fryar et al., 2017). Despite recommendations to lower BP with medicine, just 32% of whites do so, compared to 25% of Black people, 19% of Asians, and 25% of Hispanics (CDC, 2023). Blood pressure control was more common among non-Hispanic whites and females than males and non-Hispanic Black people (Wahidi & Lerner, 2019).

Physical activity, maintaining a healthy weight, and eating a healthy diet (with a low salt consumption, low saturated and trans-fat consumption, and a high intake of fruits and vegetables) all reduce the risk of developing HTN. Altering one's way of life is essential to lowering BP and the risk of CVD it causes (Kappes et al., 2023).

According to the VA hospital's primary care clinic's Chief of Nursing Service for Geriatric and Extended Care (GEC), Dr. Raina Rochon and the Assistant Chief of Nursing Service for GEC, Mr. Adonis Bronto, managing HTN is crucial in lowering the risk of CVD and other related complications among veterans. Both parties have reported non-compliance with HTN measurements in GEC primary care clinic. They have informed that efforts have been made to reach patients through a virtual video connect (VVC) program using their adequate resources and trained staff to manage HTN and reduce the burden of HTN-related complications. However, VVC was discontinued for reasons unknown to them. The clinic's management is receptive to implementing EBP TCI to improve veterans' BP. Based on EBP the DNP Project Lead and the management believes that veterans' health outcomes, healthcare costs, and quality of life can all be improved via proper HTN management at and through the clinic.

PICOT Question

The PICOT question that guided this DNP Project is: In the primary care setting, in older adults ≥ 65 years with blood pressure $\geq 140/90$ (P), does weekly telehealth coaching (I) compared to no telehealth coaching (C), decrease their blood pressure (O) over a 6-week period (T)?

Population: The DNP project was conducted at the VA hospital GEC primary care clinic in Tampa, FL. It has been identified that HTN is a significant clinical problem among adult

veterans. This project aimed to implement EBP intervention to patients ≥ 65 years who have BP $\geq 140/90$ for two or three consecutive months.

Intervention: The TCI consisted of receiving a call from RN Telehealth Coaches (RNTC) who followed the supervisory checklist for making the telehealth calls. The RNTC instructed the patients about lifestyle management, the significance of monitoring their BP at least 2 to 3 times per week and keeping a BP log (Appendix G), explain the complications of uncontrolled BP and persuade them to see the practitioner regularly (Kannure et al., 2021).

Comparison: This DNP project used information from evidence-based research to implement the intervention to achieve similar outcomes. Many studies show that hypertensive patients who received TCI and subsequent office visits had significantly better self-management of their condition and BP than patients who received no telehealth coaching (Kim, 2019).

Outcome: This project, through TCI, aimed to improve self-management of patients' high BP by adherence to drug treatment, monitoring BP, keeping up with their appointments, and changing their lifestyle to reduce BP at the end of the 8-week study period (Kes & Polat, 2021).

Time: This project was conducted over 6 weeks. Several studies show that TCI for 8 to 12 weeks improved patients' BP (Odemelam et al., 2020).

Evidence-Based Practice Framework & Change Theory

The EBP framework selected for this project was the Johns Hopkins Nursing Evidence-Based Practice (JHNEBP) Model, which outlined the steps of the EBP process and made clinical decision-making effortless. The JHNEBP model is a three-stage process known as PET (practice question, evidence, and translation) that aided in the practice change project (Dang et al., 2021). This model facilitated the efficient and effective incorporation of the most recent findings and best practices into patient care. The JHNEBP helped this evidence-based DNP project formulate

questions, evaluate evidence, and evaluate scholarly and anecdotal sources. The JHNEBP simplified the EBP process, including implementation of the weekly TCI that promoted self-management of BP through medication adherence, compliance with eating a healthy diet, and exercising regularly; evaluation of the primary outcome of improved BP that is lower than the pre-intervention stage week “0” compared with post-TCI data obtained in week 2, week 4, and week 6 (Appendix D); and dissemination of the findings to the leaders of the outpatient clinic, interprofessional team, and other nursing staff through oral poster presentation (Dang et al., 2021).

The change theory that served as the foundation for the project was Everett Rogers' Five-Stage Change Theory. Rogers' theory guided the project by providing a framework for understanding the factors that encourage the spread of a new intervention and the techniques that facilitated this process through its five stages (Walitzer, 2015). In the knowledge stage, the stakeholders became aware of the intervention by attending an information session that the DNP Project Lead presented that included an overview of the project, the intervention, and the expected outcomes who then became interested in understanding its functions. In the persuasive stage, the stakeholders determined the possible benefits of adopting TCI and its capabilities. In the decision stage, an intervention was adopted. The DNP Project Lead encouraged the collaboration of stakeholders to make them feel like they have a say in the decision-making process. In the implementation stage, putting TCI into practice was done by collaborating with the nursing staff and the management involved in the project. The confirmation stage was the last step in implementing TCI and sought affirmation from other stakeholders. The confirmation phase of a formal project management methodology evaluated whether the project's initial

requirements have been met. The confirmation phase has succeeded if people are no longer adjusting or falling back on inefficient procedures (Walitzer, 2015).

Evidence Search Strategy

St. Augustine University library resources/databases such as USAHS Library database - Search USA, CINAHL, and PubMed were used to conduct an extensive and comprehensive electronic literature search for evidence related to my clinical question to determine best practice for this EBP project. These databases were chosen for their substantial number of health-related research articles and quick access to prominent levels of evidence. Google Scholar, the Centers for Disease Control and Prevention (CDC), the National Institutes of Health (NIH), and UpToDate were used to conduct additional searches. The following criteria were used to include articles in the search: Adult population, English language, human subjects, study evaluated an intervention to improve blood pressure in a primary care setting, and level I or II evidence with high or good quality. Articles older than five years, articles with interventions in children, articles that did not add value to the clinical research question's outcome, articles that compared the intervention with other interventions that are irrelevant for the purpose of this synthesis, articles with only abstracts and no full text, blogs, and social media entries were all excluded. Abstracts were evaluated for study objective relevance, and relevant articles were extracted and reviewed.

During the literature search, many permutations of the keywords were attempted. Words like “telehealth coaching”, “hypertension control”, “health call to improve hypertension”, “telehealth to improve blood pressure”, “blood pressure control”, “telehealth monitoring of hypertension”, and “decrease blood pressure” were used to search for evidence. Full-text articles

published between 2018 and 2023 in scholarly journals, clinical practice guidelines, and systematic reviews were only considered for this DNP project.

Evidence Search Results

The literature search from the databases indicated above resulted in 459 articles, of which five articles were duplicated and excluded, bringing the total articles to 454. These articles were screened, and 334 articles were excluded based on meeting the eligibility criteria: Abstracts were not clear or did not have enough information to provide a clear decision for inclusion; and the interventions or outcomes were unrelated to the PICOT question. After reviewing the title and the abstract of the remaining 120 articles, 110 articles were eliminated and only 10 articles that supported the PICOT question were included. After a deeper review, further analysis, and understanding of the evidence from the ten articles selected, there were 3 randomized control trials, 1 quasi experiment (QE), and 1 quality improvement (QI) studies, and 5 systematic review projects. The 10 articles selected were examined for their evidence level and strength of evidence. See Figure 1 for the PRISMA flow diagram.

The JHNEBP Evidence Level and Quality Guide was used during the literature appraisal to provide ratings for the Level of Evidence (LE) and Quality Ratings (QR). There are five evidence levels, but only articles that fall under level I and level II were selected. The levels in JHNEBP are assigned by the type of study design include: 1) Level I: experimental study, randomized controlled trial, 2) Level II: quasi-experimental study, 3) Level III: nonexperimental study, 4) Level IV: opinion of respected authorities and/or nationally recognized expert panels, and 5) Level V: experiential and non-research evidence (Dang et al., 2021). There were three Quality Ratings: A, B, and C that indicated whether the study was of high quality, good quality, or low quality, or if the study had major flaws (Dang et al., 2021).

The three RCTs had level I evidence and A quality rating, the quasi-experimental study had level II evidence and a B quality rating, the quality improvement study had level III evidence and A quality rating. All the systemic reviews had a quality rating of A (Please see Appendices A and B). The overall John Hopkins Quality Grade was A indicating that the evidence is strong to answer the PICOT question (Dang et al., 2021).

Themes with Practice Recommendations

The selected studies showed improving BP as the primary outcome for the nurse-led TCI. To answer the PICOT question, of the ten articles appraised, synthesis of literature comprised of only eight articles that showed telehealth coaching to be an effective intervention in decreasing BP in the elderly and are as follows: One quasi experimental study (Kannure et al., 2021); two randomized control trials (Kes & Polat, 2021; Kim, 2019); one quality improvement study (Odemelam et al., 2020); and four systematic reviews (Hoffer-Hawlik et al., 2021; Kappes et al., 2023; Stephen et al., 2022; and Yu et al., 2019).

The four themes identified from the synthesis of literature were: 1). Prevalence of Blood Pressure Control; 2). Medication Adherence; 3). Knowledge of BP Self-Management and Self-Efficacy; and 4). Knowledge of the Prevention of Risk Factors of HTN.

Prevalence of Blood Pressure Control

The quasi-experimental study by Kannure et al. (2021), the two randomized control trials (RCT) by Kes and Polat (2021) and Kim (2019), the quality improvement study by Odemelam et al. (2020); 11 of the 14 individual studies in the systemic reviews done by Hoffer-Hawlik et al. (2021); Stephen et al. (2022); and the study by Kappes et al. (2023) which included synthesis of 6 controlled clinical trials and one quasi experiment study demonstrated that telehealth coaching intervention significantly improved BP control among hypertensive patients. Also, results from

the meta-analysis conducted by Yu et al. (2019) revealed statistically significant reductions for systolic blood pressure ($p < .01$) in patients who had telehealth intervention. The mean systolic and diastolic blood pressure levels were significantly lower in the intervention group ($p < 0.05$) (Kes & Polat, 2021).

Medication Adherence

The RCTs by Kes and Polat (2021); Kim (2019); and Kappes et al. (2023), showed that telehealth-based health coaching was significantly effective in medication adherence along with improving BP. Mean systolic and diastolic blood pressure levels were significantly lower in the intervention group ($p < 0.05$). Using nurse-led telehealth monitoring improved adherence and BP control in adults with HTN in the primary care clinic (Kes & Polat, 2021).

Knowledge of BP Self-Management and Self-Efficacy

Kim (2019) and Odemelum et al. (2020) showed that telehealth coaching was effective in improving participants' self-efficacy and self-management behavior to improve health outcomes. In the study by Kappes et al. (2023) telehealth intervention was also effective in bringing HTN awareness, self-efficacy, and self-control.

Knowledge of the Prevention of Risk Factors of HTN

Kappes et al. (2023) study also showed that telehealth intervention brought out positive effects on lowering cholesterol, increase in consumption of fruits and vegetables, increase in physical activity and adherence to medication to improve their BP. Results from the meta-analyses by Yu et al. (2019) have shown that nurse-led telehealth coaching is an effective and accessible intervention that could improve their glycemic index and thereby improve their BP.

Practice Recommendations

Using the PICOT question, the objective of the DNP project was to synthesize evidence, implement the intervention, and evaluate the efficacy of a telehealth coaching intervention for adults 65 and older with high BP (BP \geq 140/90) in a 6-week period. Evidence synthesized not only showed a significant reduction in BP (particularly systolic BP) in the intervention groups, but also demonstrate that there was an increase in HTN awareness, self-efficacy, self-management, and patients' knowledge acquisition regarding a healthy lifestyle. Also observed were positive outcomes related to lowering cholesterol, increasing consumption of fruits and vegetables, increasing physical activity, and medication adherence. The modifiable risk factors for HTN include current cigarette smoking, secondhand smoking, diabetes mellitus, dyslipidemia/hypercholesterolemia, overweight/obesity, physical inactivity/low fitness, and unhealthy diet (excessive salt consumption, a diet high in saturated fat and trans fats, low intake of fruits and vegetables) (WHO, 2023).

Some strategies to improve HTN treatment and control include:

Adherence Strategies for Treatment of Hypertension

Taking medication as prescribed can be difficult if multiple doses need to be taken each day. Some patients may find it difficult to manage their medication schedules when they must be broken up and taken at various times of the day. Several meta-analyses have compared the effects of once-daily versus multiple-times-daily administration of antihypertensive medications. Once-daily dosing had the highest medication adherence (between 71 and 94 percent) compared to other dosing intervals. Poor adherence to medication therapy can be improved through evaluation and, if necessary, adjustment of treatment plans. Adherence is enhanced when medication schedules are simplified by less frequent doses (e.g., once daily as opposed to numerous times per day) or using combination drug therapy (Whelton et al., 2017).

Strategies to Promote Lifestyle Modification

The most successful evidence-based techniques for adherence to nonpharmacological treatment for HTN must be translated and implemented into practice. Many people find it difficult to initiate and sustain changes in behavior aimed at lowering their CVD risk. It is important to consider individual, provider, and contextual characteristics that may affect the design of such treatments, as well as racial and cultural diversity. Modest, maintained modifications in lifestyle have been found to significantly lower CVD morbidity and mortality. Long-term adherence is important since many of the positive impacts of lifestyle modifications occur over time. Remarkable rates of early behavior change were seen after interventions aimed at sodium restriction, other food patterns, weight loss, and the adoption of new physical activity routines (Whelton et al., 2017).

Improving Quality of Care for Resource-Constrained Populations

Randomized controlled trials and meta-analyses of RCTs have shown that team based HTN management with nurse or pharmacist participation reduces systolic BP (SBP) and diastolic BP (DBP) and/or increases BP goal accomplishment compared with conventional care. Similarly, a review of studies that included community health workers found that patients with primary HTN who received team-based care had lower systolic and diastolic BP, better BP control, and better adherence to their HTN medications than those who received usual care (Whelton et al., 2017).

Plan of Care for Hypertension

Understanding the modifiable and nonmodifiable determinants of health behaviors, such as social determinants of risk and outcomes, is crucial for developing a tailored plan of care for HTN. Studies show that following a HTN care plan can result in long-term success in lowering

BP and meeting BP goals. Patients with HTN have lower BP and are more likely to reach their BP goals 6 and 12 months after starting treatment, according to a meta-analysis of RCTs (Whelton et al., 2017).

Setting, Stakeholders, and Systems Change

Setting

This DNP initiative was implemented at the VA hospital's GEC primary care clinic (GECPC), where a team of physicians, nurses, and other medical professionals coordinate patient care. The mission at GECPC is to offer veterans high-quality healthcare in a safe, comfortable, and supportive setting. The GECPC serves veterans by continuously improving processes and promoting safety (TVH, 2022). After receiving the VA Internal Review Board (IRB) approval, the GEC Chief/preceptor, Dr. Raina Rochon, Assistant Chief, Adonis Bronto, and Nurse Manager, Shernise Henshall provided support for the project. The key stakeholders participated in project development from the start and provided understanding and support. The inclusion criteria for the DNP Project were ≥ 65 -year-old adults with BP $\geq 140/90$. The patient data was extracted from the Electronic Medical Record (EMR) and once the IRB approval was received, the patients were contacted by RNTCs to inform about the DNP project to improve their BP through weekly telehealth coaching.

Stakeholders

The stakeholders were identified using the JHNEBP Stakeholder Analysis Tool (Dang et al., 2021). The stakeholders for this project included: Patients - primary stakeholders who will receive the coaching intervention to improve their BP; Providers - doctors, nurses, and pharmacists who may be referring patients for TCI and monitoring their progress; Researchers - may conduct studies to evaluate the effectiveness of the TCI; Telehealth Coaches - responsible

for delivering the TCI and ensuring that patients are adhering to the program; Family Members: may be involved in supporting the patient during TCI; and leadership management - responsible for approving the DNP project and overseeing the results/outcomes.

Sustainability Plan

A sustainability plan is crucial for ensuring the long-term success and impact of the TCI to improve BP. Some key steps include: Establishing clear goals and outcomes to ensure that they are aligned with the needs and expectations of the stakeholders and to measure progress over time; Developing a funding strategy to identify potential sources of funding to support the ongoing operation of the TCI; Building partnership with healthcare providers, the organization, and other stakeholders to support the sustainability of the TCI; Training and supporting coaches to ensure that coaches are trained and supported to deliver the TCI effectively; Monitoring and evaluating progress each week to ensure that TCI is achieving its goals and outcomes (Hodge et al., 2018).

Interprofessional Collaboration

Interprofessional collaboration is essential for the success of TCI to improve BP. Collaboration can help to ensure that patients receive holistic, coordinated care, improve communication between healthcare professionals and coaches, engage patients in their own care as patients who feel part of a coordinated care team are more inclined to participate in their care, thus improving results (Hall et al., 2017; Harris, et al., 2018). At project start, an interprofessional team consisting of the DNP Project Lead, the preceptor who is also the Chief of GEC, RNTCs, department manager, and a physician/Chief Medical Officer with the necessary knowledge, competence, and abilities were selected and involved in the project.

SWOT Analysis

SWOT analysis was performed for evaluating the strengths, weaknesses, opportunities, and threats of a TCI to improve BP in an outpatient population. By conducting a SWOT analysis, the key areas of focus were identified to develop strategies to maximize the strengths and opportunities of the intervention while mitigating the weaknesses and threats (Okike et al., 2019). Please see Appendix E for detailed SWOT analysis.

Systems Change

The DNP Project initiative will transform the systems at the micro-level by changing individual behavior. Targeted TCI helps people make healthier decisions and adopt healthier behaviors to improve health outcomes by addressing the fundamental causes of health concerns. The goal of the intervention is to improve BP by modifying lifestyle variables such diet, activity, and medication adherence. The intervention's micro-level systems change may not affect the larger health system, but it can affect individual health outcomes. However, successful micro-level treatments may lead to meso and macro-level system changes, such as policy or organizational reforms that support healthy behaviors and lifestyles (Naylor et al., 2018).

Implementation Plan with Timeline and Budget

It was crucial for the DNP project to have implementation plans that are evidence-based, comprehensive, and tailored to the specific context and target population. With a well-designed implementation plan in place, the TCI of the DNP project increased the likelihood of successful implementation and improved health outcomes for patients with chronic diseases. It provided a roadmap for the implementation team, outlined timelines and resources needed, and ensured that all aspects of the intervention were executed consistently and efficiently (Tabak et al., 2018). Staff education was provided through oral PowerPoint presentation as seen in Appendix J and included other relevant appendices.

Overview of Implementation Process

1). Staff Education – Provide through oral PowerPoint presentation.

2). Objectives: Improved BP in 6 weeks by:

- a). Provide telehealth coaching support that is accessible to individuals.
- b). Encourage patients to change their health behaviors by making healthier choices and adopting healthier behaviors.
- c). Enhance self-efficacy and increased engagement in self-management of their BP.
- d). Foster a supportive and trusting relationship between the coach and the patient.

3). Evidence-Based Practice Model – JHNEBP Model which is a 3-stage model guided in formulating the practice question, researching the evidence-based practice, and translating the evidence.

4). Change Theory – Everett Rogers' Five-Stage Change Theory

- a). Knowledge Stage – Stakeholders (leadership management, clinic staff, and the patients) became aware of the DNP Project Proposal.
- b). Persuasion Stage - Stakeholders were persuaded to consider the potential benefits of TCI.
- c). Decision Stage – Stakeholders made the final call on whether the intervention is the best available option for improving BP.
- d). Implementation Stage – TCI was put into action.
- e). Confirmation Stage - Evaluated whether objectives were met where evidence practice change made a difference.

5). Timeline - 6 weeks of intervention

6). Budget/Expenses – See Table I

Objectives:

The overall goal of the DNP Project with TCI was to reduce participants' BP to a level that was lower than that which was measured at the time of enrolment in week "0" of the pre-intervention stage. This was achieved by providing easily accessible and convenient coaching support that encourages people to adopt healthier habits, boost their confidence in their ability to change, and create a mutually beneficial bond with their coach. Several studies have shown that these kinds of therapies are effective in improving their BP (Mavridoglou et al., 2018). The objectives were measured as discussed in the evaluation plan section.

The first objective of the DNP project was to achieve the goal of improved BP in 6 weeks by providing telehealth coaching support that is accessible to individuals. By providing telehealth coaching, individuals can receive support in the comfort of their home, regardless of their location, transportation, or mobility limitations.

The second objective was improving BP in six weeks by helping patients change their health behaviors by making healthier choices and adopting healthier behaviors. Supporting individuals in areas such as physical activity, nutrition, stress management, smoking cessation, and other areas that are relevant to their health goals to improve their BP. The aim was to provide evidence-based coaching that has been shown to be effective in improving health behaviors with a positive outcome of improved BP (Mavridoglou et al., 2018).

The third objective was improving BP in six weeks through enhancement of self-efficacy and increased engagement in self-management of their BP by providing tailored support and addressing individual needs. Self-efficacy is an individual's belief in their ability to succeed in achieving a specific goal or outcome. The DNP project aimed to enhance self-efficacy by providing individuals with the knowledge, skills, and confidence to make healthier choices, set

realistic goals, track their progress, and achieve their health goal of improving their BP (Shukla et al., 2021; Wang et al., 2019).

The fourth objective was improving BP in six weeks by fostering a supportive and trusting relationship between the coach and the individual receiving coaching to create a safe and supportive environment where individuals feel comfortable sharing their challenges, asking questions, and receiving feedback. Also, individuals may be more likely to engage in coaching and make sustained changes in their health behaviors which lead to improved BP and lowering the risk of morbidity when patients trust their providers (Gong et al., 2020).

John Hopkins Nursing Evidence-Based Practice Model

The JHNEBP model guided this EBP DNP project. The JHNEBP model is a three-stage process known as PET (practice question, evidence, and translation) that will aid in the practice change project (Dang et al., 2021). Initially the clinical question was identified that can be addressed through EBP (Wang et al., 2019). Secondly, search for and critically appraise relevant research evidence involving using appropriate databases and search terms, evaluating the quality and relevance of the studies, and synthesizing the findings was conducted. Thirdly, critical appraisal of the evidence to determine its quality, relevance, and applicability to the specific clinical question or problem was performed. This involved evaluating the validity and reliability of the studies, assessing the strength of the evidence, and identifying any limitations or biases (Gong et al., 2020).

Next, the evidence was applied to the specific clinical context, considering factors such as patient preferences, values, and resources. This involved developing an implementation plan, identifying barriers and facilitators to implementation, and considering ethical and legal implications (Shukla et al., 2021). Finally, the effectiveness of the implementation was

evaluated, and adjustments made as necessary which involved monitoring and evaluating the outcomes of the intervention, identifying any gaps or areas for improvement, and disseminating the findings (Mavridoglou et al., 2018).

Change Management Process

Everett Rogers' Five-Stage Change Theory was used to guide the tasks involved in the project planning and implementation (Table 2). An individual enters the knowledge stage once they have learned about the intervention and are curious about its effects. Stakeholders such as the leadership management become aware of the intervention during the IRB approval process. The clinic staff who participated in DNP project and the patients were briefed about the project once the IRB approval was received. At this point, the persuasion stage, the stakeholders were persuaded through direct conversations, via email, or health calls to take the new intervention after considering its potential benefits. The decision phase involved making the final call on whether the intervention is the best available option for improving blood pressure, which takes place during the IRB approval process. The intervention was put into action in the implementation phase when all the necessary documentation, approvals, and procedures are in place. The final phase of introducing a change is confirmation, during which it is crucial to get IRB approval. The implementation phase of a formal project management technique entails nothing more than a check to see if the project's initial requirements were met. The implementation phase is successful if people are no longer adjusting or reverting to inefficient practices (Mohammadi et al., 2017).

The TCI involved providing coaching or counseling services to individuals who require support in various areas of their lives. These interventions have been found to be effective in improving health outcomes, reducing healthcare costs, and increasing patient satisfaction (Alan

et al., 2019). Interprofessional involvement, including collaboration between all the stakeholders is essential in ensuring the successful implementation of the intervention (Alan et al., 2019; Delgado & Newhouse, 2018).

The DNP project stayed on track as shown on the timeline (Appendix C) with goals and an action plan. Pre-intervention BP was recorded in week “0”. The project’s primary goal was improved BP which was measured and evaluated at two weeks, four weeks, and six weeks along with medication adherence, exercise, and diet change (Appendix D). Regular updates were given to the leadership team, project team, and other important people in the department. At the last meeting of the project, the results and lessons learned were spoken about. Staff and stakeholders were given further proof of the project's usefulness and need for sustainability. The Chief Nurse, Dr. Raina Rochon, for GEC department, has assigned staff dedicated to calling patients on a weekly basis once the organization’s IRB approved the project. The DNP Team Lead then briefed the staff about the project. The Chief Nurse for GEC/preceptor extended assistance with any other resources that are available to minimize costs from going above the department's budget. See Table I for budget/expenses.

Results

The DNP project was guided by Dr. Sheri Jacobson, faculty at USAHS and the preceptor, Dr. Raina Rochon, Chief of GEC and implemented at VAHPCC in Tampa. The current quality indicator scores for BP control at this setting were low and through this evidence-based TCI the DNP project hoped to improve BP among the identified patients. The variables or measures such as Outcome: BP levels and control; Process: Adherence to treatment; Balancing: Adverse events and quality of life; Financial: Cost-effectiveness; and Sustainability: Long-term maintenance of

blood pressure control are discussed in this section and in the “Impact” section below. See also Appendix H.

After receiving approval from the USAHS Evidence Based Project Review Council (EPRC), the DNP scholarly project proposal was submitted to the organization’s IRB committee for their review and approval to start the project. The charge nurse, Ms. Leza Ilion who currently works at the GEC primary care clinic where the project implementation took place, identified older adult patients regardless of their race or sex, who were ≥ 65 years with a documented blood pressure $\geq 140/90$ during the last 3 visits from the EMR. Patients were informed about the DNP project and the TCI either when they came to the clinic or if their appointment was too far away, they were contacted and informed about the DNP project through telephone calls. The total number of patients initially identified was thirty.

A team of five RNTC including the charge nurse made calls to all 30 patients prior to implementation of the DNP project to further identify those who are willing to participate in the project. Patients who did not answer the phone call and those who were unwilling or unable to receive weekly phone calls were excluded from the project leaving 23 patients who were interested in participating in the intervention. The project proposal was initially designed for eight weeks but had to be reduced to six weeks due to time constraints for this project intervention which could only be implemented after the organization’s IRB approval. Each of the five telehealth coaches called the patients each week following the telehealth coaching checklist (Appendix F). The data collected was recorded on a data collection tool (Appendix D) which was either secured in the RNTCs’ locked drawers or on their computers which were accessible only to them and handed over to the charge nurse each week who kept the data in a binder locked in a drawer and in turn hand delivered the data in person to the DNP Project Team Lead every two

weeks. The data was further protected by identifying each patient only by the last four digits of their medical record numbers with no names identified. The privacy of the patients was not altered and there were no HIPAA violations as all the patient relevant information is collected by the same personnel who work with the patients and is stored in the EMR.

Data collected included patient's last five digits of their medical record number (nominal data), gender (nominal data), age, SBP and DBP (continuous data) in week "0", week 2, week 4, and week 6. Of the 23 patients who expressed interest in participating in the TCI project only 12 patients had $BP \geq 140/90$ for their week "0" baseline measurement. Of the 12 patients, only nine patients participated in the project for all six weeks as three patients were excluded for not answering the phone calls for any one TCI session.

The primary outcome of the DNP project was achieving a BP lower than that measured on enrollment in week "0" in the pre-intervention stage and is compared with post TCI data obtained in week 2, week 4, and week 6 (Appendix D). Using Intellectus software the data was analyzed through paired t-tests to examine the PICOT question and see if mean differences existed between week "0" SBP and week "6" SBP. A p-value ≤ 0.05 is typically considered to be statistically significant (Melnyk & Fineout - Overholt, 2017). The result (Appendix I) of the two-tailed paired samples t-test was significant based on an alpha value of 0.05, $t(8) = 8.92$, $p < .001$, indicating the null hypothesis can be rejected and showing a statistically significant difference between week "0" and week "6". This finding suggests the difference in the mean of SBP week "0" and the mean of SBP week "6" was significantly different from zero. The mean of SBP week "0" was significantly higher than the mean of SBP week "6".

There was a clinical significance which is a measure of improvement from the patient's point of view, with self-evaluation playing a pivotal role. Due to their potential usefulness in

actual nursing practice, outcome measures deserve careful attention in the pursuit of clinical significance. The clinical significance of the intervention is determined based on its practical and applied usefulness to patients in their day-to-day lives to achieve the goal of improved BP. Clinical significance was also determined by asking if TCI was effective enough to make a difference in the patient's life and enough to lead the patient to sense an improvement (Carpenter et al., 2021). The effectiveness of the implementation was evaluated by the outcome measures and these findings were disseminated (Mavridoglou et al., 2018).

Impact

The DNP scholarly project focused on determining whether TCI was a viable and effective strategy for addressing the practice problem of HTN management. The successful execution and the positive outcome of this DNP project, which showed statistical significance, can impact clinical significance for changing healthcare policies and standards. Specifically, it can advocate for incorporating TCI as a routine component of standard-of-care practices.

For the sustainability of the project, RNTCs need to invest time to continue making telehealth calls to patients, provide them with one-on-one education, remind them about the importance of self-management, and empower older adult patients to actively engage in checking their BP regularly, adhering to medications, and making lifestyle modifications. If sustained, this intervention can yield substantial benefits regarding patient outcomes and the whole healthcare system. The initiative has the potential to yield several impacts and advantages, such as improved health outcomes, enhanced quality of life for patients, reduced healthcare costs, increased access to care, and patient empowerment and education.

The DNP project was completed with minimal to nil monetary cost. The time the Project Team Lead invested, especially the RNTCs, was the most significant cost. Resources used in the

project were from the existing departmental costs. Therefore, there was no need for additional funding. The RNTCs have all the required tools to continue with TCI, and they have all agreed that this has worked well for them, especially the patients, in improving their BP.

The continuous assessment of the efficacy of an alteration or practice change, even in the absence of the Project Team Lead, is a pivotal component of change management. The purpose of this process is to verify the attainment of desired results and to facilitate the implementation of any required modifications to optimize the advantages of the evidence-based practice change. The charge nurse will be responsible for conducting continuous reviews and maintaining oversight and monitoring of the transformation process. The RNTC team should schedule periodic review meetings or check-ins to discuss the advancement of the change effort with their manager, assistant chief, and the chief of GEC. By adhering to these procedures, assessing the change's efficacy can persist beyond the period in which the Project Team Lead no longer oversees the project.

Identifying and enlisting patients ≥ 65 with BP $\geq 140/90$ was not arduous. However, the ultimate number of participants in the DNP project was constrained because seven out of the 30 patients initially identified either failed to respond to the phone call for the baseline measurements at week "0," or were disinclined or unable to receive weekly phone calls. Out of the total sample size of 23 participants who consented to partake in the intervention, it was observed that only 12 individuals exhibited BP readings $\geq 140/90$ during the initial measurement conducted at week "0". Consequently, 11 participants were deemed ineligible for inclusion in the study. Out of the total sample size of 12 individuals, it was seen that only nine participants remained actively engaged in the project for the entire duration of six weeks. The remaining three individuals were excluded from the study due to their failure to respond to phone calls for

any TCI sessions. Another constraint that was encountered was the imposed time limit. The project proposal was originally intended to span eight weeks. However, it was necessary to shorten the time to six weeks due to time limitations imposed by the project intervention, which could only commence after obtaining approval from the organization's IRB.

Dissemination

An essential element of the DNP Project involves sharing its results and findings. Effective communication relies on the widespread distribution of information and careful consideration of the intended recipients. The beneficiaries of DNP scholarly work encompassed stakeholders, including nursing staff and management, clinicians, researchers, policymakers, patients, and the public (Arends & Callies, 2022).

The project results were discussed with the preceptor/Chief of GEC, Dr. Raina Rochon, and the charge nurse/RNTC. The findings of the project were shared through digital poster presentation with all stakeholders, including interprofessional team members of the Nursing Quality, Safety, and Education committee on December 06, 2023, in their monthly meeting. The dissemination of the DNP project also took place through an oral poster presentation using PowerPoint at the Alpha Alpha Alpha Chapter of Sigma Theta Tau International (Sigma) at USAHS.

The DNP Project was presented at the USAHS SON DNP Scholarly Project Symposium and in the SOAR@USA database. SOAR@USA is the institutional open access (OA) repository that collects scholarly works of students, staff, and faculty for the University of St. Augustine. The institutional repository collects full-text DNP theses and makes them available for viewing thereby expanding the research environment (Kesten & Hoover, 2022).

The DNP project manuscript will be submitted for publication in peer-reviewed health care journals including American Journal of Nursing (AJN) and American Nurse Journal (ANJ), and to Evidence-Based Nursing journal.

Conclusion

This DNP project implemented TCI, an EBP change in older adults ≥ 65 years of age with high BP $\geq 140/90$ in the primary care setting and evaluated the effectiveness of the intervention in a 6-week period. The TCI aimed to improve self-management of patients' high BP by adherence to drug treatment, BP monitoring, keeping up with their appointments, and changing their lifestyle to reduce BP at the end of the 6-week study period. The JHNEBP framework was utilized to help ensure that the latest research and best practices are seamlessly integrated into everyday patient care, to guide the analysis of data, implementation of the intervention, assessment, and dissemination of the results.

Evidence yielded from the synthesis of all eight articles significantly supported telehealth coaching intervention as an accessible and sustainable intervention to improve BP which is the primary outcome expected. Other outcomes or benefits of telehealth coaching included medication adherence, knowledge of BP self-management and self-efficacy, and knowledge of the prevention of risk factors of HTN. Self-management behaviors such as eating a healthy diet, maintaining a healthy weight, and engaging in regular physical activity are recommended for the treatment of HTN according to JNC8.

References

- Allen, K. D., Hayat, M. J., & Alexander, T. (2019). The role of interprofessional collaboration in telehealth-based coaching programs for chronic disease management: A systematic review. *Journal of Interprofessional Education & Practice, 16*, 62-69.
<https://doi.org/10.1016/j.xjep.2019.01.011>
- Arends, R. & Callies, D. (2022). Dissemination enhancement in Doctor of Nursing Practice students. *Journal of Professional Nursing, 40*, 34-37.
<https://doi.org/10.1016/j.profnurs.2022.02.007>.
- Carpenter, R., Waldrop, J., & Carter, T. H. (2021). Statistical, practical and clinical significance and Doctor of Nursing Practice projects. *Nurse Author & Editor (Blackwell), 31(3/4)*, 50–53. <https://doi.org/10.1111/nae2.27>
- Centers for Disease Control and Prevention [CDC]. (2023, January 5). *High blood pressure. Facts about hypertension*. National Center for Chronic Disease Prevention and Health Promotion, Division for Heart Disease and Stroke Prevention.
<https://www.cdc.gov/bloodpressure/facts.htm#>
- Dang, D., Dearholt, S. L., Bissett, K., Ascenzi, J., & Whalen, M. (2021). *Johns Hopkins evidence-based practice for nurses and healthcare professionals model & guidelines*. Sigma Theta Tau International.
- Davis, R. M., Hitch, A. D., Salaam, M. M., Herman, W. H., & Zimmer-Galler, I. E. (2018). Telehealth improves diabetes self-management in an underserved community: Diabetes telecare. *Diabetes Care, 41(10)*, e144-e145. <https://doi.org/10.2337/dc18-1626>
- Delgado, C., & Newhouse, R. (2018). The importance of interprofessional collaboration in the implementation of telehealth nursing interventions for patients with chronic obstructive

- pulmonary disease. *Journal of Nursing Management*, 26(2), 101-108.
<https://doi.org/10.1111/jonm.12536>
- Fryar, C. D., Ostchega, Y., Hales, C. M., Zhang, G., & Kruszon-Moran, D. (2017). *Hypertension prevalence and control among adults: United States, 2015–2016*. NCHS data brief, no 289. Hyattsville, MD: National Center for Health Statistics.
<https://www.cdc.gov/nchs/products/databriefs/db289.htm>
- Gong, Y., Yang, X., Xiang, Q., Xiang, Y., & Zhou, Y. (2020). The effect of telehealth-based health coaching on health outcomes in chronic disease patients: A systematic review and meta-analysis. *PLoS One*, 15(4), e0232161. <https://doi.org/10.1371/journal.pone.0232161>
- Hall, P., Weaver, L., & Grassau, P. A. (2017). Interprofessional collaborative patient-centred care: a critical exploration of two related discourses. *Journal of Interprofessional Care*, 31(6), 692-699. <https://doi.org/10.1080/13561820.2017.1315066>
- Harris, J., Roussel, L., Dearman, C., & Thomas, P. (2018). *Project planning and management: A guide for nurses and interprofessional teams*. Jones & Bartlett Learning.
- Hodge, L. M., Turner, K., & Strong, T. B. (2018). Increasing sustainability of school-wide positive behavior interventions and supports through an interprofessional approach. *Journal of Interprofessional Education & Practice*, 11, 43-47.
<https://doi.org/10.1016/j.xjep.2018.02.002>
- Hoffer-Hawlik, M., Moran, A., Zerihun, L., Usseglio, J., Cohn, J., & Gupta, R. (2021). Telemedicine interventions for hypertension management in low- and middle-income countries: A scoping review. *PLoS ONE*, 16(7), e0254222.
<https://link.gale.com/apps/doc/A667980303/OVIC?u=lirn55718&sid=ebsco&xid=57137>
[cc8](#)

- Kannure, M., Hegde, A., Anupam Khungar-Pathni, Sharma, B., Scuteri, A., Neupane, D., Gandhi, R. K., Patel, H., Surendran, S., Jondhale, V., Gupta, S., Phalake, A., Walkar, V., George, R., Mcguire, H., Jain, N., & Vijayan, S. (2021). Health calls for improving blood pressure control among hypertensive patients attending private medical practitioners in India: Findings from Mumbai hypertension project. *The Journal of Clinical Hypertension*, 23(4), 730-737. <https://doi.org/10.1111/jch.14221>
- Kappes, M., Espinoza, P., Jara, V., & Hall, A. (2023). Nurse-led telehealth intervention effectiveness on reducing hypertension: A systematic review. *BMC Nursing*, 22(1), 1–13. <https://doi.org/10.1186/s12912-022-01170-z>
- Kes, D. & Polat, U. (2021). The effect of nurse-led telehealth support on adherence to blood pressure control and drug treatment in individuals with primary hypertension: A randomized controlled study. *International Journal of Nursing Practice*, 28(3), e12995. <https://doi.org/10.1111/ijn.12995>
- Kesten, K. S. & Hoover, S. N. (2022). Doctor of nursing practice scholarship dissemination through an open access repository. *Journal of Professional Nursing*, 41, 19-25. <https://doi.org/10.1016/j.profnurs.2022.03.010>.
- Kim, M. (2019). Effects of customized long-message service and health-based health-coaching on elderly people with hypertension. *Iranian Journal of Public Health*, 48(4), 655-663. <https://doi.org/10.18502/ijph.v48i4.986>
- Kulkarni, A., Mehta, A., Yang, E., & Parapid, B. (2020, February 26). *Older adults and hypertension: Beyond the 2017 guideline for prevention, detection, evaluation, and management of high blood pressure in adults*. American College of Cardiology.

<https://www.acc.org/latest-in-cardiology/articles/2020/02/26/06/24/older-adults-and-hypertension>

Liu, X., Li, Y., & Li, X. (2021). Effectiveness of telehealth-based health coaching on health outcomes in patients with hypertension: A systematic review and meta-analysis. *Patient Education and Counseling*, 104(2), 266-273. <https://doi.org/10.1016/j.pec.2020.08.011>

Lu, Y., & Wu, Q. (2019). The effect of telehealth-based health coaching on health outcomes and utilization of resources in patients with chronic diseases: A systematic review and meta-analysis. *Medicine*, 98(26), e16067. <https://doi.org/10.1097/MD.00000000000016067>

Mavridoglou, G. T., Argyriou, A. A., & Kourakos, P. (2018). Effectiveness of telehealth health coaching in cardiac patients: a systematic review and meta-analysis. *Journal of Cardiovascular Nursing*, 33(1), E8-E17. <https://doi.org/10.1097/JCN.0000000000000432>

Melnik, B. M., & Fineout-Overholt, E. (2017). *Evidence-based practice in nursing and healthcare* (4th ed.). Wolters Kluwer.

Mohammadi, M. M., Poursaberi, R., & Salahshoor, M. R. (2017). Evaluating the adoption of evidence-based practice using Rogers's diffusion of innovation theory: A model testing study. *Health Promotion Perspectives*, 8(1), 25-32. <https://doi.org/10.15171/hpp.2018.03>

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *Annals of Internal Medicine*, 151(4), 264-269. <http://dx.doi.org/10.7326/0003-4819-151-4-200908180-00135>.

Naylor, C. D., & Aubrey-Bassler, K. (2018). Advancing implementation science in primary care to address health equity: A call to action. *International Journal for Equity in Health*, 17(1), 70. <https://doi.org/10.1186/s12939-018-0779-9>

- Odemelam, F., Goode, P., & Onsomu, E. O. (2020). The effects of health coaching on self-blood pressure management among African-American adults. *Journal of Best Practices in Health Professions Diversity: Education, Research & Policy*, 13(1), 16–34.
<https://0b30efbf3-mp01-y-https-eds-p-ebscohost-com.prx-usa.lirn.net/eds/pdfviewer/pdfviewer?vid=2&sid=d82e3529-debb-4687-b066-3d00f596a4a8%40redis#>
- Okike, O. N., Maduakor, S. A., Akhigbe, A. O., & Okike, C. O. (2019). SWOT analysis of telemedicine implementation in a tertiary hospital in Nigeria. *The Pan African Medical Journal*, 33. <https://doi.org/10.11604/pamj.2019.33.109.18632>
- Palacio, A., Garay, D., Langer, B., & Taylor, J. (2020). The impact of telehealth health coaching on medication adherence and blood pressure control in patients with hypertension: A randomized controlled trial. *American Journal of Hypertension*, 33(4), 318-325.
<https://doi.org/10.1093/ajh/hpaa005>
- Palmer, M. J., Machiyama, K., Woodd, S., Gubijev, A., Barnard, S., Russell, S., Perel, P., & Free, C. (2021). Mobile health-based interventions for improving adherence to medication prescribed for the primary prevention of cardiovascular disease in adults. *Cochrane Database of Systematic Reviews*, 3.
<https://doi.org/10.1002/14651858.CD012675.pub3>.
- Shukla, H., Chauhan, K., Garg, R., Yadav, R., & Verma, S. (2021). Effectiveness of telephonic health coaching in improving health-related outcomes among people living with type 2 diabetes mellitus: A systematic review and meta-analysis. *Diabetes Research and Clinical Practice*, 174. <https://doi.org/10.1016/j.diabres.2021.108656>

Stephen, C., Halcomb, E., Fernandez, R., McInnes, S., Batterham, M., & Zwar, N. (2022).

Nurse-led interventions to manage hypertension in general practice: A systematic review and meta-analysis. *Journal of Advanced Nursing*, 78(5), 1281-1293.

<https://doi.org/10.1111/jan.15159>

Tabak, R. G., Khoong, E. C., Chambers, D. A., & Brownson, R. C. (2018). Bridging research

and practice: Models for dissemination and implementation research. *American Journal of Preventive Medicine*, 55(5), S223-S231. <https://doi.org/10.1016/j.amepre.2018.07.014>

Taher, M., Yule, C., Bonaparte, H., Kwiecien, S., Collins, C., Naylor, A., Juraschek, S. P.,

Bailey-Davis, L., & Chang, A. R. (2021). Telehealth versus self-directed lifestyle intervention to promote healthy blood pressure: A protocol for a randomised controlled trial. *BMJ Open*, 11(3). <https://doi.org/10.1136/bmjopen-2020-044292>

Tampa VA Healthcare [TVH]. (2022, October 13). *Mission and vision*. U.S. Department of

Veterans Affairs. <https://www.va.gov/tampa-health-care/about-us/mission-and-vision/#our-vision>

Wahidi, N., & Lerner, A. J. (2019). Blood pressure control and protection of the aging

brain. *Neurotherapeutics*, 16(3), 569–579. <https://doi.org/10.1007/s13311-019-00747-y>

Walitzer, K. S., Dermen, K. H., Barrick, C., & Shyhalla, K. (2015). Modeling the innovation–

decision process: Dissemination and adoption of a motivational interviewing preparatory procedure in addiction outpatient clinics. *Journal of Substance Abuse Treatment*, 57, 18-29. <https://doi.org/10.1016/j.jsat.2015.04.003>.

Wang, Y., Xie, B., & Chang, C. F. (2019). Effects of telehealth-based coaching on health

behaviors and quality of life among patients with chronic obstructive pulmonary disease.

International Journal of Nursing Sciences, 6(2), 138-144.

<https://doi.org/10.1016/j.ijnss.2019.03.008>

Whelton, P. K., Carey, R. M., Aronow, W. S., Casey Jr, D. E., Collins, K. J., Himmelfarb, D. C., DePalma, S. M., Gidding, S., Jamerson, K. A., Jones, D. W., MacLaughlin, E., J., Muntner, P., Ovbigele, B., Smith Jr, S. C., Spencer, C. C., Stafford, R. S., Taler, S. J., Thomas, R. J., Williams Sr, K. A., ..., & Wright Jr, J. T. (2017). 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA guideline for the prevention, detection, evaluation, and management of high blood pressure in adults: A report of the American college of cardiology/American heart association task force on clinical practice guidelines. *Hypertension. Aha Journals*, 71(6), e13–e115.

<https://doi.org/10.1161/HYP.000000000000065>.

World Health Organization [WHO]. (2021, August 25). *Hypertension: Key facts*.

<https://www.who.int/news-room/fact-sheets/detail/hypertension>

World Health Organization [WHO]. (2023, March 16). *Hypertension*.

<https://www.who.int/news-room/fact-sheets/detail/hypertension>.

Xu, X., Li, J., Hong, J., Zhang, Y., Hu, R., Li, Z., ... & Wei, L. (2020). Effect of telehealth-based health coaching on quality of life and psychological outcomes among COVID-19 patients and their families in Wuhan, China: A randomized controlled trial. *Quality of Life Research*, 29(11), 3051-3061. <https://doi.org/10.1007/s11136-020-02592-4>

Yu, M. C. D., Wu, X. V., Chan, E. Y., & Goh, Y. S. (2019). Nurse-led tele-coaching on modifiable cardiovascular risk factors in people with Type 2 Diabetes Mellitus: A systematic review and meta-analysis. *Worldviews on Evidence-Based Nursing*, 16(6), 424–432. <https://doi.org/10.1111/wvn.12409>

Zhou, W., Chen, M., Yuan, C., & Huang, Y. (2021). Telehealth health coaching interventions for patients with type 2 diabetes mellitus: A systematic review and meta-analysis. *Diabetes Research and Clinical Practice*, 171. <https://doi.org/10.1016/j.diabres.2020.108557>

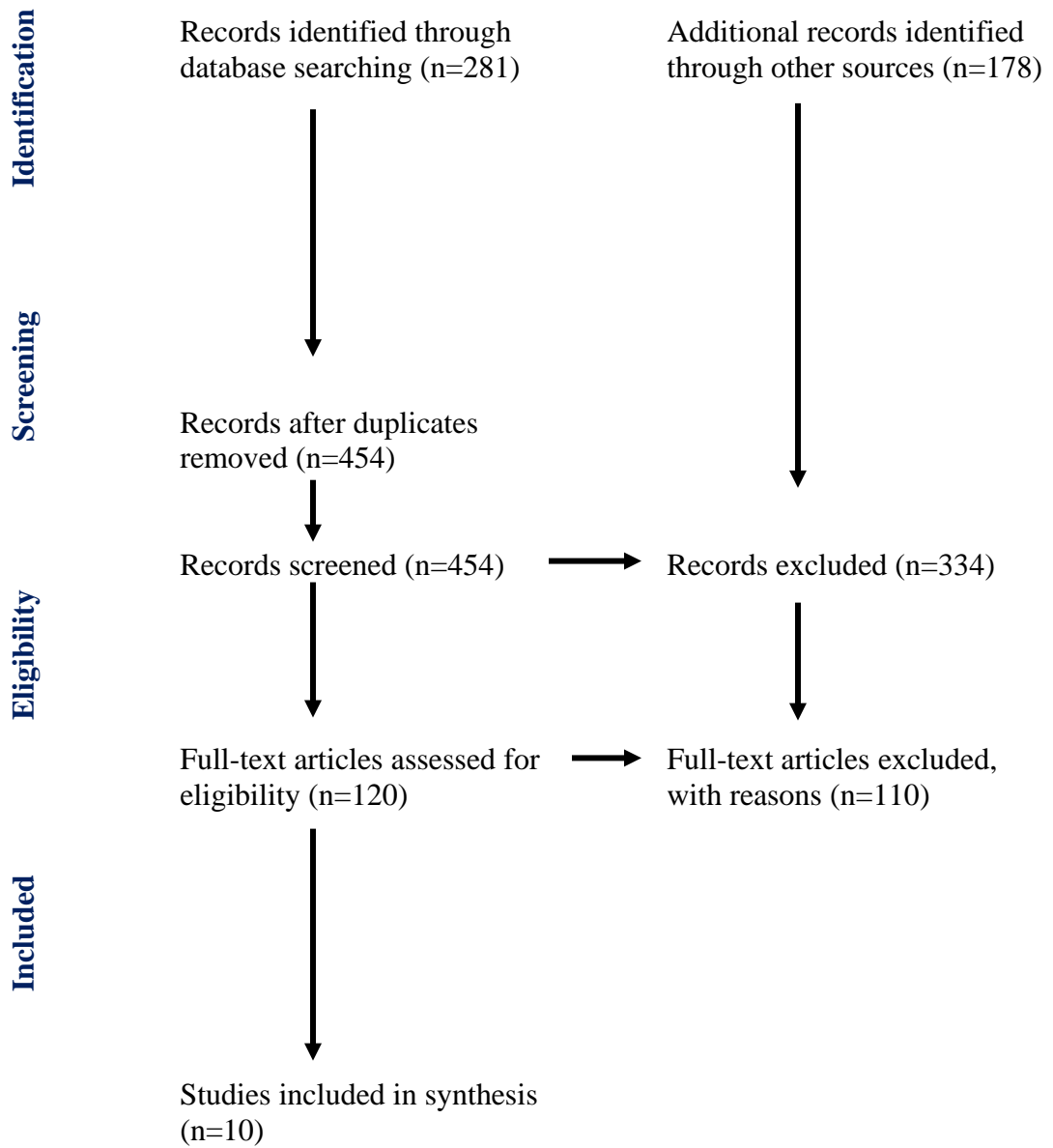
Table 1*Implementation EBP Project Budget*

DIRECT EXPENSES	
Salary and benefits for RN Telehealth Coach (\$35/hr x 36 hrs/wk x 8wk)	\$10,080
Supplies (fliers, mailers, posters)	\$1200
Patient education materials	\$500
Statistician (\$35/hr x 8 hours)	\$280
Total Expenses	\$12,060

Note: All budget entries are estimates. Expenses are based on means. Revenue estimates do not include potential cost avoidance due to realized outcomes. All costs associated to salary and benefits, patient care supplies, and overhead are fixed indirect expenses not associated with this project. Project costs are nominal for printing and laminating, under \$100

Figure 1

PRISMA Flowchart



Note. Prisma flow chart diagram from “Preferred Reporting Items for Systematic Reviews and Meta-analyses: The PRISMA Statement,” by D. Moher, A. Liberati, J. Tetzlaff, & D.G. Altman,

2009, *Annals of Internal Medicine*, 151(4), 267. <http://dx.doi.org/10.7326/0003-4819-151-4-200908180-00135>. Copyright 2009 by The American College of Physicians.

Appendix A

Summary of Primary Research Evidence

Citation	Design Level Quality Grade	Sample Sample size	Intervention Comparison	Theoretical Foundation	Outcome Definition	Usefulness Results/Key Findings
Kannure, M., Hegde, A., Anupam Khungar-Pathni, Sharma, B., Scuteri, A., Neupane, D., Gandhi, R. K., Patel, H., Surendran, S., Jondhale, V., Gupta, S., Phalake, A., Walkar, V., George, R., Mcguire, H., Jain, N., & Vijayan, S. (2021). Health calls for improving blood pressure control among hypertensive patients attending private medical practitioners in India: Findings from Mumbai hypertension project. <i>The Journal of Clinical Hypertension</i> , 23(4), 730-737. https://doi.org/10.1111/jch.14221	Design: QE Level: II Quality Grade: B	Sample: >18 years with BP $\geq 140/90$ Sample size: n=9,528	Intervention: Two types of intervention. 1). Intensive intervention -Receive project support staff, monthly health calls, and free medicines. 2). Lean intervention - Received quarterly health calls and free medicines. Comparison: Effectiveness of reminder telehealth calls on follow-up visits and BP control among patients with HTN in a PCC.	Multiple logistic regression models were used to explore the association between health calls and BP/BPC.	The study demonstrates that telehealth call intervention and follow-up visits can improve patient retention in care and, subsequently, blood pressure control among hypertensive patients.	Usefulness: Yes, Moderate Results/Key Findings: The BPC rate among who answered PC and who did not answer PC increased from 23.6% to 48.8% (P <.001) and 21.0% to 44.3% (P <.001), respectively. The BPC rate at follow-up was significantly associated with PC.
Kes, D. & Polat, U. (2021). The effect of nurse-led telehealth support on adherence to blood pressure	Design: RCT Level: I Quality	Sample: 40–64 years with BP $\geq 140/90$. Taking BP meds for at least	Intervention: IG received regular text messages and health calls.	Used guidelines of the European Society of Cardiology and	The outcomes were evaluated with BP measurement and MA which	Usefulness: Yes, High Medication adherence in week 12

<p>control and drug treatment in individuals with primary hypertension: A randomized controlled study. <i>International Journal of Nursing Practice</i>, 28(3), e12995. https://doi.org/10.1111/ijn.12995</p>	<p>Grade: A</p>	<p>6 months with at least primary school level education and ability to speak Turkish. Ability to use a mobile health and have a BP machine.</p> <p>Sample size: n=92; IG = 46 CG = 46</p>	<p>CG received usual HTN care.</p> <p>Comparison: Effect of telehealth monitoring in combination with texts on medication adherence and BP control.</p>	<p>European Society HTN for the procedure of BP measurement</p>	<p>were both significantly ↑.</p>	<p>was found to be significantly higher in the intervention group than in the control group. Mean systolic and diastolic BP levels in Weeks 4, 8 and 12 were statistically significantly lower in the intervention group than in the control group (p < 0.05).</p> <p>Using text messaging and nurse-led telehealth monitoring improved adherence and BP control in adults with HTN in PCC.</p>
<p>Kim, M. (2019). Effects of customized long-message service and health-based health-coaching on elderly people with hypertension. <i>Iranian Journal of Public Health</i>, 48(4), 655-663. https://doi.org/10.18502/ijph.v48i4.986</p>	<p>Design: RCT</p> <p>Level: I</p> <p>Quality Grade: A</p>	<p>Sample: aged ≥65 years with HTN and able to take PC and check text messages.</p> <p>Sample size: n=124 IG (HCG) = 30 IG (LMSG) = 32 IG (HCG+LMSG) = 31 CG = 31</p>	<p>Intervention: HC was divided into HI and CM</p> <p>1). CM included coaching for 30 minutes once a week. 2). HI included the definitions of HTN, complications, diet medication, exercise, weight, stress, drinking, smoking, and sleep. 3). LMS included all the information in the</p>	<p>1). HI was developed based on the JNC8 and the HTN treatment guidelines published by the Korean Society of HTN. The JNC8 guidelines were used as they emphasize the importance</p>	<p>Outcome Definition Using health-based HC with LMS was effective for managing HTN in community-dwelling seniors diagnosed with HTN and could become a useful</p>	<p>Usefulness: Yes, High</p> <p>Results/Key Findings: Health-based HC with LMS was effective in improving MA, HTN, self-efficacy, and SM behavior and ↓SBP as compared to LMS only. There were also improvements in</p>

			<p>CM group. Content was designed to be sent 1–2 times per day, and 3 times per week for 8weeks. The length of the LMS was 163–230 bytes.</p> <p>Comparison: Assess the effects of LMS and or health-based HC for community-dwelling seniors diagnosed with HTN with both the programs implemented separately and together.</p>	<p>of SM behaviors including diet, weight control, and regular exercise to control BP and reduce use of anti-HTN medication.</p> <p>2). The coaching method was developed based on Cox’s IMCHB.</p> <p>3). LMS was also developed based on the JNC8 and the HTN treatment guidelines.</p>	<p>intervention method.</p>	<p>MA, HTN-related knowledge, HTN self-efficacy, SM behavior, and SBP in the LMS group as compared to the CG.</p>
<p>Odemelam, F., Goode, P., & Onsomu, E. O. (2020). The effects of health coaching on self-blood pressure management among African-American adults. <i>Journal of Best Practices in Health Professions Diversity: Education, Research & Policy</i>, 13(1), 16–34. https://ob30efbf3-mp01-y-https-eds-p-ebsscohost-com.prx-</p>	<p>Design: QI Project</p> <p>Level: III</p> <p>Quality Grade: A</p>	<p>Sample: African Americans with HTN aged ≥18, able to read and write English, and have an active health line.</p> <p>Sample size: sample of 29 (n = 8 men, n = 21 women).</p>	<p>Intervention: Used a one-group, pre/posttest design to examine the effects of health coaching to promote SM to ↓BP.</p> <p>Comparison: There was no comparison group but the PCH quality improvement intervention at the project site gave better</p>	<p>Used three theoretical frameworks relevant to behavioral change: (1) rem’s self-care framework; (2) Johnson’s behavioral system model; and (3) Bandura’s Social</p>	<p>Outcome Definition: The primary outcome was a BP lower than that measured on enrollment.</p>	<p>Usefulness: Yes, High</p> <p>Results/Key Findings: This intervention significantly reduced SBP (p = 0.0004) and DBP (p = 0.0001), improved HTN knowledge (p = 0.0001), and had positive effects on three self-care domains: diet (p =</p>

<p>usa.lirn.net/eds/pdfviewer/pdfviewer?vid=2&sid=d82e3529-debb-4687-b066-3d00f596a4a8%40redis#</p>			<p>results than previous studies in reducing BP.</p>	<p>cognitive Theory.</p>	<p>0.0001), physical activities (p = 0.0001), and smoking (p = 0.001). In addition, all self-efficacy results, including total scores, improved over baseline values. PCH can improve participants' engagement in their own care to improve health outcomes.</p>
<p>Taher, M., Yule, C., Bonaparte, H., Kwiecien, S., Collins, C., Naylor, A., Juraschek, S. P., Bailey-Davis, L., & Chang, A. R. (2021). Telehealth versus self-directed lifestyle intervention to promote healthy blood pressure: A protocol for a randomised controlled trial. <i>BMJ Open</i>, 11(3). https://doi.org/10.1136/bmjopen-2020-044292</p>	<p>Design: RCT Level: I Quality Grade: Results pending</p>	<p>Sample: ≥18 years of age with BMI ≥25 kg/m² and have access to a telehealth, 24-hour ambulatory SBP between 120–160 mm Hg, and successful completion of the run-in period (enter dietary data entry into Loseit app (www.loseit.com) for at least 5 out of 7 days; enter weight into a comprehensive weight management</p>	<p>Intervention: 1). Provide personalized recommendations to improve dietary quality based on a web-based Food Frequency Questionnaire. 2). Provide weekly calls with registered dietitian nutritionists who use motivational interviewing. Comparison: Compare the efficacy of a telehealth versus self-directed lifestyle intervention in lowering 24-hour SBP in the study group for 12 weeks.</p>		<p>Outcome Definition: The primary outcome is a change from baseline in 24-hour SBP. Secondary outcomes include changes from baseline in 24-hour DBP, total Healthy Eating Index-2015 score, weight, waist circumference and physical activity with the Healthy BP research study</p> <p>Usefulness: Not useful Results/Key Findings: Pending</p>

		website (www.bmiq.com) Sample size: n=200			measured on a 5-point Likert scale	
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Legend: > = greater than; ≥ = greater than or equal to; ≤ = less than or equal to; ↓ = decrease/decreasing; ↑ = increase/increased; BMI= Body Mass Index; BP = blood pressure; BPC = blood pressure control; CG =control group; CM = coaching method; DBP = diastolic blood pressure; HC = health coaching; HI = Health information; HCG = health control group; HTN = hypertension; IG = intervention Group; IMCHB = Interaction Model of Client Health Behavior; JNC8 = Eighth Report of the Joint National Committee; LMS = long message services group; LMSG = long message services group; MA = Medication Adherence; PC = health call; PCH = health coaching; PCC = primary care clinic; QE = quasi-experimental; QI = quality improvement; RCT = randomized control trial; SM = self-management; SBP = systolic blood pressure.

Appendix B

Summary of Systematic Reviews (SR)

Citation	Quality Grade	Question	Search Strategy	Inclusion/Exclusion Criteria	Data Extraction and Analysis	Key Findings	Usefulness/Recommendation/Implications
Hoffer-Hawlik, M., Moran, A., Zerihun, L., Usseglio, J., Cohn, J., & Gupta, R. (2021). Telemedicine interventions for hypertension management in low- and middle-income countries: A scoping review. <i>PLoS ONE</i> , 16(7), e0254222. https://link.gale.com/apps/doc/A667980303/OVIC?u=lirn55718&sid=ebsco&xid=57137cc8	A	To summarize the evidence for telemedicine interventions for BP management in LMICs and assess the relationships between the TMI, characteristics and clinical outcomes.	Used PubMed, Scopus, and Embase. Search terms related to LMIC, TM, and HTN were used.	Articles were included in the review if: 1). evaluated changes in BP outcomes resulting from the study intervention; 2). assessed bi-directional TMI that include direct interactions between patients and health professionals or between health professionals to inform the evaluation, diagnosis, treatment, or prevention of HTN disease among the intervention population; 3). conducted in LMICs; 4). reported health-related outcomes among participants because of the intervention; 5). peer-reviewed; and 6). published in English language.	Clinical outcomes were extracted from the screened articles. The search resulted in 530 unique articles, and 14 studies were included in this review. Five studies assessed TMI for patient-provider behavioral counseling, four assessed patient-provider medical management, and five assessed provider-provider consultation technologies. BP in the intervention group. Of the eight studies that reported difference-in-differences changes in systolic BP, between-arm differences ranged	Out of 14 individual studies, 11 demonstrated a significant improvement in systolic or diastolic BP	Useful: Yes The majority of the studies in this review demonstrated a significant reduction in BP with use of the TM intervention, though the magnitude of benefit was not consistently large. Limitations of the studies included small sample sizes, short duration, and intervention heterogeneity. Current evidence suggests that telemedicine may provide a promising approach to increase access to care and improve outcomes for HTN

Citation	Quality Grade	Question	Search Strategy	Inclusion/Exclusion Criteria	Data Extraction and Analysis	Key Findings	Usefulness/Recommendation/Implications
				Articles were excluded from the review if they failed to meet these inclusion criteria or if the study assessed interventions related to HTN in pregnancy or secondary complications of HTN.	from 13.2 mmHg to 0.4 mmHg		in LMICs, especially during events that limit access to in-person care, such as the COVID-19 pandemic.
Kappes, M., Espinoza, P., Jara, V., & Hall, A. (2023). Nurse-led telehealth intervention effectiveness on reducing hypertension: A systematic review. <i>BMC Nursing</i> , 22(1), 1–13. https://doi.org/10.1186/s12912-022-01170-z	A	To synthesize available evidence on the effectiveness of nursing-led THI in reducing BP in HTN patients.	A SR was conducted. The search was performed from May to June 2021, in the databases: PubMed, Scopus, Cochrane Library, Web of Science, CINAHL, and ProQuest within 2010–2021 in English, Spanish and Portuguese.	RCT and QES were considered. This SR followed the criteria of the Cochrane Handbook for SR of Interventions, with the support of the PRISMA guidelines and registered in PROSPERO.	For critical analysis, the tools of the Joanna Briggs Institute were used.	Of the 942 articles found, 6 CCTs and one QES were selected. Different NLI (telehealth devices, remote video consultation, calls and email alerts) have demonstrated a significant decrease in BP (especially systolic BP) in the IGs. NLI also effect HTN awareness, self-efficacy, and self-control.	Useful: Yes NLI delivered remotely have a positive effect in lowering the BP of patients with HTN.

Citation	Quality Grade	Question	Search Strategy	Inclusion/Exclusion Criteria	Data Extraction and Analysis	Key Findings	Usefulness/Recommendation/Implications
						Positive effects on lowering cholesterol, consumption of fruits and vegetables, physical activity and adherence to medication were also described.	
Palmer, M. J., Machiyama, K., Woodd, S., Gubijev, A., Barnard, S., Russell, S., Perel, P., & Free, C. (2021). Mobile phone-based interventions for improving adherence to medication prescribed for the primary prevention of cardiovascular disease in adults.	A	To establish the effectiveness of interventions delivered by MP to improve adherence to medication prescribed for the primary prevention of CVD in adults.	Searched Central, Medline, Embase, and two other databases.	Searched two clinical trials registers on a later date. Searched reference lists of relevant papers. Applied no language or date restrictions. Included RCTs investigating interventions delivered wholly or partly by MP to improve adherence to cardiovascular medications prescribed for the primary prevention of CVD. Only included trials with a minimum of one-year follow-up in order that the outcome	Used standard methodological procedures recommended by Cochrane. The main outcomes of interest were objective measures of medication adherence BP and cholesterol, CVD events, and adverse events.	The 14 trials' 25,633 participants were randomly assigned. The study included community primary and secondary care participants. Interventions ranged from SMS-only to SMS plus other methods such as healthcare worker training, face-to-face counseling, computerized	Useful: No There is low-certainty evidence that mobile health-delivered treatments promote CVD medication adherence. BP self-monitoring with MP TM help showed minor advantages. LDL cholesterol decreased but BP did not in one low-risk experiment.

Citation	Quality Grade	Question	Search Strategy	Inclusion/Exclusion Criteria	Data Extraction and Analysis	Key Findings	Usefulness/Recommendation/Implications
<p><i>Cochrane Database of Systematic Reviews</i>, 3. https://doi.org/10.1002/14651858.CD012675.pub3.</p>				<p>measures related to longer-term, sustained medication adherence behaviors and outcomes. Eligible comparators were usual care or control groups receiving no MP-delivered component of the intervention.</p>		<p>pillboxes, written information, and home BP monitors. Some therapy focused on MA, while others stressed eating and exercising. Due to therapy and demographic heterogeneity, most data were given narratively except for two studies that were sufficiently similar pool in relevant meta-analyses.</p>	
<p>Stephen, C., Halcomb, E., Fernandez, R., McInnes, S., Batterham, M., & Zwar, N. (2022). Nurse-led</p>	<p>A</p>	<p>To evaluate the impact of general practice NLI for BP control and CVD risk factor reduction in</p>	<p>CINAHL, Medline and Scopus databases were searched to identify PRS published between 2000 and 2021. An SR of</p>	<p>Included RCTs evaluating therapies performed by RNs in primary care settings with the goal of lowering BP in persons with HTN. Outcomes such as blood pressure</p>	<p>The first author collected data on the intervention's components, delivery, follow-up, and outcomes. Summary tables were created using</p>	<p>GPN-led interventions are successful in lowering both systolic and diastolic BP in trials with follow-up</p>	<p>Usefulness: Yes This study identifies some evidence of improved outcomes with NLI for the</p>

Citation	Quality Grade	Question	Search Strategy	Inclusion/Exclusion Criteria	Data Extraction and Analysis	Key Findings	Usefulness/Recommendation/Implications
<p>interventions to manage hypertension in general practice: A systematic review and meta-analysis. <i>Journal of Advanced Nursing</i>, 78(5), 1281-1293. https://doi.org/10.1111/jan.15159</p>		<p>patients with HTN. SR and meta-analysis of RCTs.</p>	<p>RCTs was conducted using a structured search strategy</p>	<p>(BP) and cardiovascular disease (CVD) risk factors were of interest. NPs and cardiac nurses were excluded from studies. Trials on drug titration and dispensing were omitted, however RN educational and supportive medication management interventions were included.</p>	<p>the Cochrane Collaboration and Centre for Reviews and Dissemination as a guide. The meta-analysis included the trial arm with the most GPN contact.</p>	<p>durations of up to 6 months. The beneficial effect on systolic and diastolic BP was attenuated in the studies that had a follow-up period of more than 6 months.</p>	<p>reduction of CVD risk, which is consistent with previous research and the findings of other reviews of the literature.</p>
<p>Yu, M. C. D., Wu, X. V., Chan, E. Y., & Goh, Y. S. (2019). Nurse-led tele-coaching on modifiable cardiovascular risk factors in people with Type 2 Diabetes Mellitus: A systematic review and meta-analysis.</p>	<p>A</p>	<p>To evaluate the effectiveness of NLTC on the modifiable CVD risk factors like BP among individuals with type 2 diabetes mellitus.</p>	<p>Databases used are Cochrane Library, PubMed, Embase, Cumulative Index to Nursing and Allied Health Literature, Scopus, PsycINFO, Web of Science, & ProQuest Dissertations and Theses.</p>	<p>RCTs of NLTC for individuals with type 2 DM published in English up to October 30, 2018.</p>	<p>A meta-analysis was conducted for the primary outcomes of the studies.</p>	<p>12 RCTs were selected, which included 3,030 participants. Results from the meta-analysis revealed statistically significant reductions for systolic SBP. pooled mean difference = -2.22, 95% CI: -3.95 to -0.49, I2 = 0%, p <</p>	<p>Results from the meta-analyses have shown that NLTC is an effective and accessible intervention that could improve not only the glycemic control and SBP among individuals with type 2 DM.</p>

Citation	Quality Grade	Question	Search Strategy	Inclusion/Exclusion Criteria	Data Extraction and Analysis	Key Findings	Usefulness/Recommendation/Implications
<i>Worldviews on Evidence-Based Nursing</i> , 16(6), 424–432. https://doi.org/10.1111/wvn.12409						.01); such findings are supportive of the use of NLTC on the primary outcome.	

Legend: BP – blood pressure; CCT- controlled clinical trials; CVD – Cardiovascular Diseases; IGs - intervention groups; DM - Diabetes Mellitus; GPN - General practice nurses; LMIC - low- and middle-income countries; MA - Medication adherence; MP - mobile health; NLI - nurse-led interventions; NLTC - nurse-led tele-coaching; NPs - Nurse practitioners; PRS - peer-reviewed studies; QES - Quasi-experimental studies; RCTs - Randomized controlled trials; RNs: Registered Nurses; SMS - short messaging service; TH- Telehealth; THI – Telehealth Intervention; TM- Telemedicine; TMI – telemedicine intervention;

Appendix C

Project Schedule

	NUR7801								NUR7802								NUR7803							
Activity	Week 1	Week 3	Week 5	Week 7	Week 9	Week 11	Week 13	Week 15	Week 1	Week 3	Week 5	Week 7	Week 9	Week 11	Week 13	Week 15	Week 1	Week 3	Week 5	Week 7	Week 9	Week 11	Week 13	Week 15
Meet with preceptor	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Prepare project proposal	X	X	X	X	X	X	X	X																
Present project to preceptor for approval		X		X																				
Interview key stakeholders (Complete Care department manager, RN case managers, physician leader, pharmacy, health educator, IT, labor union steward)					X	X	X	X	X	X	X													
Assess organization's readiness to change using IHI Improvement Capability Assessment Tool							X	X																

Activity	NUR7801								NUR7802								NUR7803							
	Week 1	Week 3	Week 5	Week 7	Week 9	Week 11	Week 13	Week 15	Week 1	Week 3	Week 5	Week 7	Week 9	Week 11	Week 13	Week 15	Week 1	Week 3	Week 5	Week 7	Week 9	Week 11	Week 13	Week 15
(n.d.)																								
Create Gantt chart timeline						X																		
Obtain approvals from key stakeholders for project scope & budget								X																
Form interprofessional team										X	X													
Kickoff meeting with team and stakeholders											X													
Meet with department staff, including RN case managers, in staff in Complete Care department regarding project											X													
Meet with RN case managers regarding refining standardized documentation												X												

Activity	NUR7801								NUR7802								NUR7803							
	Week 1	Week 3	Week 5	Week 7	Week 9	Week 11	Week 13	Week 15	Week 1	Week 3	Week 5	Week 7	Week 9	Week 11	Week 13	Week 15	Week 1	Week 3	Week 5	Week 7	Week 9	Week 11	Week 13	Week 15
Gather data from EMR (baseline and project data)	X			X							X													
Project end date																X								
Analyze data and review outcomes with preceptor																				X	X			
Key Stakeholder final status update																						X		
Final team meet																						X		

Appendix D

Data Collection Tool for Evaluation

#	MRN	AGE	SEX	BP WK 0	BP WK 2	BP WK 4	BP WK 6	BP WK 8	MA Y/N	EX Y/N	DIET Y/N
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											

Legend: BP: Systolic and Diastolic Blood Pressure; MRN: Medical Record Number; MA: Medication Adherence (Yes: Y; No: N); EX: Exercise (Yes: Y; No: N); Diet: Diet Modification with low salt, low fat, more vegetables (Yes: Y; No: N)

Appendix E

SWOT Analysis

<p style="text-align: center;">Strengths</p> <ul style="list-style-type: none"> • Convenience and accessibility for patients who may not have the time or resources to attend in-person appointments. • Personalization to meet the individual needs and preferences of each patient. • Delivered by trained coaches. • Cost-effective management of BP compared to other HTN management strategies. 	<p style="text-align: center;">Weaknesses</p> <ul style="list-style-type: none"> • Difficulty adhering to the TCI if patients lack motivation or support. • Not appropriate for patients who have complex medical conditions or require in-person medical care. • Limited access to technology, cell phone, or internet connectivity.
<p style="text-align: center;">Opportunities</p> <ul style="list-style-type: none"> • TCI can be expanded to reach a larger population of patients who may not have access to traditional medical care or who prefer a more flexible approach to care. • Can be integrated with other healthcare services to provide a more comprehensive approach to care. 	<p style="text-align: center;">Threats</p> <ul style="list-style-type: none"> • Regulatory or legal barriers to implementing TCI, such as data privacy regulations or licensing requirements for coaches. • Competition from other HTN management strategies which could limit the adoption of the intervention.

<ul style="list-style-type: none">• Can be used to collect data on patient outcomes and inform future research and development in HTN management.	<ul style="list-style-type: none">• Lack of funding or resources available to support the ongoing operation and expansion of the intervention.
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Table 2*Everett Rogers' Five-Stage Change Theory*

1.	Knowledge:	<ul style="list-style-type: none"> • The first stage of the theory is knowledge, where individuals become aware of an innovation and its potential benefits. • In the TCI project, this stage can be addressed by providing information about the intervention to patients and healthcare providers, highlighting the evidence-based research supporting telehealth coaching for chronic disease management (Lu & Wu, 2019).
2.	Persuasion:	<ul style="list-style-type: none"> • The second stage is persuasion, where individuals become interested in innovation and seek more information. • In the TCI project, this stage can be addressed by providing patient testimonials, engaging healthcare providers in the implementation process, and highlighting the potential benefits of the intervention (Zhou et al., 2021).
3.	Decision:	<ul style="list-style-type: none"> • The third stage is decision, where individuals decide to adopt or reject the innovation. • In the telehealth coaching intervention project, this stage can be addressed by providing patient and healthcare provider education, addressing concerns or barriers to adoption, and providing ongoing support throughout the implementation process (Davis et al., 2018).
4.	Implementation:	<ul style="list-style-type: none"> • The fourth stage is implementation, where individuals begin to use the innovation. • In the TCI project, this stage can be addressed by providing training and support for healthcare providers, monitoring, and evaluating the intervention, and adjusting as needed to ensure effectiveness (Palacio et al., 2020).
5.	Confirmation:	<ul style="list-style-type: none"> • The final stage is confirmation, where individuals confirm their decision to continue using the innovation.

		<ul style="list-style-type: none">• In the TCI project, this stage can be addressed by providing ongoing support and reinforcement, collecting patient feedback and outcomes data, and disseminating the findings to healthcare providers and other stakeholders (Xu et al, 2020).
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Appendix F

Telehealth Coaching Checklist

#		Y	N	N/A
1	Weekly Due List with details available in hand before the call.			
2	Patient greeted with self-introduction; Inform that call is made on behalf of the provider/clinic.			
3	Brief the patient on the purpose of call (adherence/follow-up) & ask language preference of the patient			
4	Ask the patient if its right time to talk & if 10 -15mins (adherence) can be spared for follow-up.			
5	Reconfirm patients address/locality.			
6	Background information on Hypertension—Family History etc.			
7	Ask for the latest BP measurement at home & explain normal BP.			
8	Emphasize on harmful effects of uncontrolled blood pressure—physiological & financial.			
9	Importance of Medication Adherence (more emphasis during adherence call).			
10	Advice patient to follow-up with doctor if any side effects or discomfort			
11	Advice on Lifestyle Changes (must during adherence call / during follow-up only for uncontrolled BP patients)			
12	Exercise for at least 30 minutes a day- yoga or walk.			
13	Salt reduction: Not more than 1 teaspoon (<5mg) for the whole day including all meals			
14	If alcohol drinking or smoking is a part of daily lifestyle, it is best to stop or progressively reduce the behavior			
15	Remind the patient to return to follow-up on the date mentioned in the prescription/ID card given by doctor.			
16	Emphasize the importance of regular follow-up.			
17	Remind the patient to keep their upcoming appointment and to bring their ID card.			
18	Thank the patient for their valuable time.			

Appendix H

Variable Table

Measure	Type	Description	Data Source	Data Collection Method
<u>Outcome Measures</u>				
Blood pressure levels	Clinical outcome	The average systolic and diastolic blood pressure levels of patients	Patient records and self-reported BP during 2, 4, and 6 weeks of TCI	Manual measurement using a sphygmomanometer by patient during the TCI call.
Blood pressure control	Clinical outcome	The proportion of patients with blood pressure levels within recommended ranges	Patient records, self-reported log	Manual measurement using a sphygmomanometer and logging the results. Also, by a RN when in the office.
<u>Process Measures</u>				
Adherence to treatment	Process	The proportion of patients who adhere to the prescribed medication and lifestyle changes	Patient surveys	Self-reporting via surveys (Appendix G)
<u>Balancing Measures</u>				
Adverse events	Balancing	The number of adverse events associated with the intervention	Self-reported patient records	Review of reported events
Quality of life	Balancing	The impact of the intervention on patient quality of life	Self-reported patient records	Self-reporting

Measure	Type	Description	Data Source	Data Collection Method
<u>Financial Measures</u>				
Cost-effectiveness	Financial	The cost of the intervention compared to the benefits achieved	Healthcare facility records	Analysis of cost data and clinical outcomes
<u>Sustainability Measures</u>				
Long-term maintenance of blood pressure control	Sustainability	The proportion of patients who maintain blood pressure control over time	Patient records	Manual measurement using a sphygmomanometer at regular intervals

Appendix I

Results

Two-Tailed Paired Samples *t*-Test

Introduction

A two-tailed paired samples *t*-test was conducted to examine whether the mean difference of SBP_WK_0 and SBP_WK_6 was significantly different from zero.

Assumptions

Normality. A Shapiro-Wilk test was conducted to determine whether the differences in SBP_WK_0 and SBP_WK_6 could have been produced by a normal distribution (Razali & Wah, 2011). The results of the Shapiro-Wilk test were not significant based on an alpha value of .05, $W = 0.98$, $p = .937$. This result suggests the possibility that the differences in SBP_WK_0 and SBP_WK_6 were produced by a normal distribution cannot be ruled out, indicating the normality assumption is met.

Results

The result of the two-tailed paired samples *t*-test was significant based on an alpha value of .05, $t(8) = 8.92$, $p < .001$, indicating the null hypothesis can be rejected. This finding suggests the difference in the mean of SBP_WK_0 and the mean of SBP_WK_6 was significantly different from zero. The mean of SBP_WK_0 was significantly higher than the mean of SBP_WK_6. The results are presented in Table 1. A bar plot of the means is presented in Figure 1.

Table 1

*Two-Tailed Paired Samples *t*-Test for the Difference Between SBP_WK_0 and SBP_WK_6*

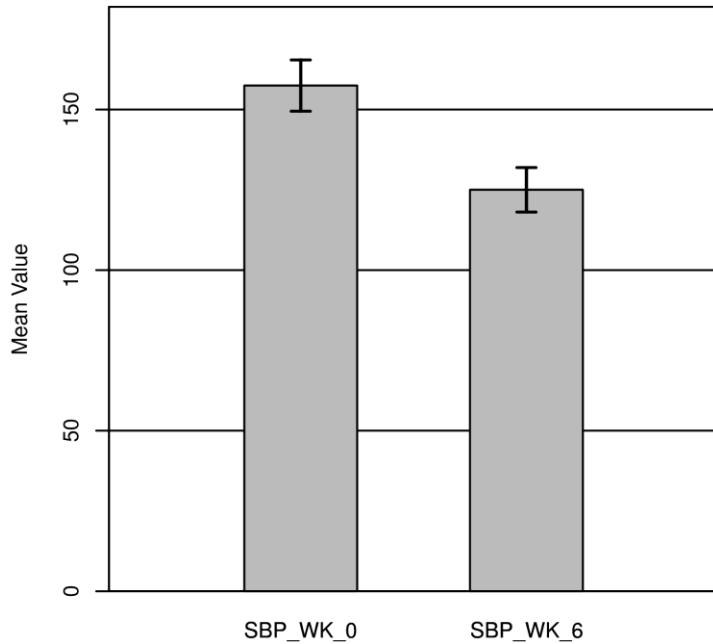
SBP_WK_0		SBP_WK_6		<i>t</i>	<i>p</i>	<i>d</i>
<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			

157.44	12.22	125.00	10.59	8.92	< .001	2.97
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Note. N = 9. Degrees of Freedom for the *t*-statistic = 8. *d* represents Cohen's *d*.

Figure 1

The means of SBP_WK_0 and SBP_WK_6 with 95.00% CI Error Bars



References

Intellectus Statistics [Online computer software]. (2023). *Intellectus Statistics*.

<https://analyze.intellectusstatistics.com/>

Razali, N. M., & Wah, Y. B. (2011). Power comparisons of Shapiro-Wilk, Kolmogorov-Smirnov, Lilliefors and Anderson-Darling tests. *Journal of Statistical Modeling and Analytics*, 2(1), 21-33.

Glossaries

Paired Samples *t*-Test

The paired (dependent) samples *t*-test is used to assess for significant differences between two scale variables that can be matched. Typically, the scale variables are matched by time (e.g. pretest vs. posttest), but the data can also be matched in other ways (e.g. husband vs. wife). The test uses the average difference between each pair of matched scores to compute the *t* statistic, which is used with the *df* to compute the *p*-value (i.e., significance level). A significant result indicates the observed test statistic would be unlikely under the null hypothesis. The dependent samples *t*-test assumes that the differences between pairs of matched scores are normally distributed (i.e., normality).

Paired Samples *t*-Test Formula:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{s/\sqrt{n}}$$

\bar{X}_1 = sample 1 mean

\bar{X}_2 = sample 2 mean

s = sample standard deviation

n = sample size

Cohen's *d*: Effect size for the *t*-test; determines the strength of the differences between the matched scores. The larger the effect size, the greater the differences in the matched scores.

Degrees of Freedom (*df*): Refers to the number of values used to compute a statistic. The *df* is determined by the number of observations in the sample and equal the number of observations - 1; used with *t* to compute the *p*-value.

Mean (*M*): The average value of a scale-level variable.

Normality: Refers to the distribution of the data. The assumption is that the data follows the bell-shaped curve.

***p*-value:** The probability of obtaining the observed results if the null hypothesis is true. A result is usually considered statistically significant if the *p*-value is $\leq .05$.

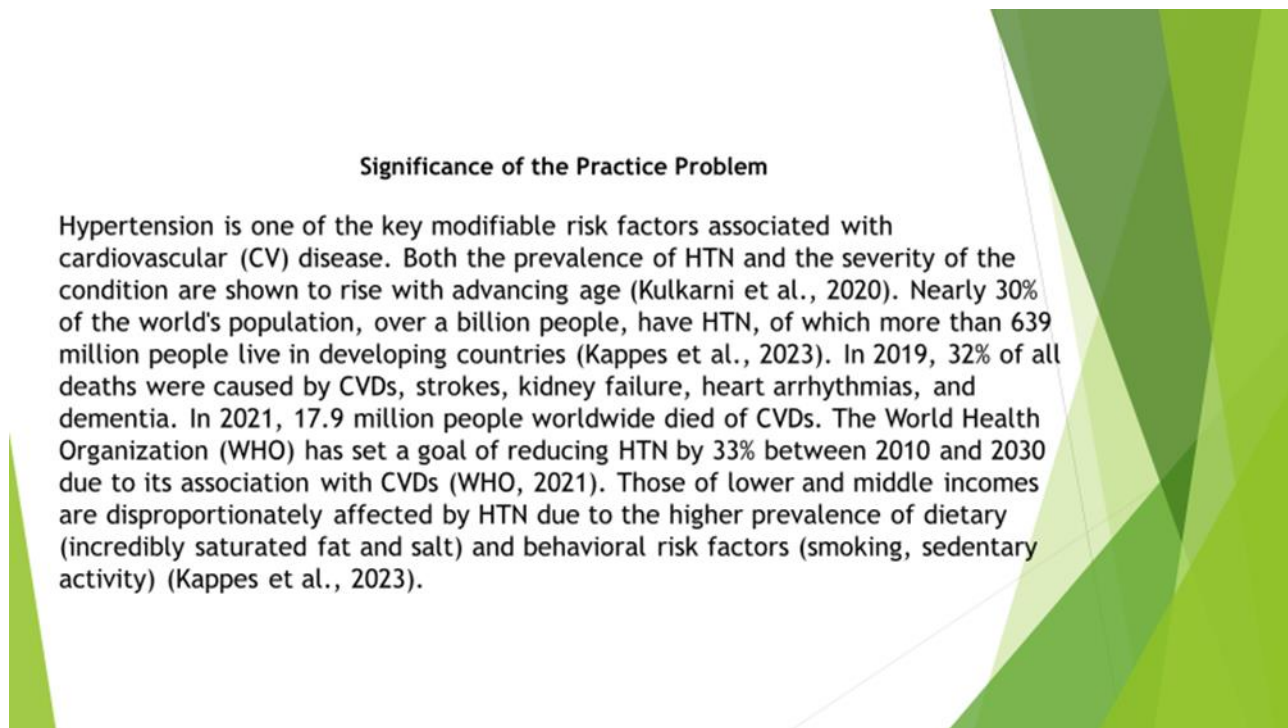
Shapiro-Wilk Test: A test to assess if the assumption of normality is met. If statistical significance is found in this test, the data is *not* normally distributed.

Standard Deviation (*SD*): The spread of the data around the mean of a scale-level variable.

***t*-Test Statistic (*t*):** Used with the *df* to determine the *p* value.

Appendix J

Teaching Nurses: Power Point Slides



PICOT Question

The PICOT question that guides this DNP Project is: In the primary care setting, in older adults > 65 years with blood pressure > 140/90 (P), does weekly telehealth coaching (I) compared to no telehealth coaching (C), decrease their blood pressure (O) over an 8-week period (T)?

Population: The DNP project will be conducted at a VA hospital primary care clinic in Tampa, VA. It has been identified that HTN is a significant clinical problem among adult veterans. This project aims to implement EBP intervention to identify patients > 65 years who have BP > 140/90 for three or more consecutive months.

Intervention: The TCI consists of receiving a call from a nurse who will follow the supervisory checklist for making the telehealth calls. The nurse will instruct the patients about lifestyle management, significance of monitoring their BP at least 2 to 3 times per week and keeping a BP log, explain the complications of uncontrolled BP, and persuade them to see the practitioner regularly (Kannure et al., 2021).

PICOT QUESTION CONTD.

Comparison: This DNP project will use information from evidence-based research to implement the intervention to achieve similar outcomes. Many studies show that hypertensive patients who received TCI and subsequent office visits had significantly better self-management of their condition and BP compared to patients who received no telehealth coaching at all (Kim, 2019).

Outcome: This project, through TCI, aims to improve self-management of patients' high BP by adherence to drug treatment, BP monitoring, keeping up with their appointments, and changing their lifestyle to reduce BP at the end of the 8-week study period (Kes & Polat, 2021).

Time: This project will be conducted over 8 weeks. Several studies show that TCI for 8 to 12 weeks improved patients' BP (Odemelam et al., 2020).

Themes with Practice Recommendations

The selected studies show blood pressure as the primary outcome for the nurse led telehealth coaching intervention. To answer the PICOT question, of the ten articles appraised, synthesis of literature comprised of only eight articles that show telehealth coaching to be an effective intervention in decreasing blood pressure in the elderly and are as follows: One quasi experimental study (Kannure et al., 2021); two randomized control trials (Kes and Polat, 2021; Kim, 2019); one quality improvement study (Odemelam et al., 2020); and four systematic reviews (Hoffer Hawlik et al., 2021; Kappes et al., 2023; Stephen et al., 2022; and Yu et al., 2019).

The four themes identified from the synthesis of literature are: 1). Prevalence of Blood Pressure Control; 2). Medication Adherence; 3). Knowledge of BP Self - Management and Self-Efficacy; and 4). Knowledge of the Prevention of Risk Factors of HTN.

Implementation Plan with Timeline and Budget

It is crucial for the DNP project to have implementation plans that are evidence-based, comprehensive, and tailored to the specific context and target population. With a well-designed implementation plan in place, the telehealth coaching intervention project can increase the likelihood of successful implementation and improve health outcomes for patients with chronic diseases. It provides a roadmap for the implementation team, outlines timelines and resources needed, and ensures that all aspects of the intervention are executed consistently and efficiently (Tabak et al., 2018).

Evaluation Plan

The DNP project will be implemented at VAHPCC in Tampa where the veterans are provided the necessary outpatient care. The current quality indicator scores for BP control at this setting are low and through this evidence-based TCI the DNP project hopes to improve BP among the identified patients. The variables or measures such as Outcome: BP levels and control; Process: Adherence to treatment; Balancing: Adverse events and quality of life; Financial: Cost-effectiveness; and Sustainability: Long-term maintenance of blood pressure control are discussed in Appendix H.

Dissemination Plan

Dissemination Plan

The results of the project will initially be discussed with the preceptor as well as the clinic manager. After that, the findings of the project will be given to the leaders of the VAHPCC as well as the other members of the interprofessional team that participated in the DNP project, and other nursing staff. Posters, emails, and a presentation using power point will be used to spread the information, which will include an explanation of the project's goals, interventions, results, tools utilized, and recommendations.

Conclusion

This DNP project aims to implement telephone coaching intervention (an evidence-based change) in older adults > 65 years of age with high BP > 140/90 in the primary care setting and evaluate the effectiveness of the intervention in an 8-week period. The TCI aims to improve self-management of patients' high BP by adherence to drug treatment, BP monitoring, keeping up with their appointments, and changing their lifestyle to reduce BP at the end of the 8-week study period. The JHNEBP framework will be utilized to help ensure that the latest research and best practices are seamlessly integrated into everyday patient care. The JHNEBP framework will be used to guide the analysis of data, implementation of the intervention, assessment, and dissemination of the results. The change theory that will be used to guide the project is Rogers' theory as it provides a framework for understanding the factors that encourage the spread of a new intervention and the techniques that facilitate this process.

Conclusion Contd.

Evidence yielded from the synthesis of all eight articles significantly support telehealth coaching intervention as an accessible and sustainable intervention to improve blood pressure which is the primary outcome expected. Other outcomes or benefits of telehealth coaching include medication adherence, knowledge of BP self-management and self-efficacy, and knowledge of the prevention of risk factors of HTN. Self-management behaviors such as eating a healthy diet, maintaining a healthy weight, and engaging in regular physical activity are recommended for the treatment of HTN according to JNC8.