

THE EFFECTS OF ART THERAPY ON HYPERTENSION  
IN BLACK AMERICAN WOMEN

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## ABSTRACT

70 million Americans have hypertension affecting one out of three Americans. Heart disease was the leading cause of death in America in 2015. The American Heart Association published an algorithm for implementing alternative approaches to treating hypertension. Creative art therapy was not included. Art therapy blends the therapeutic process of psychotherapy with the art of painting, drawing and sculpture to help express emotions and beliefs that are too difficult to convey in verbal and written communication.

The health belief model is a framework that examines why people do not follow the recommendations of health care providers due to real and perceived barriers. The process of art therapy may allow one to express and understand feelings that are influencing their beliefs, which are creating barriers to making lifestyle modifications to manage hypertension.

The purpose of this pilot study was to investigate the effects of creative art therapy on hypertension. A descriptive pilot study investigating the feasibility of conducting a single group, pretest-posttest study, determining the effects of art therapy on hypertension was conducted. Participants were hypertensive, urban, black American women recruited from a Faith Community Nurse program. Blood pressures were read before and after eight, one-hour art therapy sessions in a church hall, and at four weeks following completion. Participants completed questionnaires about the experience.

The sample size was seven and a Wilcoxon Signed Ranks Test was utilized for the analysis, which determined that art therapy made no statistically significant change in blood

pressure. A linear regression analysis of the sum of blood pressure changes in all seven participants found a cumulative trend of lower blood pressures as a result of art therapy. The sample size was too small to draw any inferences. This concludes that the trend of lower blood pressure as a result of creative art therapy warrants further research.

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## Introduction

Each human body has a unique genetic code that influences what disease the body may or may not acquire throughout the lifespan (Gunder, 2011). There are contributing factors to the disease process that an individual can control that can increase or decrease one's chances of developing the disease embedded in their genetic code (Gunder, 2011). Contributing factors that increase one's risk of developing high blood pressure are diets high in fat and salt, obesity and sedentary lifestyles that lead to a lack of exercise, non-adherence to medication regimes, and stressful lifestyles (Flack, Sica, Brown, Fernidnand, Grimm, Hall, and Lea, 2010). Health care providers follow national guidelines set by organizations such as The American Heart Association that recommend low fat and low salt diets, daily exercise, weight management, and medication adherence to manage HTN. Even with this guidance from healthcare providers, patients often do not follow the recommended lifestyle changes in regards to diet, exercise and medication adherence (Flack et al., 2010).

The Health Belief Model is a framework used to explain why individuals do not follow medical recommendations (Rosenstock, Strecher and Becker, 1988). A person may understand they have HTN, and know it is serious, and even think they will benefit from following medical advice, however they still do not take action to make lifestyle changes (Rosenstock et al., 1988). This can be due to real barriers such as the cost of medication, living in a food desert, or living in a high crime area (Rosenstock et al., 1988). Many people do not face these barriers and they still do not change. People do not change because they have perceived barriers based on one's inner beliefs that prevent

them from believing that they can change (Hall, 2006). In order to control HTN and change one's lifestyle, one needs to understand their inner beliefs (Hall, 2006).

The American Heart Association defines HTN, also referred to as high blood pressure, as a systolic pressure above 130 mmHg and a diastolic pressure above 80 mmHg, sustained over a prolonged period of time (AHA, 2017). Medical therapies such as pacemakers and automatic implantable cardioverter-defibrillators, new pharmacologic therapies, as well as diet and exercise are all used to manage hypertension (Flack, et al., 2010). For some patients, even the combination of all of these therapies is not enough to control blood pressure (Flack et al., 2010). Healing the heart by lowering blood pressure requires taking care of the whole person and that means taking care of the body, mind, and the spirit. In order to do this in the most ethical manner, therapies that treat more than the physiological aspects of a person must be based on scientific evidence demonstrating they have the potential to improve health care outcomes.

In 1998, the growing acceptance and use of complementary alternative medicine (CAM) in the United States prompted the National Institute of Health to develop the National Center for Complementary Medicine (NCCAM) to conduct and disseminate rigorous research on CAM (Synder and Lindquist, 2016). The NCCAM has identified five areas of CAM: alternative medical systems, mind-body interventions, biologically based treatments, manipulative and body-based methods and energy therapies (Synder and Lindquist, 2016). CAM is a diverse field that includes creative art therapy, music therapy, dance therapy, acupuncture, massage, hypnosis, meditation, Chinese medicine, and Ayurvedic medicine (Synder and Lindquist, 2016). Many American providers question the benefits of these practices that stray from accepted medical and surgical

therapies practiced in western countries (Gopalan, 2015). The increasing use of CAM by the public should motivate the western medical community to begin investigating the effectiveness of CAM therapies (Gopalan, 2015; Synder and Lindquist, 2016).

Creative art therapy (CAT) is one form of CAM that is grounded in the psychology of human development theory and blends the therapeutic process of psychotherapy with the creative processes of painting, drawing, and sculpture to bring healing, hope, and meaning to the lives of patients (Anand, 2016; Malchiodi, 2013). Creating art is an effective form of communication that can be felt, seen, and heard when expressing beliefs and emotions that are difficult to convey in written or verbal communication (Anand, 2016; Johnson and Sullivan-Marx, 2006; Malchiodi, 2013).

CAT is being used in the clinical setting of Veteran's Administration clinics to treat soldiers with post-traumatic stress disorder (PTSD) (Anand, 2016; Collie, Backos, Malchiodi, and Spiegel, 2006). CAT is also used in cancer centers to improve the quality of life for patients and to decrease anxiety, depression, and fatigue (Wood, Molassiotos, and Payne, 2009). Art therapy is also being used in Europe to improve outcomes in chronic disease management (Hamre, Klien, Ziegler, Troger, Meinecke, Schnurer and Glockmann, 2014). The initial investigation of the use of art therapy to control hypertension (HTN) has not identified sound evidence that art therapy can impact HTN.

The purpose of this Doctorate of Nursing Practice project was to examine the effects of art therapy on hypertension in black American women using the framework of the Health Belief Model. By allowing individuals the opportunity to examine their feelings through art therapy, they may be able to achieve greater self-awareness and act on beliefs that are creating barriers to control their hypertension.

This project is divided into five chapters. Chapter One describes and provides the background of the problem and why it is significant, completes an organizational needs assessment, presents the research question and describes the theoretical framework. It explains the evidence-based model of implementation and includes a definition of terms. Chapter Two is a review of the literature addressing the use of art therapy in the treatment of chronic disease, and includes a critique and synthesis of previous evidence, and presents the rationale for the project.

Chapter Three of this project is the methods section identifying the design and implementation plan. It includes the design, potential sponsors, a marketing and business plan, the human subjects review, the target population, the instruments and tools required to complete the study, the outcome measurements and the data analysis plan. Chapter Four is the presentation and the evaluation of the results with an analysis of the data and a summary of the findings and the outcomes. The Fifth and final chapter is the discussion and conclusions of the findings, the identification of any limitations, implications for practice, education, research and policy, and recommendations for practice and for further study. Following the fifth chapter are the references and appendices.

## **Chapter I: Making Connections**

### **Description and Statement of the Problem**

The International Society on Hypertension in Blacks (ISHIB) has identified the critical need to find improved therapies for treating HTN in black Americans and has published guidelines for the management of HTN in black Americans (Flack et al., 2010). The guidelines were created to help providers improve HTN outcomes because clinics that serve populations of primarily black Americans have a greater number of patients with uncontrolled HTN than those with populations of Caucasian and Hispanic patients (Bosworth, Powers, Grubber, Thorpe, Olsen, Orr and Oddone, 2008; Brook, Appel, Rubenfire, Ogedegbe, Bisognona, Elliot...Hughes, 2013; Flack et al., 2010). The relative risk of stroke is more than twice as high in hypertensive blacks aged 45-64 years as compared to hypertensive whites and Hispanics of the same age (Brook et al., 2013). In the United States, 43% of black American men and 45.7% of black American women are hypertensive and develop it at an earlier age than Hispanic and white Americans (CDC, 2015). Innovative methods to enhance screening, treatment therapies, and patient education may increase HTN control in black Americans and improve racial equity in HTN control (Flack et al., 2010).

Non-physiological factors can be connected to poor blood pressure (BP) control. High levels of stress, self-reported medication non-adherence, anxiety, depression, as well as the diagnosis of HTN leads to less than therapeutic BP control (Flack et al., 2010). Blacks tend to have little confidence or trust in the health care system and have reported delaying treatment due to prior episodes of discrimination when seeking health

care (Armstrong, Putt, Grande, Schwartz, Liao, and Shea, 2013; Flack et al., 2010). Once a black patient is in a clinic, the provider demographics and cultural competency affect patient satisfaction and adherence to treatment recommendations (Armstrong et al., 2013; Flack et al., 2010). Black patients receiving care from a black provider were more likely to rate the provider as excellent and report they had all their concerns addressed that year (Flack et al., 2010; Sanon, Mohammed, and McCullagh, 2014).

There are physiological theories to explain the prevalence of the earlier onset and greater pressure-related organ injury of HTN in blacks in comparison to whites. (Din-Dzietham, Couper, Evans, and Arnett, 2004; Heffernan, Jae, Wilnund, Woods, and Fernall, 2008). Even when blood pressure is normal, blacks have more micro-vascular and macro-vascular structural and functional abnormalities than whites (Din-Dzietham et al., 2004; Heffernan et al., 2008). These abnormalities contribute to the impairment of both the endothelium dependent and endothelium independent vascular function (Stein, Lang, Singh, He, and Wood, 2000). Functional abnormalities that occur in blacks include a greater stiffness of the large central arteries including a lesser capacity of resistance vessels to dilate in response to vasodilatory stimuli (Din-Dzietham et al., 2004; Stein et al., 2000). Heffernan found higher carotid and central aortic pressures, greater carotid intima-media thickness, and stiffer carotid vasculature in young, normotensive, healthy blacks compared with whites (Heffernan et al., 2008).

All the factors that make treating HTN more challenging in the black American patient validate the efforts to find adjunct therapies that are acceptable to this population for the management of HTN. These are the reasons why the effects of art therapy on blood pressure should be investigated.

## **Background and Significance of the Problem**

One out of three Americans has HTN (“CDC”, 2016). According to The Centers for Disease Control, heart disease was the leading cause of death in the United States (US) in 2015 resulting in 614,348 deaths (“CDC”, 2016). In 2010, the US spent 42.9 billion dollars treating HTN costing \$733.00 per year, per hypertensive person (“AHRQ”, 2016). In 2011 the total costs associated with treating HTN in the US, including health care services, medications and missed days of work was \$46 billion (“CDC”, 2016). Identifying and treating modifiable risk factors of HTN is important for the improvement of public health and welfare as well as decreasing the financial burden it places on public and private organizations (Getzen, 2013).

The current practice of treating HTN with diet, exercise and medicine is not adequately controlling the disease that effects one third of the US population (Flack et al., 2010). For these reasons The American Heart Association (AHA) sees value in CAM (Brook et al., 2013). The AHA published an algorithm for implementing alternative approaches to treating hypertension in 2013 based upon a review of 1,003 studies evaluating behavioral therapies, noninvasive procedures and devices, and exercise regimens (Brook, et al., 2013). Behavioral therapies included transcendental meditation, progressive relaxation, and deep breathing (Brook, et al., 2013). Devices used were biofeedback, galvanic skin response, electromyographic activity and device guided slow breathing (Brook, et al., 2013). Aerobic and resistance exercised based regimens lowered blood pressure (Brook, et al., 2013). There have been studies demonstrating improved outcomes in chronic disease when art therapy is used as an adjunct treatment (Beebe,

Gelfand, and Bender, 2010; Hamre et al., 2014; Opher, 2011) yet it was not included in the recommended guidelines for HTN treatment.

Despite following the guidelines for the treatment of HTN, the primary care providers in an American urban clinic in the southeastern United States still have difficulty in treating patients with hypertension (H. Kadivar, personal communication, 12/6/2016). This is reflected at an urban clinic that has a Gap Care Index of 11.28 per member based on the Verisk Health Medical Intelligence Population Dashboard-Summary. Versisk is a cloud-based, medical intelligence analytical software tool that aggregates and standardizes the raw data the organization receives from their at-risk health insurance partners in regards to the treatment outcomes of HTN (C. Shannon, personal communication, 11/8/2016).

The neighborhood of this urban clinic has a crime rate that is twice the national average making it the highest crime rate in the metropolitan area (st.pete.org, 2016). It is unsafe for patients to go outside and walk or exercise to help lower blood pressure (H. Kadivar, personal communication, 12/6/2016). During office visits with patients who return to the clinic after being hospitalized for elevated blood pressure or a stroke, these patients have frequently experienced an emotional event, such as the loss of a job, having a child involved in a crime, having been a victim of crime, which has precipitated the rise in blood pressure (H. Kadivar, personal communication, 12/6/2016). Lifestyle changes that include a low fat diet, daily exercise, group support, and stress management can improve and even reverse cardiovascular disease and they are included in the ISHIB guidelines (Flack et al., 2010).

Art therapy done in groups provides a unique environment where people can engage in the creative process to facilitate communication and manage beliefs and emotions (Anand, 2016; Johnson and Sullivan-Marx, 2006). It offers a social connection. In creating art, one has an opportunity to have control over what they do and make choices about what they create (Anand, 2016; Malchiodi, 2013). This is a sharp contrast to dealing with a chronic disease where one cannot control what medications they must take or other physical changes that occur as a result of the disease process (Anand, 2016). Art therapy provides an opportunity for improvement in physical and mental health, and serves as a vehicle for nonverbal expression (Johnson and Sullivan-Marx, 2006). Three hundred senior citizens participated in a study where one group had art therapy and were compared to a control group that did not have art therapy (Cohen, 2005). The group who participated in art therapy made fewer visits to the doctor, fell less often, used less medications, and were less likely to be depressed and had an increased sense of well-being (Cohen, 2005).

### **Theoretical Framework**

Primary care providers instruct and use verbal persuasion with hypertensive patients concerning lifestyle modifications including diet, medication adherence, exercise, and stress management. Providers expect that the patient will go home with the new found knowledge and be compliant with the recommendations. The Health Belief Model is a framework used to examine health behaviors and possible reasons why patients do not follow the recommendations made by their health care providers. It encompasses the concepts of perceived seriousness, perceived susceptibility, perceived

benefits, perceived and real barriers, cues to action, motivating factors and self-efficacy (Rosenstock, Strecher and Becker, 1988).

The *perceived seriousness* of HTN varies from patient to patient. Those who are experiencing symptoms often do see the seriousness of HTN (Dieujuste, 2016; Flack, 2010, Rosenstock et al., 1988). Some people who have no symptoms are usually not as compliant with their medications and have the erroneous belief that HTN is not serious (Flack et al., 2010). The patients in this black American community do verbalize to their primary care providers that they feel they are susceptible to HTN because many of them have family members who have HTN (H. Kadivar, personal communication, 12/6/2016).

They *believe* they will *benefit* from medication, diet and exercise because they come to regularly scheduled visits and discuss the needed treatment plan, however many do not follow the recommendations (H. Kadivar, personal communication, 12/6/2016).

*There are perceived and real barriers* to managing hypertension. *Perceived barriers* were evident in the work of a team of researchers lead by Ogedegbe in 2004. Ogedegbe interviewed 93 black Americans with HTN and asked them open-ended questions during ambulatory care visits (Ogedegbe, Manucuso, and Allegrante, 2004). It was found that 38% believed that HTN could be cured, 38% believed that taking antihypertensive medication was not a lifelong treatment, and 23% believed antihypertensive medications were only needed when experiencing symptoms (Ogedegbe, et al., 2004). What compounds this misinformation and creates another *real barrier* is that many do not utilize preventative health care due to distrust of the system, and prior experiences of discrimination from healthcare providers (Dieujuste, 2016; Flack, 2010). These attitudes result in people waiting to get health care until they

experience cues to take action, which may be too late and lead to irreversible heart damage (Dieujuste, 2016).

*Other real barriers* for them are that exercise such as walking in the neighborhood is difficult due to crime, medications are expensive, and affordable food that is healthy is more expensive than pasta and fast foods that are cheap and lack nutritional value. There are some patients who do not have these financial and safety barriers and still do not follow recommended treatment plans (H. Kadivar, personal communication, 12/6/2016).

*Cues to action*, which will drive them to seek out care are a migraine, and the sensation that their heart is pounding, chest pain, or when they or a loved one has a stroke (Flack, 2010; H. Kadivar, personal communication, 12/6/2016).

Self-efficacy is a generalized concept about the ability of oneself to competently react in specific settings (Rosenstock et al, 1988). When chronic illness occurs a patient may experience a loss of control, which may alter one's beliefs in their abilities to cope in certain situations (Anand, 2016). Beliefs leading to self-doubt and anxiety or depression about one's ability to cope and function like they did before they became ill, can have a detrimental effect on self-efficacy and can prevent them from successfully managing their BP (Hall, 2006; Rosenstock et al, 1988).

People internalize many beliefs and to bring about change they must understand where the beliefs came from (Hall, 2006). There are five categories of beliefs (Hall, 2006). Core beliefs, are our deepest convictions (Hall, 2006). Cultural beliefs are those one grows up with that come from family, neighbors, religious institutions and any organization or people one identifies with. Hand-me-down beliefs usually come from

parents and grandparents during childhood, for example, “ No one in our family is good at math” (Hall, 2006). There are advertised beliefs, which are beliefs heard over and over again that often comes from the media (Hall, 2006). Beliefs can be deep rooted and can create emotions that are barriers to change (Hall, 2006).

Emotions such as anxiety and depression can be a link between one’s beliefs and how they conduct their life (Hall, 2006). When a belief is not accepted, or well matched in a particular set of circumstances, then it becomes a problem and can trigger dysfunctional emotions like anxiety and depression (Hall, 2006). Anxiety and depression are associated with poorer outcomes, and increased mortality in hypertensive patients (Pan, Cai, Cheg, Dong, An, and Yan 2015). If a belief can be identified and understood, it can then be changed and dysfunctional beliefs that cause anxiety and depression can be overcome and lead to improved HTN management (Hall, 2006; Tolle, 2006).

Lifestyle changes required to manage HTN can be overwhelming and the beliefs associated with it can be difficult to express in verbal or written communication (Anand, 2016). With no ability to verbalize these internal beliefs, patients cannot explain or understand why they are not following recommendations. They may not realize that they have these beliefs (Anand, 2016). Art therapy can help patients express what they are feeling and understand the beliefs and emotions that create barriers that prevent them from attaining self-efficacy (Anand, 2016). In participating in art therapy, patients gain an understanding of their beliefs and learn new skills that provide them with confidence to attempt new tasks such as lifestyle behaviors that will improve their HTN (Anand, 2016).

## **Evidence-Based Practice Model of Implementation**

The Iowa model of evidence based practice and research was used to conduct this project. It uses a seven step, problem-solving approach in the investigative process and is frequently used in nursing research (Melnyk and Fineout-Overholt, 2011). When using the Iowa model of evidence-based practice, nursing clinicians identify practice questions by first identifying a clinical problem, or they identify new knowledge that can be applied in their practice (Melnyk and Finout-Overholt, 2011). In this study a problem trigger for the topic is that black American patients in urban settings have uncontrolled HTN more often than white or Hispanic patients even while being prescribed recommended medications.

The second step was the formation of a team, which included two Georgetown mentors, a licensed art therapist, a PhD in art therapy, and a Georgetown librarian. The team leader conducted the third step of evidence retrieval. A critique and synthesis of existing research found that no research on the effects of art therapy on HTN had been published. The identification of this knowledge gap warranted the conduction of a pilot study to analyze the feasibility of a larger study on the effects of art therapy on HTN.

## **Organizational Needs Assessment**

Health care organizations get evaluated based on the National Committee for Quality Assurance (NCQA) Healthcare Effectiveness Data Information Set (HEDIS) guidelines, which are published to give patients and insurance companies a way to evaluate the quality of care that a particular organization provides ("NCQA," 2017). One of the HEDIS points measured is whether or not hypertension is well controlled. It is beneficial for the health care organizations in this community to offer every therapy

possible to decrease HTN in order to improve the quality of care and achieve a higher HEDIS rating, which will lead to increased funding ("NCQA," 2017). These funds will allow organizations to increase services offered to their community to improve public health (Getzen, 2013).

Nurse practitioners pride themselves on delivering evidence-based health care and they provide holistic care to their patients (Melnik and Fineout-Overholt, 2011).

Understanding the scientific effects of the emerging discipline of art therapy will allow providers to either accept art therapy as a valuable practice, or look for other opportunities to improve outcomes of HTN treatment (Melnik and Fineout-Overholt, 2011).

### **The Setting and Participants**

The urban setting for this DNP project is an urban, black American community in the southeast United States where patients live in a high crime area and are financially challenged. The art therapy sessions will take place in a local church hall.

### **Benefits of the Project**

There is a willingness from art therapists in the community to conduct scientific studies demonstrating that art therapy can improve medical outcomes like HTN (T. Van Lith, personal communication, 10/13/2016). Primary care providers welcome the assistance of art therapists in treating mental health needs that effect chronic diseases because there is a shortage of mental health care providers (H. Kadivar, personal communication, 12/6/2016). The stakeholders that benefit from improved outcomes are first and foremost the patients with HTN who will improve their quality of life and lower their risk of developing dangerous side effects from an elevated BP (Brook et al., 2013).

Local health care organizations will benefit from improved blood pressures because patients who they provide care for will not develop secondary complications from HTN, which drive up the cost of health care (Brook et al., 2013; Getzen, 2013). Organizations will benefit because they will be reimbursed at a higher rate when HTN treatment goals are met (Pan et al., 2015). All the organizations that fund health care, such as Medicare, insurance companies, health maintenance organizations (HMO's), federal and state agencies, as well as patients, are stakeholders who will benefit from lower health care costs associated with improved blood pressure control (Brook et al., 2013; Getzen, 2013).

### **Overcoming Barriers to Project Implementation**

Barriers often exist in the implementation of change (LoBiondo-Wood and Haber, 2010; Schein, 2010). The greatest barrier to this DNP project was that there was a change in the leadership of the organization where the lead investigator was getting the most support. The newly appointed legal department refused to allow the study to take place on any company site and refused to allow participants to be recruited from their organization. This required the project leader find an alternative site for the project and readjust the organizational structure of the project. It also made recruiting participants much more difficult.

Several local churches were contacted and one church granted permission to conduct the art therapy sessions in a church hall. The church participates in the Faith Community Nursing Program associated with the local Catholic Hospital. There are three parish nurses at the church, and one Sunday a month they have BP screenings for the parishioners. The nurses volunteered to inform their patients of the study and they

distributed flyers with the study information available to their patients in the church hall. The church provided the hall for free.

Barriers to overcome in the implementation of the project also included the cultural attitudes of the community that is made up of African and Caribbean Americans, which according to the literature reviewed, have similar attitudes towards health care (Dieujuste, 2016; Flack et al., 2010; Sanon, Mohammed, and McCullagh, 2014). Both distrust the healthcare system and report experiences of discrimination, which prevent them from seeking treatment (Dieujuste, 2016; Flack et al., 2010; Sanon et al., 2014). This could make possible participants wary of participating in the study. For this reason, the parish nurses who are trusted by the community were important to promote participation in the study (Sanon et al., 2014).

### **Research Question (PICOT)**

In health care there are often questions that arise from clinical situations for which there are no obvious answers (Melnyk and Fineout-Overholt, 2011). In order to formulate a clinical question during the search for information, the nursing profession most often uses five components, which are population, intervention, comparison, outcome, and time (PICOT) (Melnyk and Fineout-Overholt, 2011).

The PICOT question is: In hypertensive black American women (P), what is the effect of art therapy (I), on hypertension (O), before (C), and after eight art therapy sessions, and at four weeks after the therapy sessions (T). The “P” stands for population and in this project it is hypertensive, black American women. The “I” is the intervention, which will be art therapy sessions. “C” represents the comparison of the baseline results of the effects of art therapy on hypertension measurements before and after art therapy

sessions, and at a four-week follow up. “O” stands for outcomes, which will be changes in blood pressure readings. “T” factors in the timeframe of the intervention analysis. The time factor will be 12 weeks.

### **Definition of Terms**

The following is an explanation of the terms used to describe the various therapies associated with creative art therapy and terms used for the literature review.

Hypertension (HTN) indicating a blood pressure over 130/80 (“AHA” 2017; Wheaton & Carey, 2017).

Creative art therapy, CAT, incorporates music therapy, visual art therapy, dance therapy and writing/journaling therapy (Malchiodi, 2013). CAT blends the therapeutic process of psychology and the creative process of producing art (Malchiodi, 2013).

Art therapists, unlike artists who are trained in art, licensed art therapists have additional education and training in developmental theory, psychology, current research, and are able to combine the therapeutic process with the creative process to facilitate communication and promote healing (Johnson and Sullivan-Marx, 2006).

Complementary alternative medicine (CAM) encompasses alternative medical systems, mind-body interventions, biologically based treatments, manipulative and body-based methods and energy therapies (Malchiodi, 2013).

Integrative medicine conveys that care incorporates both biomedical and complementary therapies and both are used as adjunct therapies in the treatment of disease (Gopalan, 2015; Synder and Lindquist, 2001).

Chronic disease or chronic illness is a disease lasting three months or more and cannot be prevented by vaccines, or cured by medication, nor do they disappear (Buttaro, Trybulski, Bailey, and Sanberg-Cook, 2013).

Anthroposophic medicine is grounded in a contemplative method of health care where an imbalance of one's health results in illness. Therapies that provide resilience and strength even in times of stress improve one's health. Anthroposophic practitioners use allopathic medicines, homeopathics, herbs, and other remedies from nature. They may refer patients for holistic nursing care, movement therapies, art therapies, massage therapy, dance/movement therapy, and music therapy (Hamre et al., 2014).

### **Conclusion of Chapter I**

The background of the implications of hypertension within the black American community has been explored in Chapter One. Health care organizations must find alternative ways to improve hypertension outcomes for every patient they serve. CAM is one method that can be used to treat hypertension and the AHA has added it to the algorithm for the treatment of hypertension, however, it did not include creative art therapy ("AHA", 2015; Wheaton & Carey, 2017). This leads to the PICOT question: In hypertensive black American women, what is the effect of art therapy on hypertension before and after eight art therapy sessions, and at four weeks after the therapy sessions?

Chapter one of this paper used The Iowa model of evidence-based practice as the basis of this investigation into the best application of scientific data. It identified a knowledge trigger that warranted a literature review. This lead to the development of a team to investigate and synthesize the knowledge that exists to see if art therapy improves hypertension. According to the Iowa model, if scientific evidence exists that hypertension

is improved with the use of art therapy, then art therapy should be implemented into the standard of care. If a knowledge gap exists, then a pilot study will be conducted to investigate the effects of art therapy on hypertension.

As in the Health Beliefs Model, patients must perceive that uncontrolled hypertension has serious health risks and they need to believe that they will benefit from provider recommended treatments. Utilizing art therapy to treat HTN will theoretically empower patients to identify and understand their beliefs and feelings associated with living with HTN (Anand, 2016; Malchiodi, 2013). This understanding will enable them to develop the confidence required to make lifestyle changes and manage their disease before cues to action occur such as chest pain or shortness of breath (Anand, 2016; Malchiodi, 2013).

The last section of Chapter One is a definition of terms to clarify the topics addressed and to improve one's synthesis of the data. A robust review of the literature that investigated the effects of art therapy on HTN was completed by the research team. The findings of the literature review will be addressed in Chapter Two.

## **Chapter II: Review of the Literature**

### **Introduction to Search Criteria**

A review of the literature was conducted to find evidence that art therapy effects HTN. An online search including abstracts and full articles of the literature was performed. The inclusion criteria were articles from 2000-2017 written in English, searching in Pub Med, OVID, CINAHL, and assistance by the Georgetown University librarian to locate information on the use of art therapy for the treatment of hypertension. No studies were found that included both art therapy and hypertension or blood pressure. The beginning of the search process found many years worth of antiretroviral therapy studies, “ART therapy”. It was discovered that using creative art therapy, anthroposophic therapy, complementary alternative medicine, and integrated medicine search terms found more literature associated with art therapy.

Once literature was found, the bibliographies from articles chosen were also combed for additional information not already searched for that would be applicable. Terms used in the search were anthroposophic, art therapy, creative arts therapy, complementary alternative medicine, hypertension, blood pressure, and chronic disease and were limited to human studies published in English but not limited to the United States. Studies from all age groups were considered due to limited sources available. If a study combined art therapy with another intervention such as music, or gardening it was excluded so that only the effects of art therapy could be precisely evaluated.

Creative art therapy was then used for the primary search term. Nine meta-analyses out of 20 articles from Pub Med evaluated CAT on some form of chronic

disease. In OVID there were four useful pre and post-test out of 44 articles, four useful articles out of 14 including one meta-analysis, and 22 studies including three by Hamre (Hamre, 2013, 2010, 2009). Out of 1429 articles in CINHAL, 142 were included when the search criteria dates were narrowed to 2000-2017. The Georgetown Librarian located 23 articles of which nine were articles not found in the literature review and 14 were duplicate articles found earlier, but not chosen for inclusion due to patient population or for poor study design. The Cochrane Database review located articles evaluating schizophrenia or other mental health studies. No other systematic reviews on art therapy were located. The abstracts of 235 articles were read and 44 articles reviewed in detail. Only 21 were applicable to the research question and included in the literature review for this project.

### **Critique and Synthesis of Previous Evidence**

**Grey Literature Appraisal.** Two sources of grey literature were found. The first article from The American Heart Association (AHA) addressed HTN management in black Americans published in the journal *Hypertension*, An Update of the International Society on Hypertension in Blacks (ISHIB) Consensus Statement (Brook et al., 2013). The AHA also published a scientific statement in the journal *Hypertension*. This article addressed the use of complementary alternative medicine in blood pressure management (Flack et al., 2010). The AHA statement directly encourages the use of CAM and provides another algorithm incorporating CAM into the standard of care alongside the pharmaceutical approach and CAT was not included in the statement (Brook et al., 2013).

**National Initiative for Arts and Health in the Military.** The second source of grey literature was a white paper proposing a national plan for action to advance the policy, practice and quality of the use of the arts and creativity as tools for the improvement of health in the military (Amer. Arts, 2011). The military health care system sees value in using the arts to return soldiers to a readiness state, which is the number one goal of the military at all times (Amer. Arts, 2011). The connection of the arts to the human dimension of readiness is key for every soldier (Amer. Arts, 2011). Military leaders stress we need every weapon in our arsenal to meet the challenges of our soldiers today (Amer. Arts, 2011). One of the most powerful tools we have in our arsenal, the arts, is often under-utilized and not well understood by the military nor in the US healthcare system (Amer. Arts, 2011).

### **Evaluating the Evidence**

To evaluate the scientific evidence of the outcomes of art therapy on hypertension, the studies were placed into a table of evidence to compare and contrast their findings. Each study was evaluated and rated using the Strength of Recommendation Taxonomy (SORT), which is a grading scale used by family medicine and primary care journals to evaluate the quality, quantity and consistency of evidence (Ebell, Siwek, Weiss, Woolf, Susman, Ewigman, and Bowman, 2004). It allows authors to rate individual studies or large bodies of evidence. A level one source demonstrates good quality, it is patient centered, and outcome driven (Ebell et al., 2004). Level-one is found in systematic reviews (SR), meta-analysis of randomized control studies, all or none studies, good quality cohort studies, and perspective cohort studies with good follow-up (Ebell et al., 2004). Level-two literature shows a limited quality of patient

centered evidence from SRs, and meta-analysis of lower quality clinical trials, or studies with inconsistent findings, lower quality clinical trials, cohort studies and case-control studies (Ebell et al., 2004). Level-three is found in other evidence demonstrated in consensus guidelines, extrapolations from bench research, usual practice, opinion, disease-oriented evidence, or case studies of diagnosis, treatment, prevention or screening (Ebell et al., 2004). The ratings were then placed in the table to aid in the comparison of the studies (Ebell et al., 2004; Melynk and Fineout-Overholt, 2011).

Although the study designs varied, the findings were significant to the overall clinical experience demonstrating the shared theme of the benefits in the use of art therapy for the treatment of chronic disease and other quality of life measures. No studies were found evaluating HTN in relationship to art therapy. Studies completed on art therapy have been conducted by clinicians from various disciplines including, cardiology, family practice, internal medicine, nephrology, public health, psychology, oncology, and in post-traumatic stress disorder by the Veteran's Administration. Other investigators include master's prepared art therapists, nurse practitioners, physicians and registered nurses.

**Variation of Tools Used in Art Therapy Research.** Within the studies there was a diversity of tools utilized in the research. The level one studies based on SORT provided relevant data demonstrating the benefits associated by using art therapy in the treatment of chronic disease. Unfortunately, the information provided cannot be compared with rigor to the other studies due to inconsistencies in tools used to collect data, methods of data analysis, design, and variability in the types of art therapy used as an intervention. An example of this is that only two studies used the Beck anxiety score

(Ross, Hollen, and Fitzgerlad 2006; Gussak, 2007) and all the others used different tools of measurement for every variable measured. None of them replicated tools utilized in prior studies in an attempt to add rigor to the body of evidence addressing the effects of art therapy. Only one study gave a specific example of the art therapy tool used for the art therapy intervention (Beebe, Gelfand, and Bender 2010).

**Study Designs.** There was a diversity of design methods utilized with SORT ratings from 1-2. Every design studied varied however, they were well designed, they asked appropriate questions, and were able to draw conclusions from the findings. The designs ranged from two quasi-experimental (Kaimal, Ray and Muniz 2016; Gussak, 2007), three randomized control trials (Beebe et al., 2010; Kim, 2013; Ogedegbe, Boutin-Foster, and Wells, 2012), one qualitative study (Lynch, Sloan, and Sinclair, 2013), three prospective longitudinal (Hamre et al., 2013; et al., 2006; Crone, O’Connell, Tyson, Clark-Stone, Opher and James, 2013), one prospective cohort (Ali, Gammidge, and Walker 2014), and one case study (Johnson and Sullivan-Marx, 2006), and seven systematic reviews (Geue, Goetze, Buttstadt, Kleinert, Richter and Singer, 2010; Kuhlmann, Etnel, Roos-Hesselink, Jeekel, Bogers, and Takkenberg, 2016; Maujean, Pepping & Kendall, 2014; Puetz, Morley and Herring, 2013; Slayton, Archer and Kaplan, 2010; Stuckley and Nobel, 2010; Wood, Molassiots, and Payne, 2009), and two meta-analysis (“AHA”, 2015; Flack, 2010). Every study ended with the finding that more robust research needs to be done with better models for replication and stronger controls.

**Effects of Art Therapy on Chronic Disease.** There is a theme of consensus in the findings of studies completed by various disciplines that art therapy has positive effects on chronic illness (Brook et al., 2013; Flack et al., 2010; Kuhlmann et al., 2016;

Maujean, et al., 2014; Puetz, et al., 2013; Slayton et al., 2010; Stuckley and Nobel, 2010; Wood et al., 2009). This consensus was also found cross-culturally in studies done in Germany (Hamre et al., 2013), The United Kingdom (Crone et al., 2012) and in various cultures across North America (Ali et al., 2013, Gelfand & Bender, 2010; Johnson & Sullivan-Marx, 2006; Kim, 2013). None of these studies evaluated or addressed HTN.

Some of the studies measured and found improvements in pain responses, quality of life, medication-adherence, cortisol levels, and cancer symptoms (Gussak & Davidson, 2007; Hamre et al., 2013; Johnson and Sullivan-Marx, 2006; Kaimal, et al., 2016; Lynch, Sloane, Sinclair, et al., 2013; Ogedegbe, Boutin-Foster, Wells, Allegrante, Isen, et al., 2012; Puetz, et al., 2013; Ross et al., 2006; Wood, et al., 2009).

**Noteworthy Studies.** Three interesting studies are worthy of a more detailed discussion. The first is an observational study of an arts-in-medicine program in an outpatient hemodialysis unit that reported improvements in hemodynamic and mental health outcomes (Ross et al., 2006). The study was conducted over six months. Artists were blinded to clinical, laboratory and questionnaire results. Patients who completed the arts-in-medicine program were compared to a group who received the standard of care. Those that participated in art therapy gained less weight; had greater serum carbon dioxide content; better phosphate levels; higher albumin levels; and improved social function (Ross et al., 2006). Blood pressure was not included in the discussion of the outcomes however, the physiological impact warrants further investigation of art therapy in HTN treatment.

The second study was conducted by a German team led by H. J. Hamre, MD, who completed a four-year follow-up study of patients who participated in anthroposophic

therapy, also called alternative medicine (AM) in the United States (Hamre et al., 2013). In Germany, anthroposophic therapy includes special medicine products, artistic therapies, dance and some physical therapies. The prospective four-year observational cohort study was conducted in outpatient clinics and was called the Anthroposophic Medicine Outcomes Study (AMOS) (Hamre et al., 2013). The study included 1,510 outpatients, aged 1-75 years living in Germany. It measured the effects of AM treatment for asthma, anxiety disorders, depression, migraine, low back pain, and attention deficit disorders from baseline to a 48-month follow-up measuring ten outcomes (Hamre et al., 2013). Some of the outcomes measured were symptom scores, disease score, anxiety severity, asthma severity, depression scale, migraine severity, low back pain scores, Hanover Functional Ability Score, ADHD questionnaire of symptoms score, and total health care cost. The results had a  $p < 0.001$  for all pre-post comparisons and found that from baseline to the 48 month follow-up, all ten outcomes improved significantly (Hamre et al., 2013). There were 273 patients who received art therapy, which showed symptom improvement even after 48 months from the start of treatment (Hamre et al., 2013). Blood pressure was not included in this study.

The third study reviewed was a white paper by the University of Gloucestershire, in the United Kingdom, (UK) evaluating a program called Art Lift (Baker, Clark-Stone, and Kilgour, 2013). Art Lift is a program of art therapy where providers refer UK patients for a ten-week art program in a primary care setting. Patients are referred to a set of ten sessions to reduce stress, anxiety or depression, to improve self-esteem and confidence, to increase social networks, alleviate symptoms of chronic pain or illness, distract from behavior related illnesses and to improve overall wellbeing (Baker et al.,

2013). The re-referral rate was 26.2% indicating that primary care providers saw benefits from the therapy (Baker et al., 2013).

In the Art Lift program, patients were able to move away from being defined by their illness and were defined by the art they created (Baker et al., 2013). The newly learned skills improved confidence and allowed patients to view themselves as artists and not patients (Baker et al., 2013). Over the course of the ten weeks, patients became increasingly confident in helping others less experienced in art and built camaraderie within the group (Baker et al., 2013).

The Gloucestershire County Council published a cost benefit evaluation of Art Lift (Opher, 2011). It evaluated 90 of the 500 patients who were referred to Art Lift over three years. Primary care office visits that were made for one year before the art therapy started were counted and compared to the number of office visits made for one year after they participated in art therapy along with a financial impact analysis. The findings were impressive. One year after seeing the artist, triage visit rates dropped by 24% (Opher, 2011). Overall healthcare spending was reduced by 27% (Opher, 2011). This study demonstrates that there are potential cost savings for health care organizations when art therapy programs are utilized.

**The Arts and Health in the Military.** Two articles were read addressing art therapy in the treatment of veterans suffering from post-traumatic stress disorder (PTSD) (Collie, Backos, Malchodi, and Spiegel, 2006; Ramirez, Erylayna, & Guilliaum, 2016). They were included to evaluate the effectiveness of art therapy in the treatment of PTSD. Based on the research with veterans, art therapy is demonstrating a reduction in PTSD symptoms (Collie et al., 2006; Ramirez et al., 2016).

In 1997, a program in a specialized, inpatient, post-traumatic stress disorder unit provided 15 interventions such as drama therapy, group therapy, community service, journaling, anger management, and art therapy produced the greatest reduction in severe PTSD for American military veterans (Collie et al., 2006). They also found that these veterans could tolerate war-zone content during art therapy and could not do so while participating in other activities (Collie et al., 2006). It is surmised that art therapy was more effective because it provided a pleasurable distraction in conjunction with exposure to difficult content, thus allowing the painful material to be processed without the negative short-term side effects of verbal interactions (Collie et al., 2006).

**Reasons Why Art Therapy Works.** The American Art Therapy Association (AATA) has developed best practices guidelines for treating veterans with PTSD based on a survey of registered art therapists (Collie et al., 2006). The survey results recommended the following six core foundations for group therapy activities (Collie et al., 2006). Relaxation during art therapy has a direct correlation in the reduction of hyper-arousal (Collie et al., 2006). Non-verbal communication during art therapy facilitates the expression of feelings and memories that the patient cannot put into words (Collie et al., 2006). Containment of traumatic emotions within an object or image provides a sense of control over terrifying and intrusive memories and promotes self-efficacy (Collie et al., 2006). Creating symbolic expressions makes progressive exposure and expression of traumatic material tolerable and helps overcome avoidance thereby allowing the therapeutic healing to advance quickly (Collie et al., 2006). Externalization of emotions resulting from traumatic experiences facilitates insight and the ownership of trauma and helps transfer memories from the past to the present (Collie et al., 2006). Finally, the

pleasure of creation builds self-esteem, helps reinvigorate responsiveness to rewards, reduces emotional numbness and helps develop adaptive social functioning (Collie et al., 2006).

Patients who have had a stroke face challenges in terms of the loss of their usual everyday world. They are faced with the threat of uncertainty and they strive to get their life back to what it was before they had a stroke (Ellis-Hill, Gracy, Thomas, Lamont-Robinson, Thomas, Marcus...Galvin, 2015). Failure of a stroke patient to return back to their normal state of being results in a loss of confidence, increased depression, and social isolation (Ellis-Hill et al., 2015). Art therapy allows the patient to decrease isolation, improve socialization, increases self-confidence through learning new skills, and increases independent functioning (Anand, 2016). It explores issues related to body image and helps identify personal strengths that support resilience (Anand, 2016).

**Patient Experiences.** There is consensus that art therapy leads to an improved patient experience while receiving art therapy in a clinical environment (Ali et al., 2013; Beebe et al., 2010; Geue et al., 2010; Hamre et al., 2013; Ross et al., 2006; Johnson & Sullivan-Marx, 2006; Kim, 2013; Puetz et al., 2013; Slayton et al., 2010; Stuckey et al., 2010; Wood et al., 2009).

The patient experience should be considered before further investigations or treatment modalities using art therapy are implemented. Any risk that a participant in art therapy may encounter needs to be evaluated. In the studies reviewed only two mentioned any adverse effect from CAT. One patient's voice became hoarse from singing too much, and another had a rash occur due to an allergy from the paint (Hamre et al., 2013). No other adverse effects were found. Participants in various art therapy groups enjoyed

making art and being identified by what they created and not by their diagnosis (Crone et al., 2012). Most of the participants had improvements in the parameters measured by the studies and participants gave positive feedback at the end of the studies (Ali et al., 2013; Beebe et al., 2010; Crone et al., 2013; Hamre et al., 2013; Kim, 2013; Lynch et al., 2013; Puetz et al., 2013; Ross et al., 2006). These positive patient experiences coupled with the small risk to patient safety and few contraindications to participating in art therapy make it an attractive adjunct therapy for the treatment of chronic diseases.

**Gap in the Literature.** This review found no studies measuring the effects of art therapy on the variable of blood pressure. All studies consistently reported the benefits of art therapy on health care outcomes that influence chronic disease and blood pressure such as, anxiety, depression, self-esteem, quality of life, and decreases in pain levels.

### **Rationale for the Project**

Evidence reviewed using SORT indicates that the research included in the review was well executed and was given a high SORT rating scale indicating that quality research has been completed in the ongoing investigation of the effects of art therapy on HTN. Clinical expertise and experience involved in the gathering of evidence is inclusive and has evolved from many disciplines in health care making the topic important to investigate further. The research indicates that the patient experience was a positive one. The fact that high quality data cannot be compared to other studies due to inconsistencies in tools used to collect data, in methods of data analysis, in research design and variability in the types of art therapy used as an intervention, justifies further research (LoBiondo-Wood & Haber, 2010).

The Iowa model of evidence-based practice indicates that the knowledge gap makes this DNP project an exploratory research study and not an evidence based project (LoBiondo-Wood & Haber, 2010). The potential benefit of adjunct interventions such as CAT to address HTN should be explored with more controls to increase the likelihood that patterns of health improvement associated with CAT can be demonstrated. If the findings of the study indicate that CAT does lower blood pressure, then another tool can be added to the management of HTN. Adding CAT to a treatment regime offers potential opportunities for improved quality and safety, a decrease in cost to treat HTN, and higher HEDIS ratings leading to greater reimbursements for healthcare providers. Based on the relevant findings of these studies, there is strong and consistent evidence that art therapy can have a positive impact on the factors that influence blood pressure and it warrants further investigation.

## **Conclusion of Chapter II**

Chapter Two identified the search criteria for the literature review, ranked the findings by the SORT ranking system, and analyzed the evidence. The evidence included meta-analyses, individual studies, and white papers that evaluated the effects of art therapy on chronic physical and mental diseases, as well as laboratory findings and financial savings associated with art therapy. No research has been found in this literature review that studied the effects of art therapy on hypertension indicating a knowledge gap. Based on the Iowa model of evidence-based practice, when a knowledge gap exists then research needs to be conducted to search for scientific evidence for new therapies to treat diseases. A pilot study is indicated to evaluate the effects of art therapy on hypertension.

## **Chapter III: Methods**

Chapter three of this DNP project presents the methodology of the proposed pilot study. It includes the design, the implementation, the project, the project sponsors, the resources, the marketing and business plan with a cost-benefit analysis, the human subjects review, the population, the timeline of procedures, the instruments and tools, the validity and reliability, as well as the outcome measurements and data analysis plan.

### **Design, Implementation, Framework and Plan**

For feasibility reasons the pilot study was a descriptive study. It tested the cause and effect relationship of art therapy and hypertension. Participants were urban, black American women who had hypertension. The sample size was 6-12 because that is an acceptable size for a group art therapy session to be comfortably conducted. If a group is larger than this it becomes difficult for everyone to participate in the group activities (Malchiodi, 2013).

The design was able to compare the results of pretest and posttest blood pressure readings. The intervention was eight, one-hour, group art therapy sessions, lead by an art therapist and held every week over the course of eight weeks. Participants completed questionnaires before and after the sessions to obtain demographic information about the group, and provide participants the ability to add their own comments about the experience.

### **Project Sponsors and Resources**

A professional expert, who has a Ph.D. in art therapy, and is a university professor of art therapy, agreed to serve as an expert consult on the study. A licensed art therapist

conducted the art therapy sessions for free. They are both supporters of more research into the use of art therapy in primary care. The local arts council showed enthusiasm for the project.

### **Cost-Benefit Analysis**

There will be some costs associated with conducting the study that must be considered. These included the cost of the art supplies for 12 participants, and the salary of an art therapist. The cost to complete the study based on 12 participants was \$177.00 per participant for 8 art therapy sessions, for a total of \$2,124.00 (Salary genius, 2016).

While the cost of conducting the study was substantial, the cost of under treating hypertension is costly for healthcare organizations. The US spends over 42.9 billion dollars a year treating HTN ("CDC," 2016). The Art Lift Project in England was able to decrease healthcare spending by 27% in primary care patients who received art therapy. The Art Lift Project demonstrates that there are potential cost savings for health care organizations when art therapy programs are utilized. American health care organizations should investigate how art therapy can be used to decrease the amount of money they spend on treating HTN.

External marketing was attempted to get grants and donations to fund the study. To date, no funding has been obtained and financing for the study was left to donations by the investigator and of time donated by the art therapist. Participants were recruited by making presentations to a nondenominational organization called, Churches United for Healthy Congregations, and after the Sunday service at the Church donating the hall to conduct the sessions.

## **Human Subjects Review**

Participation in research carries risks and benefits. For this reason the American Nurses Association has outlined the five protections of human rights (“ANA,” 1985). These are, the right to self-determination, the right to privacy and dignity, the right to anonymity and confidentiality, the right to fair treatment and the right to protection from discomfort and harm (“ANA,” 1985). The category of this study as it pertains to levels of harm and discomfort is a level one where no harm or discomfort is anticipated (LoBiondo-Wood & Haber, 2010). Risks associated with participating in a CAT study would be that a participant could be allergic to the materials being used. If paint splattered into a participant’s eye they could be harmed (Hamre, 2013). To mitigate the risk, participants were instructed on the safe and proper use of the material being used at the start of each session. Clothes could be damaged if art materials came in contact with them so the patients were instructed to dress appropriately.

Participants had the right to self-determination and were not coerced into taking part in this study. All participants signed a consent form to participate after all their questions and concerns were addressed during an information session with the lead investigator. Participants were informed that the research was being conducted to find better ways to improve HTN. Patients had the right to privacy and dignity and were informed of every person who had access to their information. The participants also had the right to anonymity and confidentiality, therefore no identifiable information will be published, and every attempt was been made to keep the data anonymous and confidential. Participants were identified by the name of an artist they picked so they

were able to remember that name instead of a number. The list of participant's names and their pseudo names were kept in a locked cabinet at the investigators home in a locked room. They were informed of where the study will be published so they have access to the results.

Participants have the right to fair treatment. In order to improve fair treatment investigators and art therapists were on time for sessions and appointments, agreed upon activities were not changed without their consent. Participants were provided with agreed upon benefits such as a copy of the study. If patients were uncomfortable with reading, the consents were read to them.

### **Population and Sampling**

The sample size for this pilot project was small making a power analysis insignificant for this study. Participants in the study were sampled by using a nonprobability, purposive sampling strategy. Should further research be indicated, a power analysis will be performed to determine a sample size that will allow sufficient data analysis. This pilot project had a target total of 6-12 participants.

Inclusion criteria were black American women aged 30-90 years of age, with a diagnosis of hypertension. They must have been able to sit or stand for one hour and create art while participating in conversations with other participants and the art therapist. They must have been able to have reliable transportation to get to the art therapy sessions. Participants must have willingly agreed to be in the study.

Exclusion criteria were, those presently having medication adjustments, presently undergoing cancer treatment, unstable hypertension, anyone who would be out of town during the time frame of the study, anyone who was already participating in art therapy,

music therapy, dance therapy, massage or acupuncture therapy, anyone who was unable to speak or write English.

### **Art Therapy Interventions**

Art supplies that were used were craft glue, washable, non-toxic, school grade craft paint, paint brushes, pastels, pencils, paper, canvas, masks, markers, crayons, and other school grade, non-toxic art supplies. The sessions took place in a neighborhood church activity room. There were three to four tables, each with chairs around it and a plastic tablecloth over each table. The needed art supplies were placed around the table at each session.

Participants arrived between 5:30 pm and 6:00 pm. Participants were greeted and had their BP taken. To maintain anonymous BP readings from the primary investigator, participants had an envelope with a paper in it labeled with their pseudo name, of an artist of their choosing. The primary investigator took their BP, timed and dated it, and recorded their BP on the sticker. The participant then took the sticker with the BP on it back to their workstation, and placed the sticker on the paper at the appropriate spot and placed it in the envelope. This was repeated at the end of the session. The participants took the papers and placed them in a collection basket and the investigator then entered this data into Excel. This process was repeated at each session and the flow chart is found in Appendix A.

### **Art Therapy Intervention Tool Content**

The content of the art therapy sessions was adapted from the content used in the study completed by Beebe on the effects of art therapy on asthmatic children (Beebe et al., 2010). No other tools were found that were specifically developed for adult patients

with chronic illness. The exercises were tailored to meet the needs of the adult women in the study.

The first art therapy session, the opening activity, “The Jewels Within” was introduced with a metaphor that participants all have “jewels” inside and the jewels are the good qualities the participants have that can be used in times of stress (Beebe et al., 2010). The group was then presented with a tray of colored, beads or jewels used for craft projects and were encouraged to think of three of their characteristics that make them proud and pick three jewels to represent these qualities. The first drawing lesson teaches them the five basic lines of drawing. The topic of the first session is “Who am I?” The group was instructed to draw an abstract picture expressing their feelings about living with HTN (Beebe et al., 2010). All were encouraged to talk about how they feel in regards to having HTN. In closing they were asked to reflect during the week on how the qualities that make them proud can help them cope with hypertension.

In the second session, “Feelings Related to Illness,” participants were informed that most people experience many emotions about having HTN (Beebe et al., 2010). They were given two cardboard masks to paint. One represented how they feel when they have an elevated BP, and one to showed how they feel when they are healthy. They were then asked to comment on what they created and they took these home.

In the third session, “Healthy Expressions of Anger,” the group discussed how having HTN makes them feel and discussed positive ways to express angry feelings and learned to channel their feelings using art (Beebe et al., 2010). The class was taught how to draw a volcano landscape, similar to Chinese artists by the art therapist. The group discussed ways they can transform their angry feelings about HTN into positive feelings.

They were asked to transform the angry mountain scenes into peaceful places where they feel good and were asked to paint this scene. They then discussed ways they can manage angry feelings associated with HTN by engaging in calming activities.

The fourth session was “Pain Management, Painting and Imagery,” where the group was asked to think about what it felt like for them when they were in physical or mental pain and what helped them feel better (Beebe et al., 2010). After this discussion they were given paint and pretended that they were children discovering how to paint. They were not to make any particular image, just use the colors together, and fill the paper with color and paint for five minutes. This was repeated six times using a different selection of color. After they were finished they were asked to think about how they felt doing this exercise and what colors make them feel better. Further discussion focused on how certain colors can help soothe people and make them feel better to help lower BP during stress. They were asked to imagine their favorite soothing color covering them like a blanket and helping them feel good. This image can be used when they are feeling stressed, in pain, or have an elevated BP.

The fifth session was “What Makes Me Feel Good” (Beebe et al., 2010). Participants discussed how negative emotions and stress can increase BP and it is helpful to focus on thoughts that make them feel good inside. They learned how to counter negative thoughts with positive affirmations about themselves. This class focused on drawing positive images.

The sixth session was “Taking Care of Myself” (Beebe et al., 2010). It was spent discussing the importance of taking medication, exercising, and eating correctly. This activity was the gateway to positive healthy behaviors. Participants were given a large

piece of paper folded so that each side closed to create the effect of a door. On the outside of the door they drew, or painted barriers to being healthy and then they opened the doors to create a view of the positive things or attributes that they have to help them stay healthy.

The seventh session was the creation of a collage of positive body images and what helps them decrease their stress.

The eighth session was called “Stop the ANTS” which refers to automatic negative thoughts (Amen, 2015). It can be easy for participants to focus on the negative when dealing with chronic disease. This session discussed how to stop focusing on the worst possible outcome in a situation. Participants were advised that instead of telling themselves that they are going to have a stroke, they should correct themselves and say “They have no way of knowing that. If I take medications, exercise, and avoid salt I will improve my blood pressure.” This activity was a painting session and participants reviewed what they have learned in the classes. This class was an hour and a half long in order to complete questionnaires.

### **Validity and Measurement Tools**

The investigator of this study strived to control external validity that may have influenced the outcomes. One strategy was to maintain homogeneity by using subjects that are similar in race, sex and culture because genetics, diet, and lifestyles can impact hypertension. Having black American women who are culturally similar will minimize extraneous variables. Potential participants were screened for qualification by the investigator. If they met the criteria they were included in the study.

Attrition is a threat to internal validity. After completing a portion of the sessions participants may not feel they are benefiting and they may drop out. No funding was available so no gifts of appreciation were given to participants. Attendance was monitored to evaluate if the number of sessions made a difference in the outcomes.

Blood pressure was measured with the participant seated with both feet on the floor, with uncrossed legs. An Omron 3 series BP cuff was used to measure the participants BP. The blood pressure cuff was properly sized to the circumference of the participant's upper arm. The cuff was placed on the upper arm and properly aligned with the heart. The electronic BP cuff was calibrated before each session for accuracy.

A questionnaire was given at the beginning of the study to retrieve demographic information about the group in order to gain insight into the results of the study. At the conclusion of the study, an evaluation questionnaire was administered with open-ended questions to see if participants believed the intervention was worthwhile. This was important to include in the study in the event that the data collected was statistically insignificant because it explains what the intervention meant to the participants. It indicates if they perceived any value from the intervention. See appendix C.

### **Conclusion of Chapter III**

Throughout this study the ethics of Georgetown University and the ANA protection of human rights was implemented to guard the safety and rights of all participants. The study design was a descriptive pilot study. Participants in the study will be sampled by using a nonprobability, purposive sampling strategy. The tools used to evaluate the effects of art therapy were blood pressure readings before and after eight art therapy sessions, and then four weeks after the sessions were completed.

The cost of eight art therapy sessions per participant was \$177.00. If art therapy can decrease blood pressure by 10/5 mmHg it has the potential to lower the risk of a stroke (Brook et al., 2013; Law, Morris and Wald, 2009). This alone is a compelling argument to conduct a pilot study on the effects of art therapy on HTN outcomes.

## **Chapter IV: Results**

### **Analysis of the Data**

The study was a descriptive study (Sylvia and Terhaar, 2014). The interpretation of the results was made as they pertain to the human belief model and how the results compare with previous studies.

The variables analyzed were the systolic blood pressure (SBP), diastolic blood pressure (DBP), and the mean arterial pressure (MAP). They were measured at every session both pre and post, as well as at four weeks after the last session, to see if there was a lingering effect on the BP readings after the sessions ended. The variables were evaluated using SPSS statistics version 24, using Wilcoxon Signed Ranks test to compare the sets of scores obtained from the same participants before and after art therapy sessions. The signed test was used due to the fact that the observations for each participant were independent and did not influence another participant's values. The results of the findings were impacted by a small sample size making it more difficult to find a statistically significant difference. Inconsistent attendance also contributed to incomplete data thereby limiting the results of the study. This makes it more likely for one to have a Type II error, which is not finding a significant difference in the sample when one actually exists in the population (Sylvia and Terhaar, 2014). The level of significance (the alpha level) was set at 0.05.

The original goal for participation was 6-12 women. Originally eleven participants enrolled in the study but only nine participants attended the first session. Only seven were included in the final analysis due to two participants not completing the

study as a result of unexpected surgeries. One woman who only attended two sessions did return for the follow up blood pressure reading so her data was included. The age of the participants ranged from 61 to 70 years old. Five of the original nine participants had a college degree and four had some college. Two lived alone, two lived with another person and two had three or more people living in their home, three did not answer that question.

Demographic information pertaining to age, education, marital status, number of people living with them, smoking status, number of daily medications, and amount of weekly exercise was collected and evaluated. The questionnaires indicated that two individuals reported a decrease in the number of prescription medications during the study. One decreased the number of missed medications from once a week to zero. Four increased the number of days that they exercised each week. Two increased the length of time exercised and one decreased the length of time exercised. The comfort level of the knowledge about a heart healthy diet decreased for one and increased for another. All participants denied the use of illegal drugs and no one smoked. Demographics can be seen in Table 1.

Table 1.  
Demographics Table

	Beginning (n=9)		End (n=6)	
	<i>n</i>	%	<i>n</i>	%
Age				
41-50	1	11.1	0	0.0
51-60	1	11.1	1	16.7
61-70	4	44.4	3	50.0
71-80	3	33.3	2	33.3
Education				
Some College	5	55.6	3	50.0
College Degree	4	44.4	3	50.0
Number of People in Home				
Live alone	2	22.2	2	33.3
Myself +1	3	33.3	2	33.3
Myself +2	1	11.1	1	16.7
Myself +3	1	11.1	0	0.0
Myself +4 or more	2	22.2	1	16.7
Number of Prescription Drugs Taken Daily <sup>a</sup>				
1-2	2	22.2	1	16.7
3-4	1	11.1	2	33.3
5-6	4	44.4	1	16.7
7 or more	1	11.1	2	33.3
Missing	1	11.1		
Number of OTCs Taken Daily				
None	1	11.1		
1-2	6	66.7		
3-4	2	22.2		
Illegal Medical Use	0	0.0	0	0.0
Number missed meds per day				
0	6	66.7	4	66.7
1	2	22.2	2	33.3
2	1	11.1	0	0.0
Family History of Hypertension	7	77.8	6	100.0
Number weekdays of exercise				
0	5	55.6	0	0.0
1	1	11.1	1	16.7
2	2	22.2	2	33.3
3	1	11.1	2	33.3
4 or more	0	0.0	1	16.7

	Beginning (n=9)		End (n=6)	
	<i>n</i>	%	<i>n</i>	%
Length of Exercise Session				
0	6	66.7	0	0.0
15 minutes	1	11.1	0	0.0
30 minutes	0	0.0	4	66.7
45 minutes	0	0.0	0	0.0
1 hour	2	22.2	2	33.3
Smoker	0	0.0	0	0.0
Overweight	6	66.7	5	83.3
Knowledge of Heart Healthy Diet				
Very Uncomfortable	3	33.3	1	16.7
A Little Uncomfortable	0	0.0	0	0.0
Neither Uncomfortable nor Comfortable	0	0.0	0	0.0
Sort of Comfortable	3	33.3	2	33.3
Very Comfortable	2	22.2	3	50.0
How often Healthy Food Choices Made <sup>b</sup>				
1-2 days per week			3	50.0
3-4 days per week			1	16.7
5-6 days per week			1	16.7
Always			1	16.7

Because of small cell sizes and differences in wording of questions from questionnaire 1 to 2, no statistical tests to compare answers were completed.

Table 2 demonstrates the mean BPs taken at the beginning of the first session compared to the four-week follow up readings. For the six people who had readings at Session 1 and at the follow up, there were no statistically significant differences in the mean SBP, DBP, or MAP from beginning of session one, to the four-week follow-up. Mean SBP and MAP were both somewhat higher for the group as a whole at the follow up, than at beginning of first session. Mean DBP did not change.

Table 2.  
*Comparing readings at beginning of session 1 to 4 week follow up*

		Paired Samples Statistics			
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	S1a	133.17	6	24.302	9.921
	S 4 week post	135.33	6	19.273	7.868
Pair 2	D1a	81.33	6	13.471	5.499
	D4 week post	81.83	6	11.940	4.875
Pair 3	MAP1a	98.61	6	16.750	6.838
	MAP Post	99.67	6	13.836	5.648

Test Statistics <sup>a</sup>			
	S_4_week_post - S1a	D4_week_post - D1a	MAP Post - MAP1a
Z	.000 <sup>b</sup>	-.314 <sup>c</sup>	-.314 <sup>c</sup>
Asymp. Sig. (2-tailed)	1.000	.753	.753

a. Wilcoxon Signed Ranks Test

b. The sum of negative ranks equals the sum of positive ranks.

c. Based on positive ranks.

BP tended to go up after each session. The mean SBP increased from 133.7 mmHg, to 146.33 mmHg. The mean DBP increased from 81.3mmHg. to 85.17 mmHg. The mean MAP increased from 98.61 mmHg. to 105.56 mmHg. For the six people who participated in session one, mean BP readings had no significant differences between the end of session one readings, and at the four-week follow up for SBP, DBP, or MAP. It can be seen in Table 3 that all of the mean readings at the four-week follow up were lower than the end of session one readings.

Table 3.  
*Comparing readings at end of session 1 to 4 week follow up*

		Paired Samples Statistics			
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	S1b	146.33	6	30.098	12.287
	S 4 week post	135.33	6	19.273	7.868
Pair 2	D1b	85.17	6	13.586	5.546
	D4 week post	81.83	6	11.940	4.875
Pair 3	MAP1b	105.56	6	18.330	7.483
	MAP Post	99.67	6	13.836	5.648

Test Statistics <sup>a</sup>			
	S_4_week_post - S1b	D4_week_post - D1b	MAP Post - MAP1b
Z	-.943 <sup>b</sup>	-.734 <sup>b</sup>	-.943 <sup>b</sup>
Asymp. Sig. (2-tailed)	.345	.463	.345

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

Seven people had blood pressure readings at session two and at the four-week follow up. This set of data was the set used for the final statistical summary due to the fact that there were seven participants for this data set. The Wilcoxon Signed Ranks Test was used based on positive ranks to analyze the data. The mean pretest SBP was 151.57 mmHg, posttest SBP was 132.43 mmHg,  $Z = -1.859$ ,  $p = 0.063$ . The pretest DBP was 87.86 mmHg and posttest DBP was 80.00 mmHg,  $Z = -1.572$ ,  $p = 0.116$ . The pretest MAP was 109.10 mmHg and posttest was 97.48 mmHg,  $Z = -1.859$ ,  $p = 0.063$ . All four-week follow up readings tended to be lower than beginning of session two readings and mean SBP was marginally significant,  $p = .063$ , and can be seen in Table 4.

Table 4.  
*Comparing readings at beginning of session 2 to 4 week follow up*

		Paired Samples Statistics			
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	S2a	151.57	7	21.801	8.240
	S 4 week post	132.43	7	19.199	7.257
Pair 2	D2a	87.86	7	9.805	3.706
	D4 week post	80.00	7	11.930	4.509
Pair 3	MAP2a	109.10	7	13.492	5.099
	MAP Post	97.48	7	13.896	5.252

Test Statistics <sup>a</sup>			
	S_4_week_post - S2a	D4_week_post - D2a	MAP Post - MAP2a
Z	-1.859 <sup>b</sup>	-1.572 <sup>b</sup>	-1.859 <sup>b</sup>
Asymp. Sig. (2-tailed)	.063	.116	.063

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

c. Asymp. Sig (2-tailed) value is also the p-value for the test.

Blood pressure readings tended to be slightly higher at end of each session and comparing BPs from the end of session two to the four-week follow up yielded results that were significant. SBP decreased from 152.57 mmHg to 132.43 mmHg,  $Z = -2.366$ ,  $p = .018$ . DBP decreased from 93.0 mmHg to 80.00 mmHg,  $Z = -2.375$ ,  $p = .018$ . The MAP decreased from 112.86 mmHg to 97.48 mmHg,  $Z = -2.366$ ,  $p = .018$  and is seen in Table 5.

Table 5.  
*Comparing readings at end of session 2 to 4 week follow up*

		Paired Samples Statistics			
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	S2b	152.57	7	18.582	7.023
	S 4 week post	132.43	7	19.199	7.257
Pair 2	D2b	93.00	7	9.110	3.443
	D4_week_post	80.00	7	11.930	4.509
Pair 3	MAP2b	112.86	7	12.015	4.541
	MAP Post	97.48	7	13.896	5.252

Test Statistics <sup>a</sup>			
	S_4_week_post - S2b	D4_week_post - D2b	MAP Post - MAP2b
Z	-2.366 <sup>b</sup>	-2.375 <sup>b</sup>	-2.366 <sup>b</sup>
Asymp. Sig. (2-tailed)	.018	.018	.018

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

The comparison of mean BP readings from the end of each session to the four-week follow up readings did show a decrease that was more significant than readings taken at the beginning of each session. It is more important however, to compare the readings taken at the beginning of the art therapy sessions to the final follow-up session reading at week 12 because the participants were in the same environment without the intervention at both readings. This study was completed to see if art therapy would lower blood pressure in one's day-to-day life. The analysis of the mean blood pressures did not show any statistically significant decrease in blood pressure. No correlations were noted between the number of sessions attended, nor in age and blood pressure changes.

Table 6 shows the differences in individual blood pressures from the first BP to the last art therapy session and to the four-week follow up session.

Table 6.

*The differences in individual blood pressures in mmHg from the first blood pressure to the four-week follow-up session*

Participant ID & # of sessions attended	1 <sup>st</sup> SBP	Last session SBP	4 week f/u SBP	1 <sup>st</sup> DBP	Last session DBP	4 week f/u DBP
7-7	131	117	115	70	76	69
8-7	125	104	121	87	75	81
9-8	94	104	127	58	70	78
10-8	155	130	140	94	76	92
12-2	139	154	147	83	88	82
14-4	125	112	112	74	70	62
15-7	161	164	165	92	98	96

Table 7.

*Measurement of blood pressure changes in mmHg from the first blood pressure to the four-week follow-up, number of sessions attended, and age*

Participant ID	# of sessions	SBP changes 1 <sup>st</sup> to 4wk f/u	DBP changes 1 <sup>st</sup> to 4wk f/u	MAP changes 1 <sup>st</sup> to 4wk f/u	Age	BP trend
7	6	-16	-7	-10	41-50	Lower
8	7	-4	-6	-6	71-80	Lower
9	8	+33	+20	+24	51-50	Higher
10	8	-15	-2	-6	61-70	Lower
12	2	+8	-1	+2	71-80	Higher S & MAP- Lower D
14	4	-13	-12	-12	61-70	Lower
15	7	+4	+4	+4	61-70	Higher

When the data is examined for each individual participant, (Table 8) four participants had a trend indicating a decrease in SBP with a mean decrease in SBP of 12.25 mmHg. Their DBP also decreased with a mean decrease of 5.5 mmHg. Findings of a meta-analysis of data from 147 randomized clinical trials showed that a decrease of 10 mmHg in SBP and a 5 mmHg in DBP is associated with a 41% reduction of strokes over

five years in all trials (Law, Morris, & Wald, 2009). Based on the meta-analysis of Law, Morris and Wald, art therapy has the potential to lower blood pressure and the risk of stroke. The three people who had an increase in BP had an increase at the eight-week mark and at the 4-week follow up. The four that had a decrease in BP had a decrease at week 8 and at the 4-week follow up.

The sum of individual blood pressures was graphed and linear regression analysis was performed. This can be seen in Table 7. Based on the linear regression, art therapy had a cumulative beneficial impact on BP even after a rebound effect at the 4-week follow-up session. For every week of art therapy, SBP dropped by 2.0804 mmHg, MAP dropped by 1.275 mmHg, and DBP dropped by 0.8723 mmHg. The  $R^2$  was only 0.342 - 0.260, which indicates that art therapy can only be attributed to the decrease in BP 34% to 26% of the time. The small sample size is most likely the reason for the low  $R^2$ .

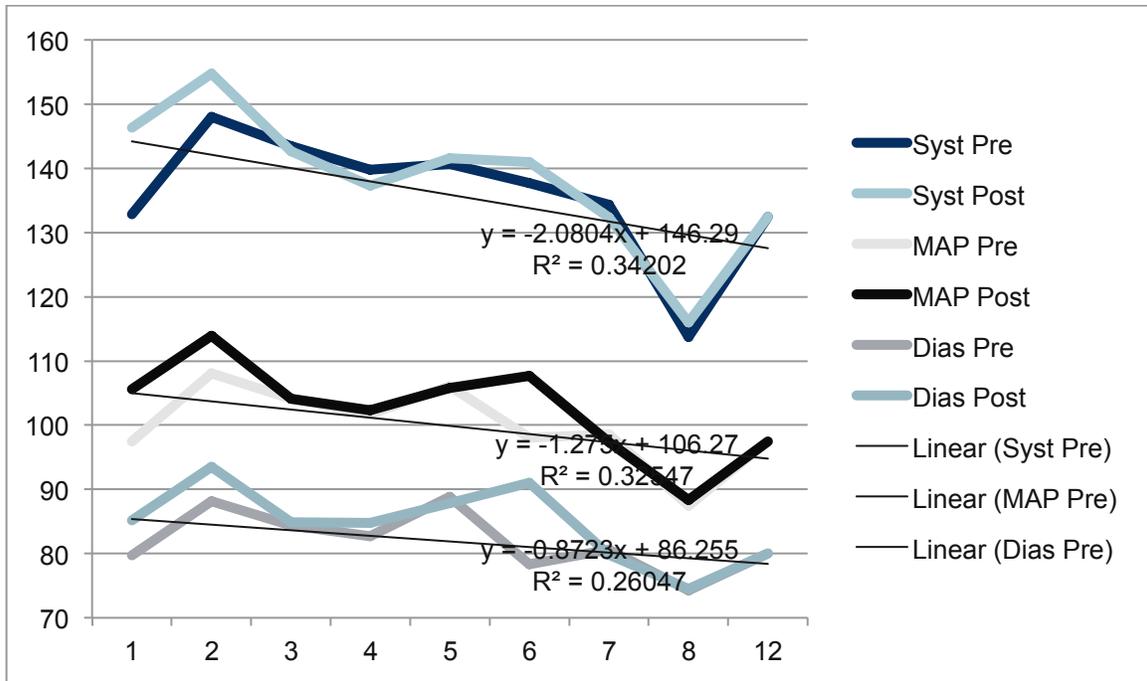


Figure 1. Sum of blood pressure of all participants from the beginning of the first session to the four-week follow up blood pressure check

### Questionnaire Responses

Responses to the open ended questions on the questionnaire had the following themes.

What did you enjoy the most about taking part in the study? Two enjoyed the fellowship. One said it was peaceful for her mind. Three enjoyed creating art. One person realized that her blood pressure varied from morning to bedtime.

What did you least enjoy about the study? Two women wrote that they were nervous about having her blood pressure taken. One person least enjoyed discussing her feelings about blood pressure during the sessions. Two reported that they least enjoyed the fact that the study was ending,

When asked if art therapy helped them in anyway two participants said that it took their minds off of depressing thoughts and made one realize how much she missed

creating art. One stated that art therapy made her BP go down. All participants would recommend art therapy to others.

The following responses were made to the question, what would you like the researchers to know? “When I go to the doctor, the doctor does not listen to me. That just isn’t right. What I want to say to my doctor is, ‘Look at me, and listen to me!’ ” This is very similar to the findings in the research completed by a team of researchers lead by Sanon in 2014. They found that Haitians feel that the doctors are just trying to make money because they only tell patients to take medications and they do not clearly explain what hypertension is to the patient (Sanon et al., 2014). This distrust leads to many Haitians using herbs brought from Haiti that they grow in their garden to treat their HTN instead of, or in addition to, medications prescribed by a provider which can be dangerous for the patient (Sanon et al., 2014).

#### **Conclusion of Chapter IV**

Chapter IV analyzed the demographic information and information gathered in the questionnaire, as well as investigated BP readings over 12 weeks. Based on the Wilcoxon Signed Ranks test, the data analysis of the findings of this pilot study showed, there was no statistically significant reduction of blood pressure as a result of art therapy.

The linear regression analysis of the sum of blood pressure changes in all seven participants found a cumulative trend of lower blood pressures as a result of art therapy. The sample size was only seven participants, which is too small of a sample size to draw any inferences on the effects of art therapy on HTN.

## Chapter V: Discussion

### Barriers to Success

The greatest barrier to success was the small sample size. Originally eleven people volunteered for the study. Attrition occurred regardless of the investigator calling all participants at noon on the day of the sessions to remind them to attend. Had the phone calls not been made, even fewer participants would have been in the study. Every day there was one participant who had forgotten about coming to the study. The contributing factors to the small sample size were, attrition from lack of interest, family commitments, weather and unexpected surgery.

The lead researcher had difficulty getting access to more patients for recruitment due to HIPPA restrictions and was not allowed to recruit participants from her place of employment. A solution to this was a fortunate collaboration of the researcher with a faith based nursing organization that helped recruit participants from it's patient population. It would be beneficial to investigate why participants missed sessions in order to identify barriers to participation by the women. Recruitment was also limited by a time constraint to get the project completed for graduation. A longer recruitment period is recommended for any future studies to insure a larger sample size.

The self-reporting of behaviors by participants may not be accurate. This is demonstrated by the fact that the reported number of prescription medications changed for two participants. Throughout the study they were asked to let the researcher know if they had any medication changes and all of them denied that they had any changes. A barrier to having correct data on how many medications participants take and if

medication adherence improved or not as a result of the study can be impacted by health literacy concerning medications, by what they consider to be a medication, and by medication confusion (Eassey, Smith, Krass, McLachlan, and Brien, 2016).

This study did not ask the participants the names of the medications they took. It would be good to know the exact medications that participants are taking for future studies. It could be possible that participants who were taking a calcium channel blocker for example, did not have a decrease in BP, but everyone who did not take a calcium channel blocker did have a decrease in BP.

No funding was available for this project, which was self funded by the lead investigator. No incentive was offered to the participants to attend the session, which may have lead to poor attrition.

The before and after questionnaire should have had questions that were better coordinated in order to obtain useful data. The first one asked how many prescribed medications do you take everyday, and how many over the counter medications do you take everyday? The second only asked, how many different medications do you take everyday? This made it difficult to assess what kind, and how many medications participants took every day.

The study could have been impacted by sample bias. People who generally enjoy art were probably more likely to volunteer to be in the study and more likely to remain active participants in the study. If someone does not like to create art, then art therapy may not lower blood pressure for that person. Another example of sample bias is that everyone who participated in the study had a family history of HTN.

The art therapist who volunteered to conduct the study was white and much younger than the participants. Due to prior experiences of discrimination while obtaining health care services, black Americans have a higher level of distrust of healthcare providers than the non-black population (Armstrong et al., 2013). If an art therapist had been a black woman, closer to the age of the participants, the attendance may have been better and they may have had a better relationship with the art therapist, thereby leading to better results. The lead investigator did go to the local Art Therapy Association and there was no therapist available who met these qualifications.

Perhaps the greatest barrier to the success of this study was that the study design was limited to blood pressure measurement only and it did not document the lived experiences of people coping with HTN. The very basis of art therapy used in the treatment of medical disease is to maintain ones integrity and identity while finding meaning in their lives (Anand, 2016). Art therapy is an opportunity to examine and express feelings and beliefs through the process of creating art. The conversations during each session were very insightful in regards to the lived experiences of these women dealing with hypertension. The researcher did not include the conversation content as data because the IRB application only requested to collect blood pressure readings and no qualitative data outside of the questionnaires. The research team feels that the qualitative data within the course of the conversations during each session is important for health care providers to know in order to improve the care of their patients. Providers need to know the real and perceived barriers their patients have in order to treat them effectively.

For this project, the tool used by Beebe for children with asthma was adapted for adults (Beebe et al., 2010). It would be beneficial to have another tool created just for adults.

This intervention focused on psychosocial aspects of living with HTN. There were no open studio sessions during the study due to a lack of access to a studio. Each session had a guided activity to get participants to express and reflect on issues such as barriers to success, feelings of living with HTN, contrast how they feel when they are healthy to how they feel when their blood pressure is elevated. On reflecting with the art therapist regarding how the study could be improved, she suggested alternating open studio time with guided art/psychotherapy sessions. Just creating art allows the mind to wander and relax, which may be just as beneficial as the psychosocial therapy (Machiodi, 2013).

Blood pressure was not measured during the creation of art within the study. It would be very interesting to monitor blood pressure every thirty minutes while participants are just creating art to see if the blood pressure changed during the creative process. Another approach to investigate the physiological effects of creating art would be to simply use a heart rate monitor and record one's pulse during the art therapy session and during open studio sessions at 15 or 30 minute increments to see what physiological responses occur. One participant stated that they least liked talking about HTN so removing that aspect may lead to different results. It would be interesting to separate the psychosocial and artistic aspect of art therapy and see what impact each one has on HTN.

Blood pressure is impacted by many variables such as, physical activity, weight changes, day-to-day dietary fluctuations of the intake of sodium, fluids and caffeine,

medication adherence, as well as the changing psychological factors of stress and anxiety. The researcher had no control over how any of these impacted the participants at any time in the study. Future studies should be completed in an environment where there is more control or better documentation of diet, physical activity, stress, and medication adherence. One place to do this would be at an assisted living facility or a convent where residents eat similar diets and they have weekly scheduled activities that do not vary as much as people who live out in the community.

### **Key Successes**

The investigator improved her knowledge base of the research process, which was gained from planning, implementing and evaluating the effects of art therapy on hypertension as well as completing an Investigational Review Board process. The investigator gained experience in networking with local faith based nursing organizations that are promoting healthy lifestyles within the community. Collaboration skills within interdisciplinary professionals, which included a faith based nursing organization, a PhD art therapist and instructor at a local university, and a local art therapist were improved. Connections made in this project are ones that will continue. Currently, collaborations for future studies are being discussed with the deans of the departments of fine art and the school of nursing at a local university.

The conduction of this DNP project allowed the investigator to gain insight into the operational requirements needed to develop and maintain a strong DNP program. There was an increase in appreciation, understanding and enthusiasm for the role of the DNP in clinical, educational, political, and community settings. The completion of the

project reinforced the roll that DNPs have in the implementation and integration of research into the clinical setting.

Getting to know the participants and listening to their discussions during the art therapy sessions increased the investigators understanding of their lived experience of dealing with hypertension and the barriers they face in controlling the disease process.

### **Lesson Learned**

Passion does not translate into universal buy in. It does not encourage others to be more interested in learning about art therapy. It does not motivate participants to show up at each art therapy sessions despite either the initial interest in participating in the study, or from the enthusiasm of the investigator.

### **Implications for Future Research**

The pilot study was designed to determine the feasibility of conducting a study on the effect of art therapy on BP hence, the guidelines for data inclusion were left open in order to determine what kind of data and guidelines would strengthen future studies. The informed consent form (ICF) should have had a more detailed plan for inclusion of data into the study. This was also reflected in the design of the study. The number of sessions that participants attended varied from two to eight. It was questionable if the data from the participant who attended only two sessions should have been included. In order to increase statistical strength, the two session data was included, however it made little impact on the findings of the study. In the future, studies should have more rigid guidelines for the inclusion and utilization of data collected as well as for the missing data obtained in the study.

Further studies should be conducted in a setting where there is more control over, or better documentation of influential factors like medication, diet and exercise, which could be conducted at an assisted living facility or a convent.

It may be beneficial to decrease the number of art therapy sessions to increase the attendance, or offer sessions on more than one day of the week to improve participation.

Further studies should be conducted as mixed method studies and be designed to collect qualitative data on the lived experiences of individuals coping with hypertension.

The medications taken by each participant should be listed and tracked along with the amount of exercise done each week to determine if participants on certain medications and those who do or do not exercise have a greater change in BP than others.

One participant verbalized that she had “white coat syndrome” which could have impacted the data. Future studies should eliminate people who have white coat syndrome from being in the study. Future participants in art therapy studies should get a clearance from their primary care provider stating that they have not had any medication changes for two months before the study. They should have a clearance to participate in the study indicating any parameters in BP limits that may warrant their removal from the study.

Studies that evaluate the physiological impact of the creative process without the psychotherapeutic process should be conducted.

The linear regression analysis showed that art therapy had a cumulative trend of lowering BP. When BP was measured at the follow-up session at week 12, the participants had four weeks without art therapy, and BPs began to return to the baseline. Further research must be completed that examines, how many art therapy sessions are needed to lower BP? At what point is there no longer a cumulative benefit of weekly art

therapy? What is the most therapeutic frequency of conducting art therapy sessions to lower BP and maintain a lowered BP? Studies with a larger sample size are needed to determine the robustness of the impact of art therapy on HTN.

### **Policy Implications**

On October 18, 2017 the US Second Lady, Karen Pence, announced that the initiative she will be working on throughout her term is art therapy: Healing with The HeART. Her goals are to educate the public so that they understand that art therapy is a mental health profession and not arts and crafts ("Pence, K.," 2017). She wants people to know that art therapy is an option for various conditions, illnesses, and life experiences ("Pence, K.," 2017). Her last goal is to encourage young people to go into the profession ("Pence, K.," 2017).

In the majority of states, art therapists are not allowed to bill insurance companies for their services because they are not licensed mental health professionals. Many state art therapy associations are lobbying for legislation that allows them to be licensed and get reimbursed for their services. Many patients and providers do not use art therapy as a treatment option because patients cannot afford to pay for the therapy. Primary care providers and their patients will benefit from legislation allowing licensure because it will increase access to mental health care. State nurse practitioner organizations and state medical associations should give their support to the art therapy associations as they strive to achieve licensure for their discipline.

### **Implications for Future Clinical Application**

CAT has the potential to help manage chronic disease by helping people express feelings and beliefs they cannot put into words. It helps them identify, internalize and understand the beliefs that are acting as barriers to disease management. It may be beneficial to combine CAT and motivational interviewing to enable patients to understand the beliefs that motivate them to make lifestyle modifications. This could be included in treatment plans for diabetes, HTN, and chronic obstructive pulmonary disease. Art therapy treatment plans could be developed, specialized and implemented in the management of various disease processes.

### **Conclusion of Chapter V**

The quantitative findings were not robust enough to determine if art therapy had an effect on hypertension in black American women. There was no statistically significant effect of art therapy on BP readings. There was a trend of lower blood pressures as a result of art therapy however, the present sample size was too small to draw any inferences. This indicates that further research is warranted to obtain more robust data on the effects of art therapy on hypertension. The trend of lower blood pressure must be validated by future research with a mixed method, randomized control group, completed with a larger sample size. Future studies must have greater control or improved documentation of medication, diet, and exercise patterns of the participants.

The anecdotal findings offered insight into the lived experience of these women trying to manage chronic hypertension. Future studies must include qualitative data so

that health care teams can understand the lived experiences of their hypertensive patients and identify beliefs and emotions held by patients that act as barriers to self-efficacy.

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## Appendix A: Art Therapy Session Flow Chart

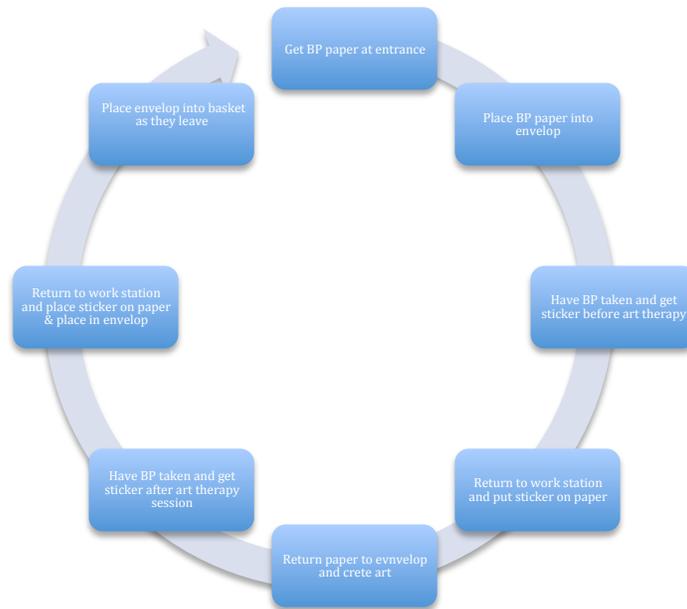


Figure 2. Art Therapy Session Flow Chart

## Appendix B: Questionnaires

### First Art Therapy Study Questionnaire

1. What is your age?

1. 90-81
2. 80-71
3. 70-61
4. 60-51
5. 50-41
6. 40-30

2. What is your highest level of education?

1. 8<sup>th</sup> grade
2. Some high school
3. Some college
4. College Degree
5. Master's Degree of higher

3. Who lives with you?

1. I live alone
2. Myself + 1
3. Myself + 2
4. Myself + 3
5. Myself + 4 or more.

4. How many prescribed medications do you take everyday?

1. none
2. 1-2
3. 3-4
4. 5-6
5. 7 or more

5. How many over the counter medications do you take everyday?

1. none
2. 1-2
3. 3-4
4. 5-6
5. 7 or more

6. Do you use illegal medications?

1. Yes
2. No

7. How many days a week do you miss taking your medications?
  1. 1
  2. 2
  3. 3
  4. 4
  5. 5 or more days a week
  
- 8 Do you have a family history of heart disease?
  1. Yes
  2. No
  
9. How many days a week do you exercise?
  1. 1
  3. 2
  4. 3
  5. 4-5
  6. 6-7
  
10. How long do you exercise when you do exercise?
  1. 15 minutes
  2. 30 minutes
  3. 45 minutes
  4. 1 hour
  5. I exercise more than an hour at a time
  
11. Do you smoke?
  1. Yes
  2. No
  
13. Are you overweight?
  1. Yes
  2. No
  
14. How comfortable are you with your knowledge of what a heart healthy diet is?
  1. I am very uncomfortable with my knowledge.
  2. I am a little uncomfortable
  3. I am neither comfortable nor uncomfortable with my knowledge
  4. I am sort of comfortable with my knowledge
  5. I am very comfortable with my knowledge

## Second Art Therapy Questionnaire

1. How many different medications do you take everyday?
  1. None
  2. 1-2
  3. 3-4
  4. 5-6
  5. 7 or more
  
2. How many days a week do you miss taking your medications?
  1. 1
  2. 2
  3. 3
  4. 4
  5. 5 or more days a week
  
3. How many days a week do you exercise?
  1. 1
  2. 2
  3. 3
  4. 4-5
  5. 6-7
  
4. How long do you exercise when you do exercise?
  1. 15 minutes
  2. 30 minutes
  3. 45 minutes
  4. 1 hour
  5. I exercise more than an hour at a time
  
5. Do you smoke?
  1. yes
  2. no
  
7. How comfortable are you with your knowledge of what a heart healthy diet is?
  1. I am very uncomfortable with my knowledge.
  2. I am a little uncomfortable
  3. I am neither comfortable nor uncomfortable with my knowledge
  4. I am sort of comfortable with my knowledge
  5. I am very comfortable with my knowledge
  
8. Did you have any medication changes while you were in the study, and if so what were they?