WHAT IS THE LEVEL OF KNOWLEDGE ABOUT HYPERTENSION AMONG A CONVENIENCE SAMPLE OF COMMUNITY MEMBERS AND DOES THIS CORRELATE WITH HTN MEDICAL REGIMEN COMPLIANCE?

By

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Submitted in partial fulfillment of the requirements for the Advanced Research in Nursing class in the Masters of Science in Nursing Degree in the College
Albany State University
Spring 2017
# CONTENT

## Chapter 1 Introduction

- Background.......................................................................................4
- Theoretical Framework.................................................................5
- Assumptions...................................................................................6
- Research Questions........................................................................6
- Definition of Terms..........................................................................6
- Problem Statement..........................................................................7
- Purpose.........................................................................................7
- Significance..................................................................................8

## Chapter 2 Literature Review

- Literature Review..........................................................................10

## Chapter 3 Methodology

- Research Design............................................................................19
- Setting........................................................................................19
- Population and Sample...............................................................19
- Instruments and Data Collection...............................................20
- Data Analysis...............................................................................22
- Limitations..................................................................................22
- Protection of Human Subjects....................................................23

## Chapter 4 Research Findings

- Results & Data Analysis..............................................................24
- Demographic Questions.............................................................24
- Demographic Data Results........................................................24
- Summary/Findings for Research Question..................................34

## Chapter 5 Summary, Conclusions & Recommendations

- Summary..................................................................................35
Conclusions/Discussion........................................................................................................35
Recommendations for Future Research............................................................................37
Implications for Nursing Practice......................................................................................41

References
........................................................................................................................................43

Appendix A
Cover Letter/Informed Consent..........................................................................................46

Appendix B
Demographic Survey...........................................................................................................47

Appendix C
Survey Questions..................................................................................................................49

Appendix D
CITI Certification/Protection of Human Subjects.................................................................54
Chapter I
Introduction

Background

A contributing factor to noncompliance of patients with hypertension is the lack of knowledge about hypertension, its treatment, and its side effects. Whereas the responsibility for compliance cannot be solely shifted to patients, studies have shown that poor knowledge of patients on their management is associated with low patient education level (Lubaki, J., Mabuza, L., Malete, N., Maduna, P., & Ndimande, J. V. 2009). Improved recognition of the importance of systolic blood pressure (SBP) has been identified as one of the major public health and medical challenges in the prevention and treatment of hypertension (HTN). SBP is a strong independent risk factor for cardiovascular disease but limited information is available on whether patients understand the importance of their SBP level. This chapter will discuss the significance of educating patients on their disease could have on adherence to recommended pharmacological treatments and lifestyle changes.

Noncompliance in hypertension management is a common trend being seen in the healthcare settings and it is leading to more life threatening complications. For instance, several clinical trials in hypertension have shown that reduction of blood pressure is associated with significant decreases in the incidence of stroke, ischemic heart disease, congestive heart failure, and renal failure, irrespective of age, gender, race or ethnicity, type of antihypertensive used, or severity of hypertension (Chobanian 2009). Over 65 million Americans are diagnosed with hypertension every year but only one third of hypertensive patients maintain control (CDC 2015). In 2000, about 26.4% of the world adult population suffered from hypertension and it
was estimated that by 2025 the global percentage will have increased to 29.2% (Lubaki et al., 2009). Hypertension is the leading cause of coronary artery disease and stroke (Gross, B., Anderson, E., Busby, S., Frith, K. H., & Panco, C. E. 2013). Adherence is a complex multifactorial behavior that is influenced by social and economic factors (age, race, sex, and socioeconomic status, etc.), patient related factors (knowledge, attitude, and beliefs, etc.), conditions and treatment related factors (severity of the symptoms and disease, complexity of the medical regimen, duration of treatment, and adverse effects, etc.), provider characteristics (communication, skills, training, and resources, etc.), and setting (drug coverage, cost sharing of medications, and access to medication and clinical care, etc.) (Viswanathan, M., Golin, C., Jones, C., Ashok, M., Blalock, S., Wines, R., & ... Lohr, K. 2012). Since patient knowledge level is one of the factors which may impact adherence, my goal was to determine a community groups knowledge base about HTN to further future studies.

**Theoretical Framework**

I chose Merle H. Mishel’s Uncertainty in Illness Theory as the framework for my research paper. Mishel believes that uncertainty is the inability to determine the meaning of illness-related events, occurring when the decision maker is unable to assign definite value to objects or events, or is unable to predict outcomes accurately. Educating patients on their illness, treatment, and side effects also can lessen the amount of uncertainty they feel regarding their illness. Uncertainty is a constant occurrence from the diagnosis to living with a chronic illness. Uncertainty decreases over times and returns on illness recurrence or exacerbation. Uncertainty can be the most distressing to a person during the diagnosis phase. This is the point at which health care providers could lessen the uncertainty of a patient by educating the patient about the illness, showing confidence in treating their illness, and giving the patient clear and concise information.
Assumptions

1. Given a survey, the participants will answer honestly.
2. Provided the location of the survey it is assumed the participants will be random.

Research Question

1. What is the knowledge level about HTN among a convenience sample of community members and does this correlate with HTN medical regimen compliance?

Definition of Terms

1. Hypertension- Abnormally high blood pressure (Greater than 140/90).
2. Knowledge- facts, information, and skills acquired by a person through experience or education; the theoretical or practical understanding of a subject calculated as the proportion of the correct answers on the study survey.
3. Compliance- to act or be in accordance with wishes, requests, demands, requirements, conditions (Dictionary.com 2016). In medicine - The consistency and accuracy with which someone follows the regimen prescribed by a physician or other health professional (The Free Dictionary 2012).
4. Noncompliance- Failure or refusal to comply (MedicineNet 2017). In medicine, the term noncompliance is commonly used in regard to a patient who does not take a prescribed medication or follow a prescribed course of treatment. A person who demonstrates noncompliance is said to be noncompliant (MedicineNet 2017).
5. Medical regimen- a systematic plan (as of diet, exercise, therapy, or medication) especially when designed to improve and maintain the health of a patient (Merriam-Webster 2016).
Problem Statement

Patients with uncontrolled hypertension require proper education in order to properly manage their blood pressure problems. Hypertension currently affects 29% of American adults (CDC 2015). The reasons for poor hypertension control rates in the United States are not fully understood. There are many suggested barriers to hypertension control, such as poor medication adherence, lack of knowledge, failure of providers to adequately treat hypertension and inadequate access to medical care. However, data supporting these hypothesized barriers are conflicting and successful interventions to target them are limited (DeVore et al., 2010). Untreated or uncontrolled hypertension can lead to heart attacks, stroke, heart failure, kidney disease or failure, vision loss, sexual dysfunction, angina and peripheral artery disease (PAD) (AMA 2017). Providing extensive education about Hypertension including its etiology, side effects, signs and symptoms and treatment may help in reducing the cases of non-compliance in its management. Investments in effective prevention strategies provide the best opportunity to improve the health of Americans and control health care spending. Although not easily measurable, community based hypertension programs may have contributed, in some way, to a reduction in myocardial infarction and stroke over the past few decades (Ferdinand et al., 2012).

Purpose

The purpose of this study is to determine the level of knowledge the people in this community, with or without a diagnoses of HTN, have about this disease and whether it correlates with HTN medical regimen non-compliance. The results of this study could be used to
further the question of how proper education about hypertension may decrease the number of people who are non-compliant with their treatment.

**Significance**

The findings from this study could help to change the practice of when and how education is explained to people newly diagnosed with hypertension, which in turn could have a positive impact on compliance. Nurses these days are worked to their max with little or no time to educate patients. For example, an emergency center (EC) nurse has on average 4 patients that they have to start IV’s on, draw blood, give meds to, perform EKG’s, insert Foleys and NG tubes into, and infuse blood into, just to name a few. These four patients revolve all day. When one leaves, another one replaces them and the tasks start all over. The EC is often times the frontline of patient care. These nurses see patients at their most vulnerable times, when they are finding out the effect of non-compliance, or are just newly being diagnosed with a chronic disease. Many of these patients do not have a primary medical doctor and wait until the last minute to come to the EC for help. This is the perfect time to educate a patient and explain how compliance with their medical regimen can reduce or slow the progression of their illness. We as nurses could help reduce the number of people that suffer or die from complications due to non-compliance. It is important for physicians and nurses to properly educate their patients about hypertension. There is a reasonable and growing body of literature that indicates that nurses can significantly improve hypertension outcomes. Today the roles of nurses and nurse practitioners (NPs) in hypertension management involve all aspects of care, including detection, referral, and follow up; diagnostics and medication management; patient education, counseling, and skill building; coordination of care; clinic or office management; population health management; and
performance measurement and quality improvement (Dennison Himmelfarb, Commodore-Mensah, & Hill 2016). Nurses, for example, have demonstrated successful strategies for improving BP by serving as a bridge to physician care and by adhering more strictly to management algorithms, including many counseling features that may not necessarily be within the time frame of a busy physician in practice. Most aspects of hypertension risk reduction, such as eating a well-balanced, low sodium diet, limiting alcohol, regular physical activity, maintaining a healthy weight, and taking prescribed medications, do not require a physical examination. In addition, BP can be measured at home; thus, much of the care of hypertension could be accomplished outside of the traditional confines of office-based clinical care. Telemedicine or remote monitoring in patients’ homes has been offered as a plausible solution to improve ambulatory medical care. However, current reimbursement models do not encourage these in-person and remote primary care interventions (Carter et al., 2012). Therefore, nurses may make a significant impact in HTN education and compliance by researching and finding solutions to ensure we are educating patients when they are diagnosed with HTN. Nurses should also monitor the effectiveness of the medical regimen, and make changes as needed, while increasing the ease and convenience to access of care and education for the patients.
Chapter II
Literature Review

The purpose of this study is to assess the level of knowledge hypertensive patients have about their disease and its perceived severity and to ascertain whether this knowledge, or lack of, correlates with medical regimen non-compliance. The answer to this question will, I think, motivate more nursing research on patients’ lack of education and the resulting non-compliance due to that lack of knowledge and the perceived severity of the disease. The purpose of this chapter is to review the nursing research on how educated community members are about their hypertension (HTN) and how that correlates to non-compliance.

There are very few studies about the knowledge level of hypertension among effected persons, especially in the United States. The following are studies on this topic. Some are classic but the knowledge gained through the studies are still relevant today.

Knowledge level

A quantitative research study using a descriptive survey for non-experimental research was performed in Poland among adolescents between April and June 2013 to assess the level of knowledge about HTN. The study consisted of 250 adolescents and was carried out using three questionnaires, a questionnaire created by the author, and two psychological test: Personal Competence Scale (PCS) and Personal Values List (PVL). The PCS was used to assess general self-effectiveness as well as its components such as a feeling of strength to start an action and prevail to continue it. The PVL was used to rank the value of health among the subjects. It was pointed out by the author that an individual’s knowledge is best put into practice only if the subject of the knowledge applies to the system of a given person’s value. That being said, the results of this study showed that 20% (n=50) of adolescents fail to consider health to be a
component of their system of important personal values (Grad, Mastalerz-Migas, & Kiliś-Pstrusińska 2015). The knowledge portion of the study consisted of a questionnaire measuring the participants’ knowledge of the epidemiology, causes, symptoms, complications, ways of treatment, and preventative strategies of HTN. The score was measured by giving 1 point for correct responses, -2 points for incorrect ones and 0 points for don’t know responses or a lack of response. The score was then calculated into percentages and categorized by good knowledge (75% or above), medium knowledge (74%-50%), and unsatisfactory knowledge (less than %50). The results of the study showed that knowledge about HTN is unsatisfactory with 49.2% (n=123) of the adolescents having a low level of knowledge, 38% (n=95) having a medium level of knowledge, and only 13% (n=32.5) having a good level of knowledge, which indicates the perceived lack of necessity of its promotion across this age group, especially knowledge of hypertension symptoms (Grad, Mastalerz-Migas, & Kiliś-Pstrusińska 2015). The study also revealed other important relationships, such as the fact that there were no correlation between knowledge of HTN and age or gender. School was also considered by the subjects to be the main source of knowledge on HTN. Students who previously had BP measurements possessed twice the degree of knowledge on HTN as peers who have not had such tests (Grad, Mastalerz-Migas, & Kiliś-Pstrusińska 2015).

A study performed by three Master’s degree-prepared nurses and a Doctoral degree-prepared nurse pointed out that the church is a great place to increase the community’s knowledge level on HTN. They performed a survey that consisted of 50 items that assessed: (a) characteristics of the church; (b) existence of an active health ministry or nurses’ guild; (c) frequency of blood pressure screenings and educational offerings on hypertension; (d) health education needs of the church, and the challenges to providing health promotions activities. Forty-five surveys were
completed and since this study is on the knowledge level of people with HTN, we will focus on this part of the study. Of those surveyed, the majority (78% n=35) said that developing a HTN program was very important and most (73% n=33) felt they had some knowledge about BP resources and novel program ideas but they desired more information (Aycock, Kirkendoll, & Gordon, 2013). When church representatives were asked to identify the most important health program needed to address their congregations’ health and well-being, the most common need was high blood pressure (34%, n=15.3), followed by diet and/or exercise (14%, n=6.3), cardiovascular disease (11%, n=4.95), and weight management (11%, n=4.95). Of those surveyed, 18% (n=8) stated they were very knowledgeable on HTN and available resources, 73% (n=33) somewhat knowledgeable, and 9% (n=4) were not knowledgeable. The results of the study brought to light the fact that the community wants to know more about HTN and by providing education, screenings, referrals, and group support to help with the prevention and control of hypertension, we have a great potential to contribute to eliminating this health knowledge deficit.

**Correlation with lack of knowledge and HTN regimen non-compliance**

A qualitative descriptive study by Lubaki, Mabuza, Malete, Maduna, and Ndimande (2009) was completed to evaluate reasons for non-compliance among patients with hypertension. The study was held at Vanga Hospital in the Democratic Republic of Congo. This study used the focus group interview technique for data collection. “Three focus groups were formed: the first was heterogeneous in terms of gender (five males and three females), the second homogeneous (six male), and the last also homogeneous (six females). The data collected were analyzed using the thematic analysis method with grounded theory” (Lubaki et al. 2009). According to Lubaki et al. (2009), five themes effecting compliance were identified during the study. They were side
effects, subjective feeling of high blood pressure, and knowledge of hypertension, support, and access to medication. The study showed that side effects discouraged patients from taking their medications. The study also showed that patients would take their medication only when they experienced symptoms of hypertension. Patients in the study reported lack of support from family members and access to medication as a cause contributing to their non-compliance.

Lubaki et al. (2009) also reported that patients clearly had a lack of knowledge about hypertension and its treatment. This study reported lack of knowledge about the disease and its treatment was responsible for the stoppage and/or alteration of the medication. “Low education level leads to poor conceptual understanding of hypertension as a silent killer which manifests in the sufferer when the damage has already been done” (Lubaki et al., 2009).

A systematic review by Viswanathan et al., (2012) was done to assess the comparative effectiveness of patient, provider, systems, and policy interventions that aim to improve medication adherence for chronic health conditions in the United States. According to Viswanathan et al. the evidence from their study, which included 62 trials (68 articles) suggests that many pathways provide opportunities to improve medication adherence across clinical conditions. The review was interested in how different interventions, such as providing blister packaging, case management, collaborative care (in person and telephone), education (face-to-face with pharmacist), education and behavioral support (telephone, mail and/or video), education and social support, health coaching, patient access to medical records, reminders, risk communication, self-management, shared or clinical decision making, telephone counseling (with care management and monitoring), and virtual clinics would impact adherence to medications to treat chronic diseases such as diabetes, hyperlipidemia, hypertension, heart failure, myocardial infarction, asthma, depression, glaucoma, multiple sclerosis and
musculoskeletal diseases. Concentrating on the hypertension portion of the review, five interventions showed evidence of benefit. Due to clinical or methodological heterogeneity, low numbers of similar studies, and insufficiency in outcome reporting, the data was synthesized qualitatively instead of quantitatively. The interventions were grouped into categories that reflected key intervention components and were then graded using a strength of evidence scale. The grades incorporate 4 key considerations when the strength of a stated effect is being evaluated: risk of bias (including study design and aggregate quality), consistency, directness, and precision. Studies with high risk of bias and no variation in directness were excluded. As a result, consistency and precision were key drivers of the strength-of-evidence grades in this body of studies with medium and low risk of bias. Of the intervention approaches tested across different clinical conditions, educational interventions with behavioral support through continued patient contact over several weeks or months and case management offer the most voluminous and consistent evidence of improvements in medication adherence and other health outcomes when it came to hypertension (Viswanathan et al., 2009). In regards to hypertension medication adherence, all other interventions mentioned before indicated no evidence of benefit. The study also, however, reported that decreasing patient out-of-pocket cost increases medication adherence in all clinical conditions. Viswanathan et al., (2009) stated that policymakers making changes in health policy should take note of their assessment.

A study by Trogdon, Larsen, Larsen, Salas and Snell (2012) was conducted by the Utah Department of Health, Heart Disease and Stroke Prevention Program (HDSPP). This study analyzed the cost-effectiveness of a patient hypertension education intervention that provided patient education through interactive voice response technology and distribution of automated blood pressure monitors to high-risk plan members with uncontrolled hypertension. A total of
17,318 members were identified with hypertension in an administrative database. Using data on activity-based program costs and changes in hypertension control, this study modeled the intervention’s cost-effectiveness relative to no intervention. The intervention was estimated to have brought hypertension under control in 151 patients during the study year (Trogdon et al., 2012). Across all 534 participants in 1 year, 0.3 events (acute myocardial infarction, stroke, congestive heart failure, and renal failure) were avoided and 2.77 life-years were gained (LYG). The intervention is a cost-effective strategy to address hypertension and can serve as a model for future innovations (Trogdon et al., 2012).

A quasi-experimental study by Lauziere, Chevarie, Poirier, Utzschmeidet and Belanger (2013) was conducted to examine the effects of a structured interdisciplinary education program on blood pressure, knowledge, anthropometric measures, medication compliance, behavioral risk factors and quality of life. The study group consisted of 40 participants. Of the 40 participants 21 were in an intervention group and 19 were in a regular care group. The intervention group consisted of four weekly education sessions of one to two hours duration. The education consisted of an overview of hypertension (HTN), its risk factors and consequences, and instructions on how to self-monitor blood pressure (BP), dietary approaches to stop HTN using the DASH diet, the benefits for physical activity with examples of exercises, and pharmacological options for treating HTN and the importance of adhering to pharmacological treatments. The regular care group did not receive education.

At the end of the study the participants BP, height, weight, waist circumference and body mass index (BMI) were taken and compared to their pre-study baseline. The participants were also given three questionnaires that included a health survey to evaluate quality of life, a
knowledge of HTN and its risk factors questionnaire, and another on lifestyle (diet, physical activity, smoking and alcohol use) (Lauziere et al., 2013)

The results showed a reduction in systolic blood pressure (SBP) in the intervention group. No significant changes in weight, BMI, waist circumference, quality of life, lifestyle, or dietary habits of either group were noted. In conclusion, in the study, a simple interdisciplinary education program resulted in a significant reduction in SBP. It is, nevertheless, unclear how the education programs led to an improvement in BP, given the potential mediators studied were not associated with significant between-group differences. It is possible that improvements in SBP were the result of an accumulation of small, but non-statistically significant improvements in several mediators. Others have indicated that it is difficult to determine which components of complex interventions affect changes in BP (Lauziere et al., 2013).

The African-American population has the highest prevalence of hypertension of any ethnic group in the United States, with approximately 33% of the African-American population affected (Gross, Anderson, Busby, Frith, and Panco 2013). Another study by Gross et al., (2013) was conducted to assess the outcomes of a culturally sensitive educational program to African-Americans on an antihypertensive regimen. The study consisted of ten African-American patients at least 19 years old with a diagnosis of HTN. Baseline beliefs, knowledge and literacy were determined before the educational sessions. The behavioral beliefs were identified by first asking the participant about his or her beliefs regarding HTN and the recommended treatment. Next the participant was asked to list the important people or groups of people who would either approve or disapprove of the participants' behavior following the HTN treatment plan. Last, the participants were asked to list any factors or circumstances that might encourage or discourage them from engaging in the desired behavior. The knowledge tool was developed by the
researcher and assessed each participants’ knowledge of HTN and how their lifestyle impacts the disease. It included questions on demographics, health habits, and knowledge of prescribed HTN medications. The final question asked what specific information the participant would like to learn during the subsequent educational sessions. The tool used to identify baseline literacy was the Newest Vital Sign literacy assessment tool. The education plan included objectives, teaching points, strategies, and an evaluation to determine if adherence to the treatment plan had been achieved (Gross et al., 2013).

At the end of the study, a questionnaire was completed and all ten patients stated their knowledge of HTN treatment had increased as a direct result of the information provided during the education sessions. The patients also followed their medication regimen by proof of a medication diary. The patient agreed to lifestyle changes such as eating healthier, maintaining a record of weight, smoking cessation, and beginning a safe exercise program. However, the elderly patients did not agree to an exercise program due to the fear of crime while walking in their neighborhoods. In the beginning of the study, some of the patients had blood pressure readings over 180/110 with complaints of headaches and blurred vision. By the completion of the project all ten of the patients had blood pressures within normal limits and also stated that their knowledge of hypertension treatment had increased as a direct result of the information provided during the education sessions.

The ultimate goal is to correlate a lack of knowledge about HTN and rate of non-compliance. I think that by studying the knowledge my community has about HTN, I will have completed the leg work for someone to further my research by testing whether they become more compliant after several interventions that consist of education on the disease.
One thing I have noticed while researching this topic is that there are very few nursing research articles or studies on the lack of education and correlation to non-compliance here in the United States (US). Almost all articles or studies I located were done in another country and most were medical research conducted by doctors. This indicates that there is a need for further research in this area. In the future there needs to be more nursing research on patients’ level of knowledge about their disease, how that lack of knowledge correlates with medical regimen non-compliance, and ways to fix this lack of knowledge.
Chapter III

Methodology

Research Design

This is a quantitative research study using a survey for non-experimental research. The study included people of all ages, races, genders and income levels in the community who may or may not have been diagnosed with HTN. The researcher, with written consent, administered the self-made survey to ascertain the participant’s level of knowledge, awareness, attitudes, and perceptions related to HTN. A treatment intervention was not given.

Setting

This study was conducted in a southwest Georgia community. The area had a busy gas station with a built in Dunkin Donuts, a greyhound/local bus station, a fruit stand, a cheap hotdog stand, the city police station and not too far away, many homeless shelters, a Goodwill, and a Salvation Army. Participation was on a voluntary basis. I set up a table and tent in the high traffic community area and asked members of the community to take a minute to fill out a survey. This study lasted approximately 7 hours with a total of 30 subjects volunteering to participate by completing the survey.

Population and Sample
The population consisted of a convenience sample of people of the community who were at least 18 years of age, any gender, race/ethnicity, education or income level, and who reported having a diagnosis of HTN. Because these people were in the right place at the right time, convenience sampling was used (Groves, Burns, & Gray 2013). Convenience samples are also inexpensive and accessible, and they usually require less time to acquire than other types of samples (Groves, Burns, & Gray 2013). A deadline of 4 weeks was planned in order to reach a goal of 30 participants, but by using an area of high local traffic, the goal was met in just one day. Through my years of emergency center (EC) experience I have come to notice that the clientele that use the EC as their primary care provider are not those of higher education. Since I am ultimately trying to understand if the education on HTN is low and that this lack of knowledge may lead to non-compliance, I chose an area to perform my survey that better represented the population I was trying to study.

**Instruments and Data Collection**

Before any data was collected, prior authorization was obtained from the university review board. The data collection form used included patients’ age, gender, race, education level, and annual income. To maintain consistency each participant received the same data form to complete. The data collection form was created on a 7th grade reading level to ensure all participants could complete it correctly. I also performed a pilot study on 5 family/friends who reported the collection form was easy to read and understand. The instrument used in this study consisted of a 22 question survey, mostly true or false questions, that the researcher formulated.
The questions for the survey were derived from the myths or misconceptions about HTN that have been noticed through the researcher’s many years of nursing experience. To gain the attention and interest of participants, the researcher offered a five dollar gift card to the Dunkin Donuts for participating in the survey.

The first 15 questions of the survey were used to ascertain the participants’ knowledge of hypertension. The questions were answered by choosing either True or False. Each quiz item was scored using 0 = incorrect and 1 = correct. The quiz score average (which is labeled “Knowledge of HTN” on table 12) was calculated by dividing the sum of each of the correct responses by 15.

In the next part of the survey, questions 16-18 were used to determine the participants “self-reported understanding of HTN”. This part of the survey was labeled as such on table 12. The score for the self-reported understanding of HTN section was calculated by taking the mean of the responses to each of the three items. The Cronbach’s alpha for the 3-item section was .65. Although the standards for what makes a “good” α coefficient are entirely arbitrary and depend on your theoretical knowledge of the scale in question, many methodologists recommend a minimum α coefficient between 0.65 and 0.8 (or higher in many cases); α coefficients that are less than 0.5 are usually unacceptable, especially for scales purporting to be unidimensional (Goforth 2015).

The next section of the survey, questions 19-21 were aimed at finding out the participants efforts to comply with such things that would help lower or control their blood pressure. This section was scored by assigning a number between 1 and 5 to each question, with 5 being the most compliant and representing “always.”
The last question of the survey, question 22 was used to measure the participants anticipated effect of additional knowledge on HTN, and is labeled as “Anticipated Effect of AK” on table 12. This question was scored by assigning a 0 or a 1 to each of the four items, representing things they would be willing to do if they had more knowledge of HTN. A 0 means the participant would not be willing to do the task, and a 1 is given if the participant would be willing to perform the task.

Data Analysis

The researcher used Descriptive statistics since the aim is to describe the sample’s level of knowledge. Since questions are true or false and closed-ended, the data used logistic regression where the dependent variable was binary in order to describe the data and explain the relationship between one dependent binary variable and one or more nominal, ordinal, interval or ratio-level independent variables. (Sauro, 2012). Cronbach’s alpha was used to test the reliability of internal consistency of the questionnaire. The categorical data/demographics in tables one through five was analyzed using relative frequency statistics, using a contingency table to display results. To answer the research question, the self-made survey score was contrasted with a single-sample t-test that was computed to compare the average test results to the chance probability performance level of .50, since participants were expected to score .50 on average by chance alone being that the answers are either true or false. Being that the last two questions of the survey were multiple choice, the answers to these questions were described in percentage form.

Limitations
Possible limitations included the small sample size, due to only using one local area, and difficulty convincing people to participate. This limited number can lead to a sample that does not represent the whole population. Because I chose convenience sampling, the approach is weaker and provides little opportunity to control for biases.

**Protection of Human Subjects**

The researcher understands that the protection of human subjects is very important and assured that no identifiable information was asked within the survey to maintain confidentiality and anonymity. Each survey question was closed-ended and allowed for only 1 response. Since data was obtained from written documentation the researcher will ensure that this information will remain in a safe secure area. The researcher followed the HIPPA guidelines to ensure that the patient’s privacy was maintained.
Chapter IV

Results and Data Analysis

The survey for this research was conducted to determine the level of knowledge the people in this community, with or without a diagnoses of HTN, have about this disease, and whether it correlates with HTN medical regimen non-compliance. For this survey, 5 demographic questions and 22 survey questions were completed. Thirty random participants were surveyed. The study was conducted in South GA at local coffee shop / gas station, on an individual basis.

Demographic Questions

The 5 demographic survey questions were about age, gender, race/ethnicity, education level, and annual income. A summary table of the descriptive statistics (minimum, maximum, median, mode, and standard deviation) for the demographic results can be found in tables 1 through 5. A copy of the demographic survey can be found in Appendix B.

Demographic Data Results

The participants in the age group ranging from 18 to 33 represented 20%, (n=6) of the sample. The age group ranging from 34 to 49 was 13.3%, (n=4). The participants in the age range 50 to 65 represented the majority of the sample, (63.3%, n=19). The age group ranging from 66 and older was the smallest 3.3%, (n=1). Table 1 below summarizes the age of the participants surveyed. On average the sample reported being between 34 and 65.
Table 1: Age Range of Participants

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 18 – 33</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>Age 34 – 49</td>
<td>4</td>
<td>13.3</td>
</tr>
<tr>
<td>Age 50 – 65</td>
<td>19</td>
<td>63.3</td>
</tr>
<tr>
<td>Age 66 or more</td>
<td>1</td>
<td>3.3</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>99.9</td>
</tr>
</tbody>
</table>

The majority of the 30 participants were male (56.7%, n=17). There were 13 female participants (43%, n=13), which gave a good diversity. Table 2 below summarizes and depicts the genders of the participants.

Table 2: Gender of Participants

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>17</td>
<td>56.7</td>
</tr>
<tr>
<td>Female</td>
<td>13</td>
<td>43.3</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>100</td>
</tr>
</tbody>
</table>

All the participants were either Black or White, with the majority being Black (90%, n=27), and the minority being White (10%, n=3). Table 3 below summarizes and depicts the diversity according to race/ethnicity.

Table 3: Race/ethnicity

<table>
<thead>
<tr>
<th>Race/ethnicity</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Black</td>
<td>27</td>
<td>90</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Asian</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>American Indian or Alaska Native</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Native Hawaiian or other Pacific Islander</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>100</td>
</tr>
</tbody>
</table>
All participants had at least some high school (33.3%, n=10). Participants with some college represented 46.7%, (n=14). Those with a college degree represented 20%, (n=6). Table 4 below summarizes and depicts the education level of the participants.

### Table 4: Education Level of Participants

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No High School</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Some High School</td>
<td>10</td>
<td>33.3</td>
</tr>
<tr>
<td>Some College</td>
<td>14</td>
<td>46.7</td>
</tr>
<tr>
<td>College Degree</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

The majority of participants made less than $15,000 a year (56.7%, n=17). The participants claiming to make $15,000-$50,000 annually were 33.3% of the total (n=10). The participants making an annual income of $50,001-$100,000 were (6.7%, n=2). There was only one participant that makes over $100,000 annually (3.3%, n=1).

### Table 5: Annual Level of Income

<table>
<thead>
<tr>
<th>Annual Income</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $15,000</td>
<td>17</td>
<td>56.7</td>
</tr>
<tr>
<td>$15,000-$50,000</td>
<td>10</td>
<td>33.3</td>
</tr>
<tr>
<td>$50,001-$100,000</td>
<td>2</td>
<td>6.7</td>
</tr>
<tr>
<td>More than $100,000</td>
<td>1</td>
<td>3.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

The next part of the survey ascertained whether the participants had hypertension, for which 100% of the participants answered yes (100%, n=30).
Knowledge of hypertension (Questions 1-15)

As mentioned before, this section was used to ascertain the participants’ knowledge of hypertension. Each question was true or false. The results revealed that the 17 males participating answered an average of 74.9% of the questions correct, and the 13 females that participated scored an average of 77.4% of the questions correct. Together, the 30 participants scored an average of 76%. A single-sample t-test was computed to compare .76 to the chance probability performance level of .50 (since participants were expected to score .50 on average by chance alone). This analysis revealed that the average performance level on the quiz (i.e., Knowledge of HTN) was statistically significantly greater than the otherwise expected performance proportion of .50, $t(29) = 9.89$, $p < .001$.

<table>
<thead>
<tr>
<th>Table 6: Knowledge of Hypertension (Quiz results)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Self-reported Understanding of Hypertension (Questions 16-18)

The next section of questions were to ascertain the participants’ self-reported understanding of hypertension. The Cronbach’s alpha for the 3-item Understanding of HTN was not the best, but okay at .65. Understanding of HTN was calculated by taking the mean of the
responses to each of the three items. The males’ self-reported knowledge of HTN was 86.6% (Mean=4.3333), while the females' self-reported knowledge was 85.1% (Mean=4.2564).

<table>
<thead>
<tr>
<th>Table 7: Self-reported Understanding of Hypertension</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
</tr>
<tr>
<td>----</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

**Compliance with Treatment (Questions 19-21)**

The next section of questions were to ascertain the participants’ compliance with a medical regimen. The results revealed that on average, both the males (Mean = 3.9412) and females (Mean = 3.8462), (Combined mean = 3.9000) controlled their HTN by taking their prescribed medications and exercising “sometimes” (Male mean = 3.8824, Female mean = 3.2308, Combined mean = 3.6000). On average, the participants controlled their HTN by eating healthy “sometimes” (Mean = 3.9333). The females controlled their HTN by eating healthy “sometimes,” (Mean = 3.6154), while the males on average controlled their HTN by eating healthy “most of the time” (Mean = 4.1765).
<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>17</td>
<td>1.00</td>
<td>5.00</td>
<td>3.9412</td>
<td>1.43486</td>
</tr>
<tr>
<td>Female</td>
<td>13</td>
<td>1.00</td>
<td>5.00</td>
<td>3.8462</td>
<td>1.51911</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>1.00</td>
<td>5.00</td>
<td>3.9000</td>
<td>1.44676</td>
</tr>
</tbody>
</table>

Table 8: Controls HTN by Taking Medication

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>17</td>
<td>2.00</td>
<td>5.00</td>
<td>3.8824</td>
<td>.25556</td>
</tr>
<tr>
<td>Female</td>
<td>13</td>
<td>2.00</td>
<td>5.00</td>
<td>3.2308</td>
<td>.28088</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>2.00</td>
<td>5.00</td>
<td>3.6000</td>
<td>.19535</td>
</tr>
</tbody>
</table>

Table 9: Controls HTN with Exercise
Anticipated Effect on Additional Knowledge

The last question of the survey was to ascertain what the participants would be willing to do to keep their HTN under control if they knew more about HTN. They had four different options: measure their BP daily, take their medications as directed, exercise more often, and eat a healthier diet. The participants had the choice to choose as many as they were willing to do. The results revealed that 41% (n=7) of males would measure their BP daily if they knew more about HTN, compared to 69% (n=9) of the females who would do the same. Combined, 53% (n=16) of the participants reported they would measure their BP’s daily if they knew more about HTN. Next, 77% (n=13) of males, and 85% (n=11) of females reported they would take their prescribed medications as directed if they knew more about HTN, with a combined percentage of 80% (n=24) of the participants. When it came to exercise, 41% (n=7) of males and 69% (n=9) of females, and a combined percentage of 53% (n= 16), reported they would increase their exercise if they knew more about HTN. Last, 77% (n=13) of males, and 62% (n=8) of females, with a
combined percentage of 70% (n=21), reported they would eat healthier if they knew more about HTN.

<table>
<thead>
<tr>
<th>Table 11 Anticipated Effect on Additional Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take BP Daily</td>
</tr>
<tr>
<td>Male n=17</td>
</tr>
<tr>
<td>Female n=13</td>
</tr>
<tr>
<td>Total n=30</td>
</tr>
</tbody>
</table>

The remainder of the discussion of my data analysis will be correlating the different variables depicted on Table 12 below. There are a few important factors to note before this correlation. I tested Gender across each of the Take HTN Medication, Control HTN with Exercise, Control HTN with Eating, Knowledge of HTN, Self-Reported Understanding of HTN, and Anticipated Effect of AK variables and didn’t find a single outcome variable that was statistically significant (i.e., $p < .05$); all Fs(1, 28) < 3.71. Thus, gender didn’t impact the findings on these variables. The sample means displayed in Table 12 are the most representative for both males and females. Also, because 27 of my participants identified themselves as Black,
and the remaining 3 identified as White, the data could be skewed with respect to Race so this demographic was omitted.

Self-Reported Understanding of HTN does appear to be positively associated with controlling one’s HTN by eating right, with a positive correlation of .40 (p < .05). On the other hand, Self-Reported Understanding of HTN does not appear to be correlated with one’s actual Knowledge of HTN, and so it is questionable how diagnostic the correlation between Self-Reported Understanding of HTN and Control HTN with Eating actually is. As you can see in table 12 below, the mean of one’s actual knowledge of HTN was .76 with a standard deviation of .14, so in other words, the participants averaged a 76 % out of a possible 100 %. On the other hand, the mean of the self-reported knowledge of HTN was 4.30 with a standard deviation of .68, which means the participants gave themselves an 86 % out of a 100 %. This proves that the participants did not know quite as much as they thought they did.
Table 12

*Intercorrelations and Descriptive Statistics of Study Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Age</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.50</td>
<td>.86</td>
</tr>
<tr>
<td>2. Education</td>
<td>-.44*</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.87</td>
<td>.73</td>
</tr>
<tr>
<td>3. Income</td>
<td>-.03</td>
<td>.38*</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.57</td>
<td>.77</td>
</tr>
<tr>
<td>4. Take HTN Medication</td>
<td>.24</td>
<td>.02</td>
<td>-.01</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.90</td>
<td>1.45</td>
</tr>
<tr>
<td>5. Control HTN with Exercise</td>
<td>.08</td>
<td>-.25</td>
<td>-.13</td>
<td>.40*</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td>3.60</td>
<td>1.07</td>
</tr>
<tr>
<td>6. Control HTN with Eating</td>
<td>.29</td>
<td>-.24</td>
<td>-.21</td>
<td>.20</td>
<td>.59**</td>
<td>–</td>
<td></td>
<td></td>
<td>3.93</td>
<td>.83</td>
</tr>
<tr>
<td>7. Knowledge of HTN</td>
<td>.00</td>
<td>.47**</td>
<td>.31</td>
<td>.04</td>
<td>.00</td>
<td>.02</td>
<td>–</td>
<td></td>
<td>.76</td>
<td>.14</td>
</tr>
<tr>
<td>8. S-R Understanding of HTN</td>
<td>-.17</td>
<td>.29</td>
<td>.19</td>
<td>.35</td>
<td>.19</td>
<td>.40*</td>
<td>.33</td>
<td>–</td>
<td>4.30</td>
<td>.68</td>
</tr>
<tr>
<td>9. Anticipated Effect of AK</td>
<td>.10</td>
<td>.04</td>
<td>-.04</td>
<td>.03</td>
<td>.14</td>
<td>-.03</td>
<td>-.03</td>
<td>-.05</td>
<td>2.53</td>
<td>1.25</td>
</tr>
</tbody>
</table>

*Note. HTN = Hypertension. S-R = Self-Reported. AK = Additional Knowledge.*

* p < .05. ** p < .01.
Summary/Findings for research question

The research question was: what is the knowledge level about HTN and does a lack of knowledge correlated with medical regimen non-compliance. Interestingly, in my study, Knowledge of HTN doesn’t appear to be correlated with taking medication, controlling HTN with exercise or eating right. Most of the positive correlations in the study were insignificant in proving the question of whether a lack of knowledge correlates with non-compliance. For instance, there was a positive correlation between education and income, which means the more education one reported, the more they made. This correlation was insignificant with the overall goal of the study. Another positive correlation was between Control HTN with Exercise and Take HTN medication, and Control HTN with Eating and Control HTN with Exercise. This basically tells us that those participants that reported controlling their HTN by taking their medications also controlled their HTN by eating healthy and exercises, and vice versa. One of the only positive correlations that could have a significance in this study was the strong correlation (.47) between the actual knowledge of HTN and education. It’s natural to think the more education one has, the more they know and will retain. That being said, this could open the door to ask if we are educating on the grade level of the ones needing the education. I will discuss this further in chapter 5.
Chapter V

Summary, Conclusions, & Recommendations

Summary

The purpose of this study was to determine the level of knowledge the people in a SW GA community have about HTN, and whether it correlates with HTN medical regimen non-compliance. Merle H. Mishel’s Uncertainty in Illness Theory was used as the framework for my research paper. I believe, as does Mishel, that uncertainty is the inability to determine the meaning of illness-related events. In laymen’s terms, if one does not know about their disease and how it is affecting them, then they are not going to be concerned about it. A convenience sample made up of random members of the community was used. A total of 30 participants were surveyed at one location in south GA on December 8th, 2016. The sample was taken from random volunteers of the community.

Conclusions/Discussion

The study was not as conclusive as I had hoped or expected it to be, however, this study can be used as a step in the right direction to figure out what it is that causes so much medical regimen non-compliance. The study was brought on by my personal experience while working as a nurse in the local emergency center. So many times I have had a patient with HTN who was not taking their medication because they just did not know the importance of it. After explaining to them, even drawing diagrams on a dry erase board of how untreated HTN leads to CHF, dialysis, etc., they have reported back to me that no one has ever explained it to them and that they have been taking their medications, dieting and exercising ever since. I was hoping this study would point out the lack of knowledge the community had about HTN and how it
correlated with medical regimen non-compliance. Somewhere in the patients treatment we are failing to give them the proper education, whether it be when they are diagnosed, when they are prescribed medications, when they are seen in the emergency center, or at each follow-up with their primary doctors. Studies like this could prove that a lack of knowledge correlates with non-compliance, however, it will take some changes in the survey techniques, questions, demographics/population, and the total surveyed. There is a lack of studies performed on this topic so this could be a stepping stone for one to build a much larger, more detailed study on the same topic. We did, however, gain some useful data in this study. We learned that people with HTN think they know more than they actually do for one. Also, we learned that the actual knowledge of HTN was higher in those with a higher level of education, possibly meaning we need to educate our patients on their grade level. The qualitative study performed by Lubaki et. al. in 2009 also revealed that poor knowledge of patients on their management is associated with low patient education level. Teaching on the individual patients’ education level plays a vital role in whether they will understand the material being taught.

My research also lacked an evaluation of the participants. For example, the research study performed to assess the level of HTN knowledge of adolescents in Poland, by Grad et al. (2015) first performed two psychological test, the Personal Competence Scale (PCS) and the Personal Values List (PVL). The PCS was used to assess the participants’ general self-effectiveness as well as its components such as a feeling of strength to start an action and prevail to continue it, and the PVL was used to rank the value of health among the participants. Before Gross et al. (2013) conducted their study to assess the outcomes of a culturally sensitive educational program to African-Americans on an antihypertensive regimen, they obtained the participants baseline beliefs, knowledge and literacy. I have come to the conclusion that
evaluating the participants to some degree may help control for additional factors that may influence compliance.

Another obvious difference in my study compared to the existing literature is my sample size. Due to limitations such as time and resources, my sample included 30 participants, when most of the studies I referenced in this paper consisted of many more. An increase in the sample gives more reliable results with greater precision and power. A smaller sample sometimes masks the true answer you’re looking for by the randomness of the sample. As the sample size increases, the confidence in our estimate also increases and the uncertainty decreases.

**Recommendations for future research**

While performing the survey portion of this study I noticed many things that would need to be addressed in future studies on the same topic. For instance, I had one participant that obviously could not read very well but was not going to mention that to me because he was excited about the gift card I was offering for his participation. If I hadn’t been in close proximity to the participant hearing him trying to sound the words out, I would have never known. The participant could have just circled any answer, without really reading and comprehending the question. Needless to say, I had to read the questions to the participant. This led to my asking the subsequent participants if they could read or not, and even though everyone responded with a yes, I still had another participant who could not. It seems she was with someone else who had already taken the survey and redeemed their gift card, and was referred to my tent. After noticing the participant was not even following the directions on the survey, it struck me that it was because she could not read the instructions. I also, after asking if they would prefer it, read the questions to this participant who was being rushed by her ride and seemed to answer the questions hastily. Therefore, I would recommend using a tool to identify baseline literacy, such
as the one used in the study by Gross et al (2013). The tool used to identify baseline literacy in the Gross et al. study was the Newest Vital Sign literacy assessment tool. This tool was specifically developed to assess the literacy skill required to understand and follow medical instructions.

Even though I tried to keep my distance from the participants while they were answering the surveys and give them their space, it seemed that some were reporting to me how compliant they were as to appease me. This led me to question how honest some of the participants were actually answering the questions. I also believe that in hindsight some of the questions on my “test” of the participants’ actual knowledge may have been a little too obvious and with a 50/50 chance of getting the question right or wrong, may have altered the validity of the actual knowledge the participants had. Again, my recommendation of performing this study in the hospital would insure the participants are not distracted by anything, such as time constraints, the researcher, or other family or friends that are with them. The participant needs their own space, without any distractions to thoroughly read and honestly answer each question to ensure validity. As far as some of the answers to some of the questions being obvious, I would recommend using a questionnaire that has been formed by a research group just for this purpose. For example, Erkoc, Isikli, Metintas & Kalyoncu in 2012 developed a Hypertension Knowledge-Level Scale (HK-LS), and performed an entire study on the development, validity and reliability of the scale. The final scale had 22 items with six sub-dimensions with an overall Cronbach alpha coefficient of 0.82 (Erkoc et al., 2012). Another option would be to use a scale for each area, i.e. medication adherence. In the study performed by Li et al (2012), the Medication Adherence Scale designed by Morisky et al. (2008) was modified to measure how frequent an individual forgot/missed taking an antihypertensive pill and how frequent he was careful in taking the pill.
Another point that may have altered the validity of the results is not knowing whether or not the participants actually had and were being treated for HTN. One vehicle pulled up with 3 people in it who all claimed to have HTN. Again, I think the fact that I was luring participants in with the promise of a gift card for their participation may have caused people to be less than honest in answering the question of whether they actual had HTN or not. I think I gave the impression that I was only using participants with the diagnosis, which was apparent by 100% of my participants reporting having HTN. My recommendation would be to use a different incentive for participation, which would help attract participants that actually have a diagnosis of HTN and are truly concerned and eager to learn about their health issue. The research performed by Aycock et al. (2013), used a health ministry resource packet for HTN education programs. The packet included listings of (a) local nonprofit organizations, nursing organizations and sororities, schools of nursing, community outreach programs, and health departments that provide free speakers and blood pressure screeners for community health outreach events; (b) organizations that provide free or low-cost educational brochures/handouts, videos, newsletters/magazines, and cookbooks associated with high blood pressure and heart disease, along with 22 recommended educational materials that were included in the resource packet; (c) prescription drug assistance programs and other healthcare assistance programs; and (d) several high blood pressure and heart disease program ideas with descriptions and Web-links for more information (Aycock et al. 2013).

It’s obvious that we need more literature in this area but I would suggest that the study be performed in a hospital using participants with an actual diagnosis of HTN. Surveying participants in a hospital would benefit the study in many ways. The participant would not be rushed, since they are in the hospital and given the likelihood they do not have other current
plans or appointments. This would allow for time to ponder the questions and answer more accurately. The actual knowledge part of the survey would need to be rethought in order to give the participants more than a true/false choice to answer, to ensure their actual understanding. It may be necessary to spend time creating a knowledge test that would give us an accurate indication of whether or not the participant actually understood HTN and its effects on their overall health. By using a sample from patients at a hospital, you would more likely catch them at a time when their health status is on their minds, ensuring their interest and attention. Performing the survey in the hospital would also ensure you are reaching the population that you are actually trying to study and make a difference with. I also think that while in the hospital people would be more likely to participate in a survey without some sort of reward for participating. I do believe the reward was necessary to gain the participants’ attention in the public because everyone is busy, going here and there and likely would not participate if there was nothing obvious to gain.

I would recommend using a much larger sample as well. This would increase the validity and give more data to study correlations. To gain more accurate and detailed literature on the subject, one interested in this subject could split their participants in focus groups, with one being a placebo and the other having a pre and post-test after having a series of education lectures on HTN. Serial blood pressure measurements and BMI’s could also be incorporated to see if the education made a difference. This would take much longer to perform but would give us a much more accurate picture of the level of knowledge our population has and whether educating them made a difference in their compliance and overall health.

To truly indicate whether a lack of knowledge correlates to non-compliance, I think it is necessary to measure the participants’ compliance, educate them, and then measure their
compliance again. Five of the studies I reference in my literature review, including Gross et al. (2013), Trogdon et al. (2012), Hacihasanoglu & Gozum (2011), Lauziere et al. (2013), and Johnson et al (2011) did just that. Gross et al. reported that the ten patients who completed their education sessions had blood pressures with-in normal limits at the end of their project (2013). Trogdon et al. concluded that their collaborative HTN intervention proved to be a cost-effective strategy to control HTN and potentially reduce cardiovascular disease in people (2012). Hacihasanoglu and Gozum reported that patient education on medication adherence alone and in combination with healthy lifestyle behavior teaching has proven to be an effective tool for blood pressure reduction in the hypertensive population in primary health care settings (2011). Lauziere et al. concluded that participation in a structured interdisciplinary education program was associated with a reduction of systolic blood pressure, thus contributing to a risk reduction for cardiovascular disease (2013). And lastly, the conclusion of Johnson et al. study found that multicomponent education interventions lead to a significant reduction in BP (2011). By utilizing and possibly combining some of the methods used in other studies, the researcher would have the ability to come up with a much more reliable way of gathering pertinent data.

**Implications for Nursing Practice**

The impact that this study has on nursing practice is the fact that even though someone may think they know what HTN is, it is important for us to educate them anyway because they may not know as much as they think. The findings in this study will hopefully motivate and benefit future nurses to expand on the small amount of literature we currently have on the subject, resulting in more understanding and finding the main reasons behind non-compliance. This study has added more knowledge to the existing body of knowledge on this research
subject. It is important to continue to expand our knowledge on compliance issues and knowledge levels to advocate for our patients’ wellbeing and prevent the common chronic comorbidities that come with HTN medical regimen non-compliance. With continued research, future generations of nurses and healthcare workers will hopefully gather the knowledge we need in order to cut down on the increase in chronic diseases.
References


Dear Participant,

I am a graduate student enrolled in the Family Nurse Practitioner program at Albany State University. I am requesting your participation in a study conducted as part of the data collection for my thesis. I am collecting information to find out the level of knowledge people have about their hypertension, which will one day lead me to study whether the lack of patient education on the disease process of hypertension correlates with non-compliance with a patients’ medical regimen.

For this study, I will not need access to your medical records and will not use any patient identifying information in my data collection or in my final thesis. This study will consist of you answering a survey that consist of 22, straight forward questions, all true or false except for 6. Your participation in this study would require approximately 10 to 15 minutes of your time.

Not only will you benefit greatly by becoming aware of your knowledge on the disease, but you will be a part in furthering future education to hypertension patients, thus being responsible for decreasing the population that suffers from such chronic diseases such as hypertension and the side effects that go along with it.

Participation is voluntary and you are under no obligation to participate in or complete the duration of the study. Your information will not be disclosed in any published data. All information and data in this study is purely confidential. By signing this form you consent to all of the above.

If you have any questions or concerns, please feel free to contact me. I sincerely appreciate your willingness to help me, yourself, and others by participating in this study.

Thank you,

Christopher Solomon, RN, CEN
Phone:  (229) 395-2850
Email:  csolomo4@students.asurams.edu

You may also contact the Albany State University Institutional Review Board (IRB) at (229) 430-4724

Please sign both copies, keeping one for yourself and returning one to me.

__________________________  ______________
Signature of Researcher        Date

__________________________  ______________
Signature of Participant       Date

46
For the following questions circle one answer:

**Age group (years)**
- 18-33
- 34-49
- 50-65
- 66 & older

**Gender**
- Male
- Female

**Race/ethnicity**
- White
- Black
- Hispanic
- Asian
- American Indian or Alaska Native
- Native Hawaiian or other Pacific Islander

**Education level**
- No high school
- Some high school
- Some college
- College degree

**Income**
<$15,000
$15,000-$50,000
$50,001-$100,000
>$100,000
APPENDIX C  
Survey Questions  
By: Christopher Solomon RN CEN

Part B  
Survey Questions

Circle one of the 3 answers.

Do you have high blood pressure? 
Yes / No / Not sure

For the following questions circle either True or False:

1. High blood pressure is any reading that is greater than 120/80. 
   True / False

2. High blood pressure medicine should be taken daily. 
   True / False

3. High blood pressure medicine should be taken only when the blood pressure is high. 
   True / False

4. Untreated high blood pressure can lead to kidney failure and the need for dialysis. 
   True / False

5. If one controls their diet and salt intake they can stop taking medications for high blood pressure. 
   True / False

6. If one takes medications for high blood pressure they do not have to watch their diet or salt intake.
True / False

7. Blood pressure medications are expensive.
   True / False

8. If one feels fine there is no need to take high blood pressure medications.
   True / False

9. High blood pressure is not harmful unless you are overweight and have other health problems.
   True / False

10. High blood pressure directly increases the risk for heart attack and stroke.
    True / False

11. If I had high blood pressure then I would feel it.
    True / False

12. High blood pressure does not necessarily need to be treated as long as one is otherwise healthy and feels fine.
    True / False

13. Untreated high blood pressure effects the size of one’s heart.
    True / False

14. I should use sea salt if I have high blood pressure.
    True / False

15. If high blood pressure runs in one’s family then they will not be able to control it.
    True / False
For the following questions circle one of the five choices:

16. I understand what high blood pressure is.
   Strongly Agree (5)
   Agree (4)
   Undecided (3)
   Disagree (2)
   Strongly Disagree (1)

17. I understand how high blood pressure is treated.
   Strongly Agree (5)
   Agree (4)
   Undecided (3)
   Disagree (2)
   Strongly Disagree (1)

18. I understand how high blood pressure effects my overall health status, longevity, and quality of life.
   Strongly Agree (5)
   Agree (4)
   Undecided (3)
   Disagree (2)
   Strongly Disagree (1)
If you have high blood pressure answer the following questions by circling one of the five choices:

19. I take my high blood pressure medicine:
   - Always (5)
   - Most of the time (4)
   - Sometimes (3)
   - Rarely (2)
   - Never (1)

20. I try to control my blood pressure through exercise:
   - Always (5)
   - Most of the time (4)
   - Sometimes (3)
   - Rarely (2)
   - Never (1)

21. I try to control my blood pressure through eating healthy:
   - Always (5)
   - Most of the time (4)
   - Sometimes (3)
   - Rarely (2)
   - Never (1)
If you have high blood pressure, answer the following question by circling all that apply.

22. If I knew more about high blood pressure I would be more likely to do what my doctor suggests, such as

- Measure my blood pressure daily
- Take my medications as directed
- Exercise more often
- Eat a healthier diet
APPENDIX D
CITI Certification/ Protection of Human Subjects
Christopher Solomon RN CEN

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM) COURSEWORK REQUIREMENTS REPORT*

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details.

See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- **Name:** Christopher Solomon (ID: 5398555) • Email: csolomo4@students.asurams.edu • Institution Affiliation: Albany State University (ID: 2423) • Institution Unit: Family Nurse Practitioner
- **Curriculum Group:** Social & Behavioral Research - Basic/Refresher • **Course Learner Group:** Same as Curriculum Group • **Stage:** Stage 1 - Basic Course • **Description:**

Choose this group to satisfy CITI training requirements for Investigators and staff involved primarily in Social/Behavioral Research with human subjects.

- **Report ID:** 18726148 • **Completion Date:** 03/07/2016 • **Expiration Date:** 03/07/2019 • **Minimum Passing:** 80

**Reported Score**: 86

### REQUIRED AND ELECTIVE MODULES ONLY DATE COMPLETED SCORE

<table>
<thead>
<tr>
<th>Module Description</th>
<th>Date</th>
<th>Score</th>
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<tbody>
<tr>
<td>History and Ethical Principles - SBE (ID: 490)</td>
<td>02/15/16</td>
<td>5/5 (100%)</td>
</tr>
<tr>
<td>Belmont Report and CITI Course Introduction (ID: 1127)</td>
<td>02/17/16</td>
<td>3/3 (100%)</td>
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<tr>
<td>Defining Research with Human Subjects - SBE (ID: 491)</td>
<td>02/17/16</td>
<td>5/5 (100%)</td>
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<tr>
<td>The Federal Regulations - SBE (ID: 502)</td>
<td>02/17/16</td>
<td>4/5 (80%)</td>
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<tr>
<td>Assessing Risk - SBE (ID: 503)</td>
<td>02/26/16</td>
<td>5/5 (100%)</td>
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<tr>
<td>Informed Consent - SBE (ID: 504)</td>
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<td>4/5 (80%)</td>
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<td>Privacy and Confidentiality - SBE (ID: 505)</td>
<td>02/26/16</td>
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<tr>
<td>Research with Prisoners - SBE (ID: 506)</td>
<td>02/27/16</td>
<td>4/5 (80%)</td>
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<td>Research with Children - SBE (ID: 507)</td>
<td>02/27/16</td>
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<td>Research in Public Elementary and Secondary Schools - SBE (ID: 508)</td>
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<td>Research and HIPAA Privacy Protections (ID: 14)</td>
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<td>4/5 (80%)</td>
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<td>Conflicts of Interest in Research Involving Human Subjects (ID: 488)</td>
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<td>5/5 (100%)</td>
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<td>Unanticipated Problems and Reporting Requirements in Social and Behavioral Research (ID: 14928)</td>
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<td>3/3 (100%)</td>
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<td>Albany State University (ID: 15047)</td>
<td>03/07/16</td>
<td>No Quiz</td>
</tr>
</tbody>
</table>

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscrib...independent Learner. CITI Program

Email: citisupport@miami.edu Phone: 305-243-7970 Web: https://www.citiprogram.org

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM) COURSEWORK TRANSCRIPT REPORT**

** NOTE: Scores on this Transcript Report reflect the most current quiz completions, including quizzes on optional (supplemental) elements of the course. See list below for details. See separate Requirements Report for the reported scores at the time all requirements for the course were met.

- **Name:** Christopher Solomon (ID: 5398555) • Email: csolomo4@students.asurams.edu • Institution Affiliation: Albany State University (ID: 2423) • Institution Unit: Family Nurse Practitioner
- **Curriculum Group:** Social & Behavioral Research - Basic/Refresher
- **Course Learner Group:** Same as Curriculum Group • **Stage:** Stage 1 - Basic Course • **Description:**

Choose this group to satisfy CITI training requirements for Investigators and staff involved primarily in Social/Behavioral Research with human subjects.

- **Report ID:** 18726148 • **Report Date:** 03/07/2016 • **Current Score**: 86

**REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES MOST RECENT SCORE**

- **Albany State University (ID: 15047) | 03/07/16 | No Quiz**
- **History and Ethical Principles - SBE (ID: 490) | 03/07/16 | 5/5 (100%)**
02/15/16  5/5 (100%) Defining Research with Human Subjects - SBE (ID: 491)
02/17/16  5/5 (100%) Belmont Report and CITI Course Introduction (ID: 1127)
02/17/16  3/3 (100%) The Federal Regulations - SBE (ID: 502)
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02/27/16  4/5 (80%) International Research - SBE (ID: 509) 03/03/16  4/5 (80%) Internet-Based Research - SBE (ID: 510) 03/03/16  4/5 (80%) Research and HIPAA Privacy Protections (ID: 14)
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03/07/16  5/5 (100%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution