

# Hypertension Improvement through Healthy Lifestyle Modifications

**Abstract:** *Hypertension is the major risk factor for the development of cardiovascular and renal disease. This disease has a disproportionate effect on African Americans when compared to other races. The purpose of this project was to examine the effectiveness of healthy lifestyle modifications on blood pressure control among hypertensive African American adults. Thirty-six individuals participated in the 12-week project, with a 67 % retention rate. Weekly sessions included interactive educational and walking components. Initial and final BMI measurements were recorded. Participants completed health risk assessments; pre and post questionnaires; and, daily logs of blood pressure measurement, dietary consumption, and physical activity levels. Data were collected from the logs, BMI measurements, and questionnaires. Overall, the results revealed that participants experienced an increase in healthy lifestyle modification adoption resulting in blood pressure control improvement. Implementation of healthy lifestyle modifications is crucial in providing quality patient care to hypertensive individuals.*

**Key Words:** *Hypertension, Lifestyle Modifications, DASH, and African Americans*

**H**ypertension is defined by Lewis, Heitkemper, Dirksen, O'Brien, and Bucher (2007) as the condition in which a person displays a systolic blood pressure of 140 mm Hg or higher and/or a diastolic blood pressure of 90 mm Hg or higher, or is a current user of antihypertensive medication. Hypertension affects over 70 million people in the United States and is the major risk factor for the development of cardiovascular and renal disease (Carter, Einhorn, Brands, He, Cutler, & Whelton, et al, 2008; Chobanian, 2009). This disease exists in approximately one third of adults in Alabama. An estimated 327,236 adults in Alabama will be affected by the year 2020, if this hypertension trend continues (Chandler, 2004; Velasco, 2004). When compared to other races affected by hypertension, the African American population is disproportionately affected by this disease. African Americans suffer: onset of hypertension at an early age; increased incidence and prevalence of hypertension; and, high hypertension-related morbidity and mortality rates (Kearney, Whelton, Reynolds, Whelton, & He, 2005). According to Elmer and associates (2006), approximately 20% of deaths in the

United States are contributed to physical inactivity, suboptimal diet, and other unhealthy lifestyle choices.

## PURPOSE

The prevalence of hypertension among the attendees of a rural church in southwest Alabama was made evident during a routine health screening conducted by the Nursing Guild Ministry. Documents containing these individuals' health related information revealed that 75% of them suffered from hypertension. In addition, approximately 10% or more of the church congregation suffered a cardiovascular related event which resulted in death. Based on these findings, the decision was made to implement a hypertension health promotion project among the citizens of this community. The purpose of this project was to examine the effectiveness of healthy lifestyle modifications (education, exercise, and healthy eating) on blood pressure control among hypertensive African American adults in a rural community setting. The clinical question was: Will a 12-week interactive educational and physical activity session that focuses on the benefits of lifestyle modifications, such as healthy eating and low impact exercise, lead to an improvement in blood pressure control in African American adults with hypertension?

## OBJECTIVES

The objectives of this Doctorate of Nursing Practice (DNP) project include the following: 1) to increase the awareness of hypertension, its related risk factors, consequences, and benefits of healthy eating and physical activity among 60% of the participants; 2) to improve blood pressure control among 30% of the participants; 3) to increase physical activity levels among 40 % of the participants; and 4) to increase the consumption of fruits and vegetable among 40% participants; and 5) to achieve a reduction in body weight among 20% of the participants.

## METHODOLOGY

### Procedure

The findings from the previously conducted blood pressure screening were discussed among the pastor and project manager. The decision was made to conduct a project which would focus on improving blood pressure control among the citizens of this community. Approval for project implementation was granted through the Institutional Review Board (IRB) of the University of South Alabama. The recruitment process was conducted through church

announcements and flyers being provided throughout the community. African Americans adults ages 19 years and older were invited to participate in the project. The participants voluntarily signed a consent form once the project had been discussed with them. The 12-week project consisted of a one hour session each week which provided a 30-minute educational and a 30-minute physical activity session. The clinical practice guidelines from the Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7) were used to determine the classifications and measurements of blood pressure, healthy diet, and physical activity.

The initial session was conducted beginning with a completion of a health risk assessment and pre-assessment questionnaire by the participants. Each participant was provided a blood pressure monitor, pedometer, and a folder containing self-reporting logs consisting of daily blood pressure measurements, dietary consumption, and physical activity involvement (number of steps walked). A demonstration was provided for the use of the equipment and logs. An initial blood pressure measurements and body mass index (BMI) measurements were obtained during this session. Participants were encouraged to maintain records related to their blood pressure levels, dietary consumption, and physical activity levels on a daily basis.

For the duration of the program, participants' blood pressure measurements and self-reporting logs were obtained at the beginning of each session. Next, an educational session was conducted focusing on hypertension, its risk factors, and the benefit of implementing healthy lifestyle modifications. Finally, a 30-minute walking session was conducted and the session concluded with the drawing of door prizes and provision of a healthy snack.

At the conclusion of the project a final BMI measurement and completion of a post-assessment questionnaire was conducted. In addition, a dinner for the participants was provided which included the presentation of certificates for recognition of attendance and perfect attendance (n=7), along with prizes awarded to the three individuals who implemented the most lifestyle changes, according to the project-specific goals. These lifestyle changes included, increase in knowledge level related to hypertension, its risk factors, and benefits of healthy eating and physical activity, improvement in blood pressure control, increase in physical activity, increase in fruits and vegetable consumption, and a reduction in body weight.

#### Instruments

Each participant was provided a folder which included the instruments needed for data collection. These instruments consisted of a health risk assessment tool, daily self-reported logs for blood pressure measurements, 24-hour dietary consumption, and level of physical activity levels (number of steps walked). In addition, data were obtained from the pre and post assessment questionnaires and BMI measurements.

#### Data Analysis

The primary purpose of the project was to improve hypertension control among the African American citizens of a rural community through the implementation of healthy lifestyle modifications. The data reviewed included the following: 1) increase in knowledge related to hypertension, its related risk factors, its consequences, and the benefits of healthy; 2) improvement in blood pressure control; 3) increase in physical activity levels by 500 steps per week; 4) increase in consumption of fruits and vegetables; and 5) reduction in body weight among of the participants, by the end of the 12-week project. Data analysis was conducted by examining mean comparisons among the data to evaluate outcomes.

**Table 1. Health Risk Assessment Data**

Items	N= 36	%
Gender:		
male	7	19.44%
female	29	80.56%
Tobacco use	11	30.56%
Alcohol use	18	50.00%
Marital status:		
married	23	63.87%
single or divorced	13	36.11%
Level of education:		
high school diploma	11	30.56%
college degree	23	63.87%
Family history of heart disease and/or high blood pressure	36	100%

## RESULTS

### Sample

The sample consisted of 36 African American adults who completed the health risk assessment document and pre-assessment questionnaire. However, by week three of the project only 24 participants remained throughout project completion. See Table 1, for the data obtained from the Health Risk Assessment document.

### Knowledge Level

*Objective 1:* To increase the awareness of hypertension, its related risk factors, consequences, and benefits of healthy eating and physical activity among 60% of the participants. This objective was met. Of the 24 participants, 16 completed both pre and post assessment questionnaire. The results from these questionnaires revealed that 94% (n=15) increased their knowledge level related to hypertension and its associated risk factors, and the benefits of lifestyle modifications. Only one of the participants, according to the information contained within the questionnaires, lacked an increase associated with this goal.

### Blood Pressure Improvement

*Objective 2:* Improvement in blood pressure control among 30% of the participants. This objective was met. Twenty-four participants submitted daily blood pressure logs. Data from these logs revealed that 96% (n=23) of the participants showed an improvement in blood pressure. Furthermore, the results revealed that one of the participants maintained normal blood pressure ranges throughout the duration of the project.

### Physical Activity

*Objective 3:* Increase in physical activity levels among 40% of the participants. This objective was met. Twenty-four participants submitted daily physical activity logs. Data from these logs revealed that 100% (n=24) increased their physical activity level. These individuals met this goal by increasing their weekly steps by 500 or more.

### Fruit and Vegetable Consumption

*Objective 4:* Increase the consumption of fruits and vegetable among 40% participants. This objective was met. Twenty-three participants submitted daily dietary consumption logs. However, eight of the participants submitted logs with insufficient data or incomplete logs. Of

the individuals submitting logs with sufficient data the results revealed that 73% (n=11) increased their consumption of fruits and vegetable.

### Weight Reduction

*Objective 5:* A reduction in body weight among 20% of the participants. This objective was met. Twenty participants took part in both initial and final BMI measurements. Of the individuals the results revealed that 55 % (n=11) experienced weight reduction. The remaining four individuals elected not to participant in this portion of the final session.

### DISCUSSION AND IMPLICATIONS

Participants and the pastor expressed their appreciation for the project which provided them with valuable information regarding their health, resulting in them being accountable for their lifestyle choices, along with the opportunity to engage in fellowship with others. The participants expressed the need for a community-based program to be implemented based on the interventions of the project, in an effort to continue with their goals to maintain good health. The decision was made, by the pastor, to implement a community-wide health awareness and physical activity program based on the project's interventions. In addition, a health and fitness ministry was established in the church which will focus on providing its attendees with the resources needed to improve their health status. A train-the-trainer toolkit has been developed for the purpose of training interested individuals on how to implement a project based on the interventions of the DNP project in an effort to educate the public on hypertension improvement.

Overall, participants experienced an increase in the adoption of healthy lifestyle modifications which resulted in an improvement in blood pressure control. The findings of this project provide implications for health care providers caring for African American adults with hypertension. Lifestyle modifications such as healthy eating and increased physical activity are an integral part of improving blood pressure control. These findings suggest that the recommendation of healthy lifestyle modifications is crucial in the health care setting in providing quality patient care to hypertensive individuals.

### LIMITATIONS

The limitations of the project included the small sample size and the missing data resulting from incomplete self-reporting logs. A significant number of individuals consented to participant in the project; however, only a reduced number of these individuals actually participated in and completed the project. The lack of motivation among the participants to complete the self-reporting logs, particularly the daily dietary consumption log.

### SUMMARY

Hypertension affects a significant number of adults in the United States. The presence of hypertension increases the sufferer's incidence of developing cardiovascular disease, stroke, and renal disease. African Americans suffer disproportionately from hypertension compared to other races. This hypertension improvement community-based project was developed for the purpose of improving blood pressure control through the implementation of healthy lifestyle changes and education. This project was conducted in a rural community of African Americans in southwest Alabama. The implementation of healthy lifestyle modifications resulted in an improvement of blood pressure control, and an increase in the implementation of healthy lifestyle modifications among the participants.

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