The Implementation of an Exercise Program to Improve Blood Pressure and Weight Control in African American Patients with Hypertension in the Primary Care Setting

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INTRODUCTION

- African Americans (AAs) are more adversely affected by hypertension (HTN), and are afflicted with more comorbidities and renal complications related to HTN than any other race
- Significant advancements have been in the management and treatment of HTN in AAs; however, rates of poor blood pressure control and its impact continue to proliferate within the AA community
- Evidence has indicated that any form of exercise whether aerobics such as walking or just moving more rather than sitting can improve blood pressure and weight control in AAs with HTN
- The AHA recommends that individuals get at least 150 minutes per week of moderate aerobic activity such as walking and spend less time sitting

BACKGROUND/SIGNIFICANCE

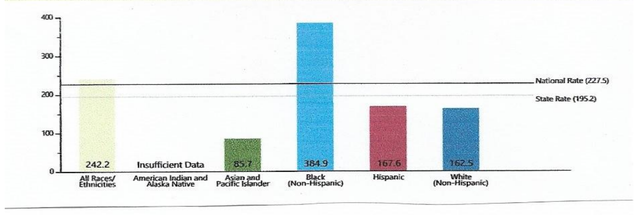
Burden of HTN

- Approximately 38.9% of AAs in Essex County, NJ had HTN, with 31.1% of them have the disease in East Orange, NJ
- Essex County, NJ: HTN, known as the "silent killer" is responsible for 384.9 deaths per 100,000 annually between 2015-2016
- HTN poses a significant social, economic and health burden on society, costing approximately $55.9 billion annually
- Health disparities in AAs such as low economic status, poor education level and lack of health insurance plays a significant role in the uncontrolled rates of HTN in AAs
- Studies have indicated a strong association between excess body weight and hypertension
- HTN along with obesity are the leading cause of cardiovascular disease such as strokes and myocardial infarctions, and chronic kidney failure

County Profile for Essex, NJ

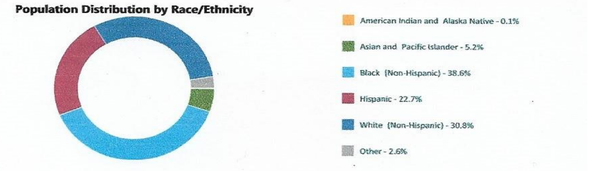
CDC Interactive Atlas of Heart Disease and Stroke

Hypertension Death Rate per 100,000 (any mention), 35+, All Races/Ethnicities, Both Genders, 2015-2017



Demographic, Social, and Economic Data

Population Distribution by Race/Ethnicity



Social and Economic Data	Value
Education - Less than High School (%)	14.3
Poverty (%)	14.9
Health Insurance Status (%)	11.5
Median Household Income ($)	63000
Total Population	793555

OBJECTIVE/AIM

Aim: To improve blood pressure and weight control through exercise in African Americans with hypertension and reduce hypertension related morbidity and mortality

Objective: Educate AA patients with HTN about the benefits of physical activity through simple aerobic exercises such as walking or just moving more on BP and weight.

METHOLOGY

Design

- Quasi-experimental single group pre-test/ post-test

Sample

- Convenience sample of 10 participants
- Patients between the ages of 30-55-years-old with BPs greater than 130/80 mmHg at a primary care site; diagnosed with HTN, speak English, own an electronic oscillometric machine and are currently on antihypertensives

Setting

- A private practice primary care site which is physician owned and specializes in the treatment and management of renal diseases
- Located in East Orange, NJ and cares for an average of 20-25 patients daily

Study Interventions

Pre-Intervention Activities:

- ❑ Education given about exercise program to include exercise activity and close monitoring of diet
- ❑ Consent received
- ❑ Demographics and health history, and physical activity readiness questionnaires completed
- ❑ Measurement of baseline blood pressures and weight completed
- ❑ Exercise program brochure given to all participants

During Exercise Program Activities:

- ❑ Telephone reminders such as calls and text messages about exercising and diet surveillance
- ❑ Education provided throughout the program via telephone

Post-Intervention Activities:

- ❑ Measurement of post-intervention blood pressure and weight
- ❑ Data collection and analysis

Measures

- Physical activity readiness questionnaire
- Demographic and health data: 21 questions survey
- Pre and post intervention systolic BP (SBP) and diastolic BP (SBP): oscillometric electronic BP machine
- Pre and post intervention weight: professional scale

Data Analysis

- **Descriptive statistics**: provide a description of the sample; mean, frequencies, and percentiles
- **Analytic statistics**: will indicate whether exercise made on an impact on the BP and weights of AAs with HTN
- Parametric paired t-test will be used to calculate mean difference of SBP and DBP, and weight pre- and post-intervention
- IBM SPSS statistics (version 27)

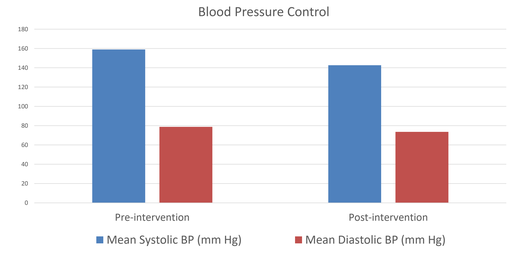
RESULTS

Ten individuals participated in this exercise program however only 5 was able to complete it

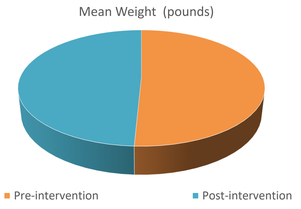
Demographic and Health Characteristics of Participants

Characteristics	Subcategories	Frequency-% (Total N=10)
Age Group	30-40 years 41-50 years 51-60 years	1 (10%) 3 (30%) 6 (60%)
Gender	Male Female	4 (40%) 6 (60%)
Duration of HTN	1 year 5-10 years >10 years	1 (10%) 6 (60%) 3-(30%)
Physical activity readiness of participants to exercise	Yes No	10 (100%) 0 (0%)
HTN Providers	Primary Care Provider Specialist (Cardiologist, Nephrologist)	8 (80%) 2 (20%)
# of antihypertensive medications	1 2 3	2 (20%) 4 (40%) 4-(40%)
Own a BP machine	Yes No	7 (70%) 3 (30%)

Effects of Exercise on BP (for five participants who completed the study)



Effects of Exercise on Weight (for five participants who completed the study)



Discussion:

The results indicate that an exercise program intervention can be effectively implemented in the primary care setting and can lead to:

- ❑ Reduction in BP and weight
- ❑ Increased self-efficacy of BP and weight management
- ❑ Decreased morbidity and mortality rates associated with hypertension in African Americans

DISCUSSION/IMPLICATIONS

Limitations:

- ❑ COVID-19 pandemic-out of the 10 participants recruited, only 5 participants returned for post-intervention data collection. Participants were fearful of returning to the practice for measurements and would not consider other options suggested such as meeting in a park or other outdoor areas
- ❑ Short recruitment and intervention periods may have affected the results/outcomes

Implications for Practice:

- Continuous education about exercise and its impact especially those tailored to a small group of individuals at a time should be ongoing
- Primary care practices should be required by healthcare governing bodies to have an exercise program in place as part of their management and treatment plan for HTN
- Healthcare workers should be educated about appropriate teaching techniques required for instructional activity such as exercise
- Electronic BP machines should be covered by all private/public insurance companies

Implications for Future Research:

- Further research should be conducted to investigate whether smaller group educational instruction about exercise in the primary care setting is more beneficial and effective than larger groups
- Further research studies should include costs versus benefits of exercise programs and their impact on HTN amongst all races

Conclusion:

With hypertension being one of the predominant risk factors for cardiac and other chronic diseases, health-promoting behaviors, like exercise and diet will prove beneficial in its treatment and management. An exercise program will provide a fundamental tool for African American patients with hypertension to continue to fight the battle against hypertension

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