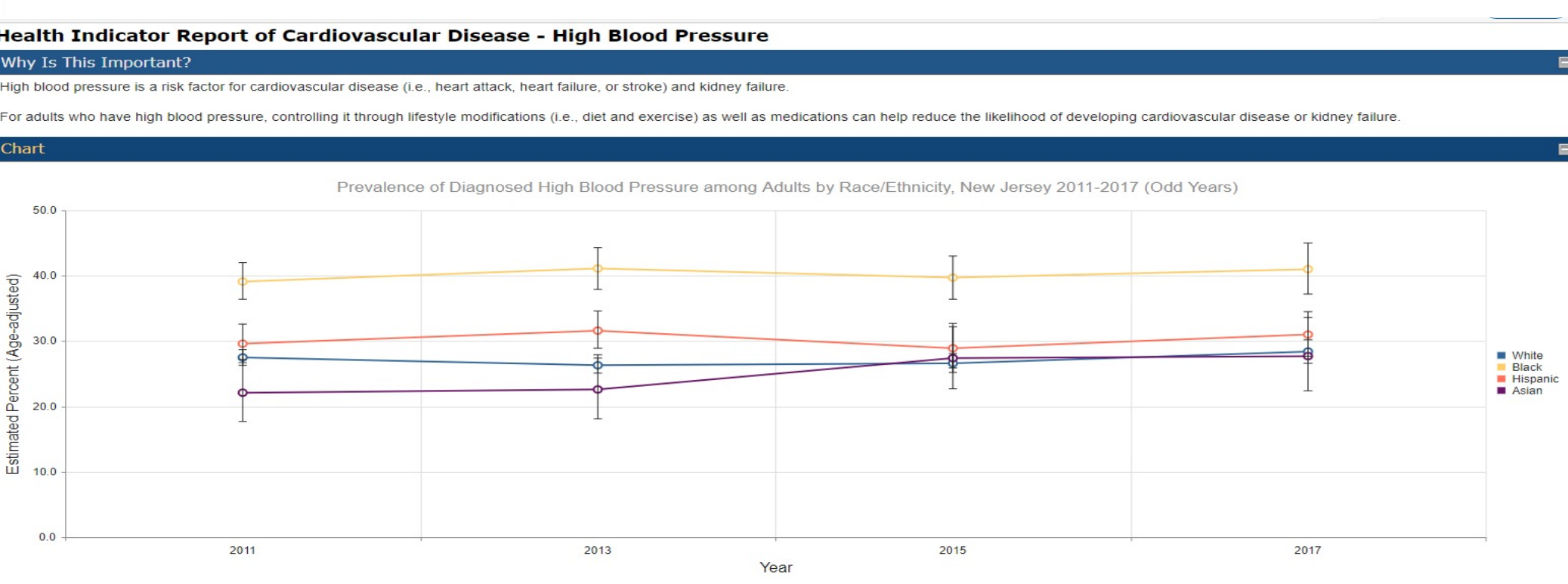


### Introduction

- Hypertension (HBP) is a worldwide epidemic
- According to CDC one-third of the US adults have HBP (Bakris et al., 2019)
- In 2019, WHO reported an estimated 1.13 billion people worldwide have hypertension (Carey & Whelton, 2018).
- According to WHO, African American Adults have earlier onset of hypertension, greater hypertension comorbidities, and higher mortality than the other racial groups (Prins et al., 2016).
- African Americans have a higher prevalence of hypertension and have their blood pressure less controlled compared to other racial or ethnic groups (Carnethon et al., 2017).
- In 2016, the US spent \$3.2 trillion on healthcare out of which \$83.9 billion was spent on management and prevention of HTN (Kirkland et al., 2018).

### Background & Significance

- HTN is a major contributing factor for cardiovascular disease, which is the leading cause of death and a major cause of disability worldwide (Nascimento et al., 2018)
- According to New Jersey State Health Assessment data (SHAD) in 2017, the prevalence of diagnosed hypertension among adults was 31.6% of which 65% were African Americans. Among the 65%, 33.5% were from Middlesex where the church is located (Cohen et al., 2019).



**Data Source**  
Behavioral Risk Factor Survey, Center for Health Statistics, New Jersey Department of Health, <http://www.state.nj.us/health/chs/nbrfs/>

Race/Ethnicity	Year	Estimated Percent (Age-adjusted)	Lower 95% CI
White	2011	27.5	26.3
White	2013	26.3	25.1
White	2015	26.6	25.2
White	2017	28.4	26.6
Black	2011	39.1	36.4
Black	2013	41.1	37.9
Black	2015	39.7	36.4
Black	2017	41.0	37.2
Hispanic	2011	29.6	26.7
Hispanic	2013	31.6	28.9
Hispanic	2015	28.9	25.9
Hispanic	2017	31.0	27.7
Asian	2011	22.1	17.7
Asian	2013	22.6	18.1
Asian	2015	27.4	22.7
Asian	2017	27.7	22.4

### Objective/ Aim

#### Aim:

- The purpose of this project is to implement lifestyle modifications including increased **Physical Activity** and dietary changes **DASH** diet to improve **HTN** control among AAA with HTN in a local church.

#### Objective:

- Follow the (DASH) diet eating plan, which emphasizes on increased consumption of fruit and vegetables, whole grains, low-fat dairy, nuts, poultry and fish, and decrease consumption of solid fats, added sugars, and sodium, potassium-rich foods, meal planning, and appropriate portion sizes of food.
- Increased Physical activities -Brisk walking, jogging, jumping rope, and running. Observing Covid-19 recommendations

### Methodology

#### Design

- Observational study design using pre-post design test of a convenience sample population of consented hypertensive African Americans selected from a local church in New Brunswick, New Jersey.

#### Setting

- Central Jersey, Middlesex County Area of New Jersey, data collected were reported electronically using zoom or email.
- Strictly observing the covid-19 protocols.

#### Study Population

- Convenience sample of 25 adults aged 18 and over, in a local church in New Brunswick in Middlesex County
- Inclusion criteria** are men and women who self-reported African American race, who have been diagnosed with hypertension, on antihypertensive medications and able to read, understand, and speaks the English language, have a smart mobile device or computer with internet.
- Exclusive criteria** are Pregnant women, Adults lacking decisional capacity, AAA who do not speak or understand English

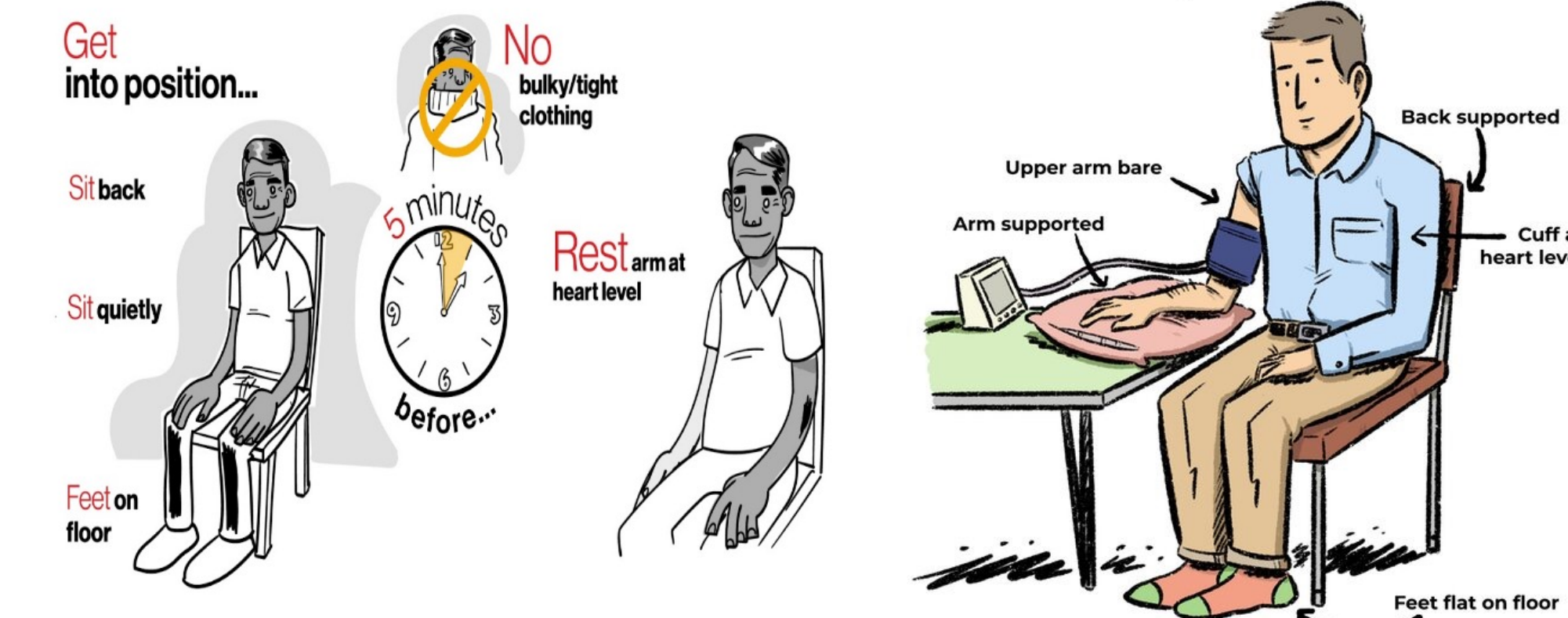
#### Data Analysis

- The sample size, mean, frequencies and percentiles were analyzed using a Descriptive statistics
- Parametric paired sample t-test was used to determined the mean difference of SBP and DBP for Pre-and Post intervention using SPSS statics (version 27)
- A p-value less than 0.05 to prove statistically significant

### Contact Information

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### Intervention



### Physical Activities

Cardiovascular or aerobic exercise such as:

- A Brisk walking for at least 30 mins a session, for 3-5 days/wk.
- Jogging for 20 minutes for 3-4 days a week.
- Biking or stationary cycling for 30 minutes a day, or three 10 minutes blocks of cycling.
- 1-mile-per-hour pace at desk-based treadmilling for at least 10 minutes or pedaled stationary bikes for at least 10 minutes every hour (Winzer et al., 2018).

### Following the DASH Eating Plan

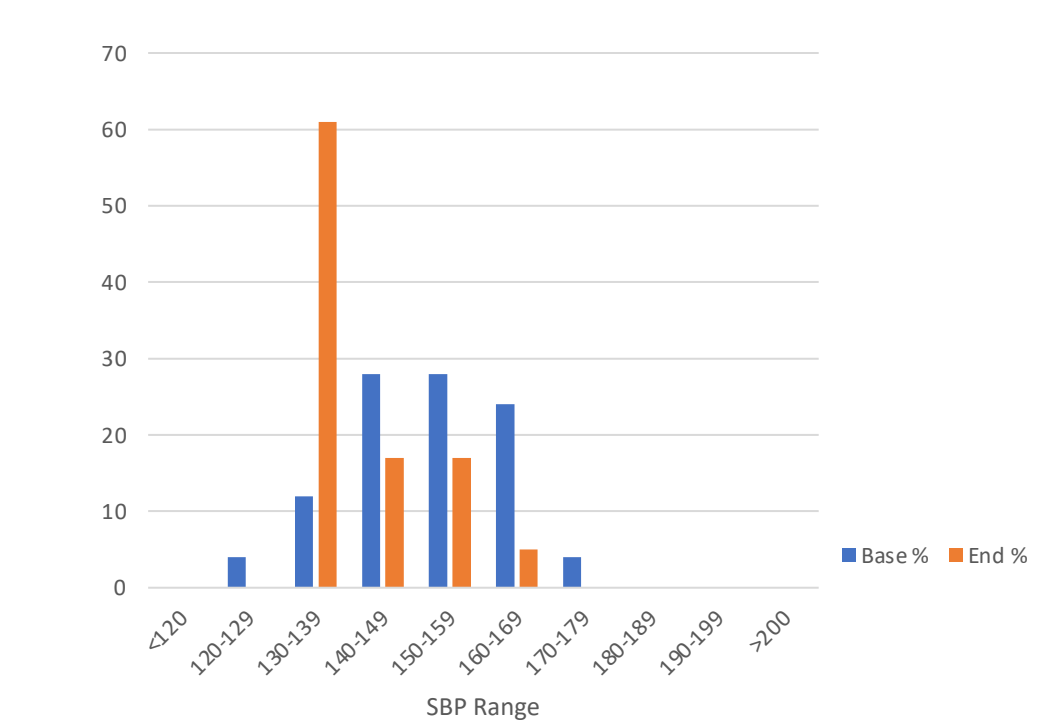
Food Group	Serving Sizes	Significance
Grains	1 slice / 1 oz dry cereal ½ cup cooked rice, pasta	Major source of energy and fiber
Vegetables	1 cup raw leafy vegetable ½ cup cut-up or cooked veg ½ cup vegetable juice	Rich in K+, Mg and fiber
Fruits	1 medium fruit ¼ cup dried fruit ½ cup fruit juice	Important source of K+, Mg, and fiber
Fat-free or milk products	1 cup of milk or yogurt 1 ½ oz cheese	Major of Ca and protein
Lean Meat / Poultry/Fish	1 egg, 1oz cooked M/P/F	Protein & Mg
Nuts /seeds / legumes	½ cup nuts, 2 Tbsp peanut 2 Tbsp seeds, ½ cup legumes	Protein, Mg and fiber
Sweets & added sugars	1Tbsp sugar, 1Tbsp jelly or jam ½ cup sorbet, gelatin 1 cup lemonade	Sweets should be low in fat

### Results

SBP Range	Mid Freq.	Mid %	End Freq.	End %
<120	0	0	0	0
120-129	7	38.9	11	61.1
130-139	9	50	3	16.7
140-149	2	11.1	3	16.7
150-159	0	0	1	5.6
160-169	0	0	0	0
170-179	0	0	0	0
180-189	0	0	0	0
190-199	0	0	0	0
200-209	0	0	0	0
>200	0	0	0	0
Total	18	100	18	100

### Results

'Bar Chart of SBP at Baseline and at the End of Implementation'



Pair 1	Pretest - Posttest	Mean	Std. Deviation	Std. Error	95% Confidence Interval of the Difference
1	Pretest - Posttest	-.01000	18.36890	5.80876	Lower: -13.15032 Upper: 13.13032

Pair 1	Pretest - Posttest	t	df	Sig. (2-tailed)
1	Pretest - Posttest	-2.512	9	.034

### Compared with the target

Life-style modification	Approx. SBP reduction
DASH diet	11 mmHg
Sodium restriction	2-8 mmHg
Potassium supplementation	4-5 mmHg
Physical activity	4-9 mmHg
Weight reduction	1 kg weight loss → ↓1 mmHg
Moderation of alcohol consumption	2-4 mmHg

N=18 End of project

Participants	SBP Reduction
PAT1	10
PAT2	11
PAT3	7
PAT4	5
PAT7	9
PAT8	+6
PAT9	+9
PAT10	7
PAT12	10
PAT13	5
PAT15	7
PAT16	6
PAT17	10
PAT18	6
PAT19	6
PAT21	10
PAT22	8
PAT23	11

### Conclusion & Implications

#### conclusion

- From the paired sample t – test the p-value {sig. (2-tailed)} = .034 which is < 0.05 meaning the null can be rejected.
- In conclusion there is a significant evidence to support that physical activities and DASH diet help improve hypertension control among African American with hypertension in the local church.
- Participants exhibits improved health condition – less Cardiovascular, cerebrovascular risk.

#### Implications

- Clinical practice:** AAA with HTH on Antihypertensive meds should included non-pharmacological like physical activity and DASH eating.
- Health Care Policy:** Awareness and seminars to educate AAA with Hypertension
- Quality and safety:** promotion of low risk of cardiovascular, cerebrovascular, mortality, and morbidity. Promote a better health benefit and improve individual outcome .
- Economic :** Improved Blood Pressure control reduces the nation's financial burden.

### Reference

- Bakris, G., Ali, W., & Parati, G. (2019). ACC/AHA versus ESC/ESH on hypertension guidelines: JACC guideline comparison. *Journal of the American College of Cardiology*, 73(23), 3018-3026.
- Bolin, L. P., Crane, P. B., Powell, J. R., Hane, C. E., & Fliegel, T. A. (2018). Factors associated with physical activity in African Americans with hypertension. *Applied Nursing Research*, 41, 62-67.
- Chiu, S., Bergeron, N., Williams, P. T., Bray, G. A., Sutherland, B., & Krauss, R. M. (2016). Comparison of the DASH (Dietary Approaches to Stop Hypertension) diet and a higher-fat DASH diet on blood pressure and lipids and lipoproteins: a randomized controlled trial-3. *The American journal of clinical nutrition*, 103(2), 341-347.
- Geller, K., Harmon, B., Barse, N., & Strayhorn, S. (2019). Church-based social support's impact on African-Americans' physical activity and diet varies by support type and source. *Journal of religion and health*, 58(3), 977-991.
- Kirkland, E. B., Heincelman, M., Bishu, K. G., Schumann, S. O., Schreiner, A., Axon, R. N., Mauldin, P. D., & Moran, W. P. (2018). Trends in healthcare expenditures among US adults with hypertension: national estimates, 2003–2014. *Journal of the American Heart Association*, 7(11), e008731.
- Mills, K. T., Bundy, J. D., Kelly, T. N., Reed, J. E., Kearney, P. M., Reynolds, K., Chen, J., & He, J. (2016). Global disparities of hypertension prevalence and control: a systematic analysis of population-based studies from 90 countries. *Circulation*, 134(6), 441-450.
- Zahler, B., Tsai, P.-Y., Fendrick, M., Cho, Y., Taani, M. H., & Schiffman, R. (2018). Effect of a nurse case management intervention for hypertension self-management in low-income African Americans. *Contemporary clinical trials*, 71, 199-204.