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Disparities in African Americans and Other Races for Hypertension

by

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Project submitted in partial fulfillment of the
requirements for the
Bachelor of Integrated Studies Degree

Continuing Education and Academic Outreach

Murray State University

April 26, 2019

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Abstract

The racial disparity in hypertension has been prevalent among African-Americans for many years. More African-Americans have been diagnosed with high blood pressure than White-Americans. The purpose of this research is to understand why there is such a big disparity of hypertension in African-Americans and whites. Why is hypertension more prominent in African-Americans? There are many factors that lead to hypertension, such as obesity, alcohol, salt-sensitivity, stress, age, genetics and diabetes. The research I have done provides an overview of the causes of hypertension. There are numerous studies and trials being done about racial discrimination against African-Americans. Hypertension is a national and international health problem that is rising in all races. Some of the factors of hypertension in African-Americans are medication non-adherence and distrust of doctors and health care facilities. There were numerous studies done on the disparity of hypertension in African-Americans, but more needs to be done. There needs to be more studies on hypertension in children under the age of twelve. Obesity seems to be an increasing cause of hypertension in children along with heart problems from birth. When it comes to taking medications, some medications work on whites but not African-Americans. Stress and racial discrimination are two major causes of hypertension in African-Americans.

Keywords: Hypertension, African-Americans, Racial Disparity, Studies, Whites

Acknowledgements

I would like to take this opportunity to show my appreciation and gratitude to the people that have supported me through this entire process. I would like to thank my husband for encouraging me to go back to school and for listening to me complain every day and night for the last four years. I would like to show my appreciation to my sons for encouraging me to keep going and to my grandson for allowing me to study instead of spending time with him. I would like to thank my brother for helping me whenever the computer and I could not get along. I would like to thank all my family and friends who kept telling me that I could do it. I am giving a special thank you to Bubby for letting me study in peace. I would like to thank Mrs. Sharon Lancaster for being my senior project advisor for this paper. I would like to give Professor Horn a special thank you for continuing to check on me throughout this process.

Introduction

There seems to be a large disparity between African Americans and other races when it comes to hypertension or high blood pressure. In the African American community, the majority of people have hypertension or some form of a cardiovascular disease. While there is not a specific cause of hypertension, there are many factors that contribute to the problem. Some examples of these factors are obesity, diabetes, stress, age, genetics, not enough potassium, calcium or magnesium, lack of physical activity, diet, smoking, chronic alcohol consumption and too much salt.

I would like to know what African Americans are doing differently from other races to cause this disparity. There are numerous studies and trials being done about racial discrimination against African Americans with hypertension. One of these studies done, has been trying to prove if discrimination with medicine is nonadherence and distrust of physicians is a factor in African-Americans (Cuffee et al., 2013).

Hypertension is a national and international health problem that is rising in all races. It is the most expensive cardiovascular disease with an estimated cost of \$200.3 billion in 2030 (Moughrabi, Lopez, 2017). All reports point to African-Americans being the group that is most affected. African Americans are fifty percent more likely to have a stroke from hypertension than other races. Moughrabi and Lopez, (2017) believe the high numbers that the other reports are saying might not be all together accurate about high blood pressure adherence of medicine in African-Americans. The reason for the disparities in low adherence to medicine is not known. They think low adherence to medicine is affected by personal, social, environmental and healthcare providers. Healthcare provider's assumption about African-American's ability to pay

for their services is racially discriminatory. Patients react to these discriminatory practices and will not keep their appointments or seek additional treatment (Moughrabi, Lopez, 2017).

Patients do not have trust in their physicians, they do not have insurance and some physicians are bias when it comes to African Americans. Population studies have shown that African-Americans are less likely to have health insurance and are less likely to receive a diagnosis in a timely fashion (Ashaye, Giles, 2003). If African-Americans received enough treatment, they could have lower blood pressure numbers and a lower incidence of cardiovascular diseases (Ashaye, Giles, 2003). They believe that more research needs to be done to end these systematic and personal problems with hypertension. Clinics and Physicians should try harder to help with the adherence of medicine to African Americans. African-Americans develop hypertension at an earlier age than whites. Since African-Americans have higher blood pressure readings than White Americans, they have a higher risk of having a stroke, end stage renal disease and congestive heart failure (Mayo Clinic, 2018). Most studies in the United States and the United Kingdom report a higher prevalence and lower awareness of hypertension in black than in white people (Brown, 2016).

African-Americans have a bigger Vitamin-D deficiency than other races because of their pigmentation which reduces their Vitamin-D. (Fiscella, Winters, Tancredi & Franks, 2011) says that Vitamin-D is a cause for racial disparity in hypertension because Vitamin-D protects against diseases such as cardiovascular disease, diabetes, hypertension and some cancers. There are many reasons for the higher prevalence and lower awareness in hypertension in African-Americans but known have been proven. It could be economically, socially, or not enough information given out.

Literature Review

The following literature review consists of peer-reviewed journals that describe different studies and trials done about hypertension and the causes in African-Americans. This review also includes medical and professional journal articles explaining the disparities of hypertension in African-Americans. The following review seeks to determine why there are disparities of hypertension in African-Americans and Whites.

Hypertension

Hypertension is known as a silent killer because it does not show any symptoms until it is too late (see John Hopkins Medicine, n. d.). There are two types of hypertension, primary and secondary hypertension. Primary hypertension will take years to develop and it is hard to find a cause (The Hypertension Center, 2018). Secondary hypertension is less common than primary hypertension and will appear suddenly with high blood pressure numbers (see Mayo Foundation for Medical Education and Research, 2018). If you have other underlying problems, once they are treated your high blood pressure will go away (The Hypertension Center, 2018). Children are beginning to be diagnosed with hypertension, but not enough studies have been done on it.

Children and Hypertension

The most common causes for children and hypertension as stated by Grinsell and Norwood (2009) is renal parenchymal diseases, congenital abnormalities, and renovascular disorders. Obesity is an increasing cause of hypertension in children, but fluid overload is the most common in children with renal disease (Flynn & Tullus, 2009). It has been hard to diagnose

hypertension in children and that is why it is frequently underdiagnosed (Gupta-Malhotra et al., 2014).

Causes of Hypertension

Salt

World Health Organization (WHO) says that salt in processed foods such as bread and cheese is a major cause of hypertension. Galea, et al., (2013) says reducing your salt intake is the easiest way to prevent high blood pressure. Harvard Men's Health Watch (2010) states that Americans use fifty-five percent more salt today than they did thirty years ago which is causing a big percentage of death. It has not been one hundred percent proven that salt will produce blood pressure but that is one of the first causes most of my sources say is the cause.

Age

John Hopkins Medical (n.d.) states that if you do not have hypertension by the age of 55 to 65, your risk of developing it is ninety percent. Doctors says it can be treated, no matter your age. In one John Hopkins study of 975 men and women who had hypertension, forty percent of the people stopped taking medicine when they followed the lifestyle methods.

Harvey, Montezano, & Touyz (2015) believes there is a big relationship between aging and hypertension because of the change in the vascular stiffness and inflammation. They wrote an article about vascular changes during aging which leads to increased arterial stiffness causing hypertension. They believe that aging prompts hypertension, but biological age may not be a factor. They concluded that a better understanding of the vascular biology of aging could prevent vascular damage in hypertension.

National Institute of Aging, (2018) says high blood pressure is common in older people of all races because as you age, your arteries get stiffer which makes your blood pressure go up. This happens to everyone, no matter how heart healthy you are.

Race

Rox Medical (2018) looked at the study called the Coronary Artery Risk Development which examined the development and determinants of clinical and subclinical cardiovascular disease and their risk factors. The study used Black and White men and women between the ages of eighteen and thirty. This study was done on the participant until they turned fifty-five. Every few years they were examined and evaluated until year thirty. The study concluded with African-American men and women having higher risks of hypertension than the White men and women.

Peters, R. (2004) did a study about racism using the racism and life experience scale, Krieger discrimination questionnaire, state-trait personality inventory, state-trait anger expression inventory. The study was done on 162 African-American men and women. The study concluded with adults forty or older had higher blood pressure with distress from racism and the highest blood pressure was among people with perceived racism.

A study done with seven African tribes in west Africa to note the differences by social and economic factors (Cooper et al, 1997). They observed rates of hypertension among blacks in West Africa, The Caribbean, and the United States. The results were the mean blood pressure were similar among men aged twenty-five to thirty-four. The increase in the prevalence of blood pressure with age was twice as high in the United States compared to Africa.

This study found that African-Americans have a big mistrust of physicians because of the way they historically have been treated (Cuffee, et al., 2013). The name of the study is the

TRUST Study. It examined discrimination, trust, access to care and medical adherence of African-Americans. Cuffee, et al., (2013) found that African-Americans have a mistrust of physicians because of the way they historically have been treated. Forty percent of the population interviewed had a problem affording their medicine. The study determined that patients with no trust in their physician had higher blood pressure.

Jacobs (2006) did a study on the distrust of African-Americans and their distrust of health care providers. The study was done in a large hospital in Chicago, IL. The study involved open-ended questions with African-American men and women. The study concluded that patients were afraid they were being used for experiments. Most of the participants expressed racism and financial discrimination with their health care providers.

Hypertension

Hypertension is a condition that can affect your cardiovascular system (Walker, 2011, p. 33). The heart and blood vessels make up the cardiovascular system which circulates blood throughout your body. The cardiovascular system is also known as the circulatory system. The heart is a pump that circulates blood in your body. Blood leaves the heart through vessels called arteries which is carried through capillaries and returned to the heart through veins. As blood gets pumped into the arteries, it exerts pressure on the walls of those blood vessels (Walker, 2011, p. 34). When that pressure becomes elevated, it becomes known as Hypertension which is the medical name for high blood pressure. It has also been called the silent killer because it does not show any symptoms until it is too late. It slowly and quietly damages your body before you are aware of it. When your blood pressure is measured, it looks to see how much blood is passing through your blood vessels and the amount of resistance the blood meets while the heart is pumping. The narrower your arteries are, the higher your blood pressure will be. Your blood pressure will change during the day, it falls when you are asleep or relaxing, it rises in the

morning and increases when you are stressed or exercising (see John Hopkins Medicine, n.d.).

Two Types of Hypertension

1. Primary Hypertension

Primary blood pressure will take years to develop and according to The Hypertension Center (2018) essential or primary hypertension is hard to find a cause, so it is known as idiopathic hypertension. It is normally associated with growing older, but it has started to be found in younger age people (see The Hypertension Center, 2018).

Hariharan, Andrew, Kallvarapu, Rao, & Chivukula (2018) stated “younger children need to be educated about hypertension because it might be prevented if they could learn to make a healthier food choice such as avoiding food with high salt intake.” When it comes to children with hypertension, not enough studies have been to determine if race matters. Hypertension can occur at any age, but it mostly appears in middle age and is diagnosed during a regular checkup (Kivi, 2018). Since essential hypertension is hard to find a cause, it might be from heredity, kidney problems, hypoxia, drugs, nutritional deficiency, malnutrition, infection, genetic factors and neural activity (Delaney, n.d.) Primary hypertension is called the silent killer because it has no symptoms unless it is advanced and has possibly damaged some organs (see The Hypertension Center, 2018). It cannot be cured but can be treated.

Primary Hypertension can be treated by a low salt diet, exercise, quit smoking, avoid alcohol and a low-fat diet. Stress management by having a massage, and relaxation therapy will help also. Anti-hypertensive medicines may be required but all patients should have a blood pressure monitoring kit at home. Your doctor will prescribe what blood pressure medicine you

will need to take, and it could be possible that you need to take more than one kind (see Mayo Clinic, n.d.). There are several types of medicines prescribe for hypertension.

Table 1

1. Thiazide Diuretics (water pills) which eliminate water and sodium from your body.
2. Angiotensin-converting enzyme (ACE) inhibitors. These helps relax blood vessels by preventing the formation on angiotensin.
3. Angiotensin II receptor blockers (ARBs). These helps relax the blood vessels by blocking the action of a natural chemical that narrows your blood vessels.
4. Calcium Channel Blockers. They prevent calcium from entering heart and blood vessel muscle cells, causing the cells to relax.
5. Beta blockers. These block your adrenaline which causes your heart to beat slower and with less force.
6. Renin inhibitors. Slows the production of renin which increases your blood pressure

In Table 1, these are just some of the medicines used to prevent hypertension (see Mayo Clinic, n.d.). There are others used if these do not work.

2. Secondary Hypertension

The second type of hypertension is called secondary hypertension which will appear suddenly with a higher-pressure number than primary hypertension (see Mayo Foundation for Medical Education and Research, 2018). Secondary hypertension is less common than primary hypertension and different underlying conditions and medications can create this type of

hypertension (see Mayo Foundation for Medical Education and Research, 2018). Some of the underlying conditions could be thyroid problem, Cushing's syndrome (a condition caused by the overproduction of cortisol), kidney problems, and sleep apnea (see Hypertension Types, 2016). Other underlying conditions are Preeclampsia, which is related to pregnancy, thyroid problems, a birth defect in which the aorta is narrowed and pheochromocytoma which is a rare tumor (see Which Type of Blood Pressure do you have, 2017). With secondary hypertension, once the underlying conditions are treated, the hypertension goes away (The Hypertension Center, 2018). In some cases, treating the underlying conditions will not make the secondary hypertension go away. Secondary hypertension, most of the time is caused by overproduction of one of the body's hormones. If your blood pressure is not too high, doctors would like to try and control it by using diet and lifestyle changes. Doctors would like you to try the Dash diet and exercise before putting you on medicines (see Hypertension Types, 2016). If you control your weight and exercise and eat healthy, you could lower your blood pressure and reverse your hypertension.

There are some signs of hypertension, such as nose bleeds, headaches, blurred vision, dizziness, palpitations, tinnitus and elevated blood pressure (The Hypertension Center, 2018). The symptoms of Cushing's syndrome are weight gain, weakness, abnormal growth of body hair, menstrual cycle in women and purple stretch marks on the abdomen (see Secondary hypertension, 2018). The symptoms for pheochromocytoma are heart palpitations, headaches and sweating and elevated blood pressure.

Hypertension in Children

The most common cause of hypertension in children is renal disease and the secondary cause in children under 12 is renal parenchymal diseases, congenital abnormalities and renovascular disorders (Grinsell & Norwood, 2009). Renal Vascular Disease occurs in children

during the fetal growth which causes the renal arteries to narrow and it creates abnormal tissue growth inside artery walls that stop the blood flow (Moudgil, n.d.). Hypertension is the first sign that is noticed before renal disease is diagnosed. Congenital abnormalities are a problem with a child's heart at birth. Some of these abnormalities do not require surgery (see Mayo Clinic, 2011). Obesity is an increasing cause of hypertension, but fluid overload is the most common in children with renal disease (Flynn & Tullus, 2009).

Grinsell and Norwood (2009) stated" there are other causes of hypertension in children such as:

immobilization, burns, illicit and prescription drugs, dietary supplements, genetic disorders and tumors. They believe half the children admitted to the hospital with burns will have hypertension. These patients are treated with diuretics, B-Blockers and inhibitors".

Children that have problems with their kidney and heart are candidates for hypertension (Mayo Foundation for Medical Education and Research, 2018). It has been hard to diagnose hypertension in children and that is why it is frequently underdiagnosed (Gupta-Malhotra et al., 2014). Severe blood pressure in children is when their blood pressure is greater than the ninety-ninth percentile which is called stage two hypertension (Grinsell & Norwood, 2009). The causes for children are unhealthy diets which cause obesity and lack of exercise (Mayo Foundation for Medical Education and Research, 2018). If hypertension is caught early in children, it may be controlled without medicine or drugs.

Refer to Table 2 for a more detailed description of blood pressure classifications.

Table 2

Table 2. Classification of normal and abnormal blood pressure in children and adolescents

Classification of blood pressure	SBP or DBP
Normal	<90 th percentile
Prehypertension	90 th to <95 th percentile, or if BP exceeds 120/80 in adolescents
Stage 1 hypertension	95 th percentile to 99 th percentile plus 5 mmHg
Stage 2 hypertension	>99 th percentile plus 5 mmHg

SBP – Systolic blood pressure, DBP- diastolic blood pressure

Adapted from: Flynn, J., & Tullus, K. (2009). Severe hypertension in children and adolescents: pathophysiology and treatment. *Pediatric Nephrology*, 25(6), 1101-1112. [http//doi-org.ezproxy.waterfield.murrystte.edu/10.1007/s00467-008-1000-1](http://doi-org.ezproxy.waterfield.murrystte.edu/10.1007/s00467-008-1000-1)

Blood Pressure Readings

Your average blood pressure numbers should be 120 over 80 and it is considered to be hypertension when your numbers are higher than 130 over 80 (MacGill, 2018). The 130 is the systolic reading of 130 is the pressure that is created when the heart pumps around the body. The diastolic reading of 80 is the pressure when the heart relaxes and refills (MacGill, 2018). The systolic pressure is when your heart beats pumping blood, the blood pressure is at its lowest and the diastolic pressure is when the heart rests between beats, the blood pressure will fall (see Medline Plus, n.d.) The chart below is the American Heart Association guidelines for high blood pressure.

Table 3

Systolic (mmHg)	Diastolic (mmHg)	
Normal blood pressure	Less than 120	Less than 80
Elevated	Between 120 and 129	Less than 80
Stage 1 hypertension	Between 130 and 139	Between 80 and 89
Stage 2 hypertension	At least 140	At least 90
Hypertensive crisis	Over 180	Over 120

Source: Medical News Today.

Some Causes of Hypertension

Salt Consumption

World Health Organization (WHO) says that salt in processed foods such as bread and cheeses is a major cause of Hypertension. A salt intake of less than five grams is the recommended daily intake to prevent cardiovascular diseases (Galea, et al., 2013). Reducing your salt intake is one of the easiest ways to prevent high blood pressure, stroke and

cardiovascular diseases. Glover et al. (2011) states a 5g reduction of salt could prevent 1.25 million people from dying of a stroke.

The Slavery Hypertensive Hypothesis about African-Americans consuming salt to help them survive the Atlantic passage has not been proven (Fuchs, 2011). The slavery hypothesis started from the captains on the slave ships giving the slaves salt to eat so they would not vomit or get sick on the ship (Fuchs, 2011). The Slavery Hypertensive Hypothesis thought the conditions of slavery, the depletion of salt and the slave trade were reasons African-Americans have hypertension but that has not been proven either (Curtin, 1992). The question rises as to why when bringing the slaves to American they would be given salt and no water.

Harvard Men's Health Watch (2010) states that Americans use fifty-five percent more salt today than they did thirty years ago which is causing a big percentage of deaths. It has not been one hundred percent proven that salt will reduce blood pressure, but it will not hurt. A study was done in 2009 about a low sodium diet that reduced the systolic blood pressure by 22.7 millimeters and diastolic blood pressure by 9.1 mm (Harvard Men's Health Watch, 2010).

Newman (2017) published an article about Researcher Lyn Moore who did a study on 2632 men and women for sixteen years about people who consumed less than 2500 milligrams of sodium and those who consumed more than 2500 milligrams. She found no evidence that lower sodium intake helped lower blood pressure. The only people it really affected was the ones who had a salt sensitivity to sodium. The study pointed toward potassium and calcium to lower blood pressure (Newman, 2017). Brown (2007) says there is a sodium-retaining hormone known as aldosterone which causes hypertension in African-Americans. This causes a salt sensitivity in African-Americans because it makes the kidneys retain salt. There is plenty controversy about

the reduction of salt to prevent hypertension. More studies need to be done because of the controversy, but for now people need to cut back on their salt consumption until more studies have been done. The Center for Disease Control and Prevention (CDC) believe that salt directly influences blood pressure (see CDC, n.d.).

Age

Age plays a big part in having hypertension. If you do not have hypertension by the age of fifty-five to sixty-five, your risk of developing it is ninety percent (John Hopkins Medical, n.d.). The older a person gets, the greater the risk for high blood pressure. Most women will get hypertension after the age of sixty-five and it is more common in men up to the age of sixty-four (Mayo Foundation for Medical Education and Research, 2018). Harvey, Montezano, & Touyz (2015) believes there is a big relationship between aging and hypertension because of the change in the vascular stiffness and inflammation. They say these changes are like the ones found in the arteries of the aging. When you get older, your arteries get stiffer and your blood pressure gets higher no matter how heart health you are (National Institute of Aging, 2018). Studies says strategies should be done to repair the aging arteries and reduce the chance for hypertension (Harvey et al., 2015).

Lackland (2014) states African Americans have an earlier onset of hypertension than other races. He uses an example of a forty-five year old African-American man living in the Southeast has the stroke risk of a fifty-five year old white man living in the Southwest and a sixty-five year old white man living in the Midwest (Lackland,2014). In older people if your systolic (top number in your blood pressure is 130 or higher and your diastolic (bottom number) is less than 80 you have systolic hypertension (National Institute of Aging, 2018). This leads to

health problems such as strokes, heart disease, eye problems and kidney failure. As you get older, systolic blood pressure rises and diastolic blood pressure decreases (see WebMD, n.d.).

People that have high systolic blood pressure are at a greater risk for bleeding strokes and chest pains and people with higher diastolic blood pressure are at risk for abdominal aortic aneurysm.

Race

Rox Medical (2018) looked at a study called the Coronary Artery Risk Development in Young Adults (CARDIA) with 4,000 adults that did not have hypertension. The adults ages ran from 18 to 30 and they followed them until the age of 55 to see who had hypertension.

See the table below.

The table is showing the percentage in black men, black, women, white men and white women with hypertension.

Table 4

1. 75.5% of black men,
2. 75.7% of black women,
3. 54.5% of white men
4. 40.0% of white women

Adapted from Hypertension: How race affects Risk. (2018). Retrieved from

<http://www.roxmedical.com/>

This table shows that African-Americans have higher risks of hypertension than White-Americans. This study was done in 1985-1986 with black and white participants in Birmingham, Al; Chicago, IL; Minneapolis, MN; and Oakland, Ca (Reis, 2014). The data showed that

regardless of who was in the study, the African Americans had higher blood pressure than everyone else.

Rox Medical states that African- Americans are not responding to some medicines that other races take so maybe some clinical trials might work (2018). They are interested in finding people who would like to be included in the study. Rox Medical is looking for people who have uncontrolled hypertension for their Control HTN-2:

The study involves a Rox Coupler, which is an implanted device to lower blood pressure. It is the size of a dime and is used to create a small passageway between an artery and vein. The passageway allows blood to flow from the artery to the vein. The device is meant to be permanent and should lower your blood pressure immediately (Rox Medical, 2018).

Mayo Clinic (2018) states that African-Americans develop hypertension at an earlier age than whites. Since African-Americans have higher blood pressure reading than White Americans, they have a higher risk of having a stroke, end stage renal disease and congestive heart failure.

Size and Weight

Schoenstadt (2017) states that being overweight is a risk for hypertension. If you are overweight and you lose five to ten pounds, it can lower your risk for hypertension. To determine if you are overweight, your waist circumference and Body Mass Index (BMI) is measured. Your BMI tells you your total body fat. If your BMI is 25 to 29.9 you are overweight and if you BMI is thirty or more, you are considered obese (Schoenstadt, 2017). It does not matter what race you

are, if you are overweight it increases your chance also for heart disease and diabetes. Heart.org (2016) states being overweight will put extra strain on your heart and losing weight will take some of the strain off your heart. When you are obese, you will have more fatty tissues that will put strain on your vascular resistance that makes your heart pump harder to get your blood throughout your body (Delaney, n.d.).

The American Heart Association (AHA) says if your doctor tells you to lose weight, you can lose weight by moving more, eating less and make better food choices (AHA, 2016). Most doctors will tell you to stop losing weight if you are overweight and have a small waist measurement with less than two risk factors (Schoenstadt, 2017).

One way to lose weight is to watch what you eat, especially if you have hypertension, you will need to keep your cholesterol levels low. You must limit the amount of saturated fats in your diet because they will raise your cholesterol. Alcohol is high in calories so limit the amount you drink and keep a diet low in and high in fiber and fruit and vegetables (Nutritionist, 2019). This will help you lower your blood pressure and help you lose weight. The AHA recommends you do 150 minutes of aerobic exercise, but if you do more than 150 minutes, eat a healthy diet and lower your calories, you will lose weight. The way you lose weight is determined by your body size and how active you are.

Schoenstadt (2017) says:

“If you must lose weight, it's important to do so slowly. Fast weight loss is not healthy and rarely successful for an extended period. Aim for losing no more than half pound to

two pounds a week. One-pound equals 3,500 calories. So, to lose one pound a week, you need to eat 500 calories a day less or burn 500 calories a day more than you usually do”.

The best way to lose weight is to lose 10 percent of your body weight over six months. There was a famous study done called The Framingham Heart Study that found that excess body weight accounted for twenty-six percent of hypertension in men and twenty-eight percent in women (Delaney, n.d.). The Framingham Heart Study was mostly done on Whites, but other studies with the same factors came up the same regardless of the race (Framingham 2019). Weight loss will improve your quality of life and prevent hypertension.

Alcohol and Tobacco use

Every time someone smokes and second-hand smoke, there is an increase in plaque inside the arteries that increases your blood pressure (Heart.org, 2016). If you drink three or more drinks at one time, it will increase your blood pressure, but more than 3 drinks will have long term effects. If you are a heavy drinker and want to lower your blood pressure, you do it slowly by reducing how much you drink over a couple of weeks. If they quit suddenly, they will develop very high blood pressure for several days (Sheps, 2019). Alcohol has calories and will cost weight gain that will increase your chances of having hypertension. If you must drink, try to drink a moderate amount. This is considered moderate drinking:

Table 5

1. Two drinks a day for men younger than age 65
2. One drink a day for men age 65 and older
3. One drink a day for women of any age

Adapted from Alcohol: Does it affect blood pressure? <http://www.mayoclinic.org/diseases-conditions>

Tobacco and second-hand smoke are a risk for stroke and heart attack.

Pregnancy

Hypertension can develop before or after pregnancy in women. Gestational hypertension occurs 20 weeks after pregnancy and can develop into preeclampsia which shows signs of damage to other organs (Mayo Foundation for Medical Education and Research, 2018). It is common to have high blood pressure when pregnant; it needs to be checked at each doctor's visit. Gestational hypertension is known as (PIH) pregnancy induced hypertension and preeclampsia is called toxemia which affects six to 8 percent of women (American Pregnancy Association, 2015). Gestational hypertension usually goes away after the pregnancy is over. Gestational hypertension can prevent the placenta from getting enough blood which will make the baby get less oxygen and food (American Pregnancy Association, 2015). First time moms, women who had high blood pressure before pregnancy, women who are over 40 and women under 20 and women carrying more than one baby are at high risks for Gestational hypertension (American Pregnancy Association, 2015).

Chronic Hypertension occurs in women that had high blood pressure before they were pregnant, or they get high blood pressure before 20 weeks of pregnancy (Mayo Foundation for Medical Education and Research, 2018). American Pregnancy Association (2018) states women who have blood pressure readings over 140/90 and continue to have high blood pressure up until delivery have chronic hypertension.

Racism and Stress

Could racism be a cause of high blood pressure in African Americans? There have been several studies done on racism and stress causing Hypertension. There was a study done on 162 African American adults about racism using the racism and life experience scale, Krieger Discrimination questionnaire, State-Trait Personality Inventory, State-Trait Anger Expression Inventory and automated measures of Blood Pressure (Peters, R., 2004). The study concluded that adults 40 or older had higher blood pressure with distress from racism but less stress and the highest blood pressure was in adults who did not feel the distress of racism, but it raised a risk of perceived racism (Peters, R., 2004). In this case perceived racism would be considered because of their race. It seems that the racism stressor is one thing that African Americans have that Whites do not have and could be the cause of hypertension for Africa Americans. When you have stress that is due to racism, it could cause adverse birth outcome when you have maternal and general stress (Nuru-Je-Jeter et al, 2009). The U. S. Census of 2015 stated the median income for African-Americans was \$36,515 compared to whites with \$61,394 and twenty-five percent African-Americans compared to ten percent whites were living in poverty (see office on Minority Health, 2019). These are good reasons for African-Americans to feel stressed.

When a person is stressed, they release catecholamines and cortisol hormones which are the primary stress hormones, if they are released long term, they will increase the risks for other diseases such as hypertension (The Mayo Clinic, 2011). Stress will age you and your body if it continues.

There was a study done with seven African tribes in West Africa with differences noted by the social and economic factors (Cooper et al., 1997). This study proved that race is a social

concept and that something else besides genetics and biological are the causes for the disparity (Thompson, Kamarck & Manuck, 2002)

According to Krieger (2000) racial inequality seems to be a major cause of hypertension in African Americans leading to several different pathways:

1. social trauma, e.g. chronic everyday awareness and experiences of racial discrimination
2. economic and social deprivation due to discrimination in education, employment, and housing
3. residential and occupational racial segregation, resulting in increased risk of exposure to toxic substances, hazardous conditions, and restricted educational and employment opportunities
4. racially targeted marketing of harmful commodities (e.g., alcohol, tobacco)
5. inadequate and degrading medical care (Krieger, 2000).

There is a big history of discrimination of African Americans and other ethnicities in all aspects of life. The older you are, the more you have been affected or experienced stress. Being discriminated against is very stressful and stress causes hypertension. Babies with low birth rates, breast cancer and stress are linked to racial discrimination (Cuffee, et al., 2013). There was a study done called the TRUST study which examined discrimination, trust, access to care and medicine adherence of African-Americans.

This study found that African-Americans have a big mistrust of physicians because of the way they historically have been treated (Cuffee, et al. 2013). Cuffee (2013) states that the ability to afford the medications were accounted by 40 percent of the general population. Patients with no trust in their physicians had higher hypertension than those who trusted their physicians.

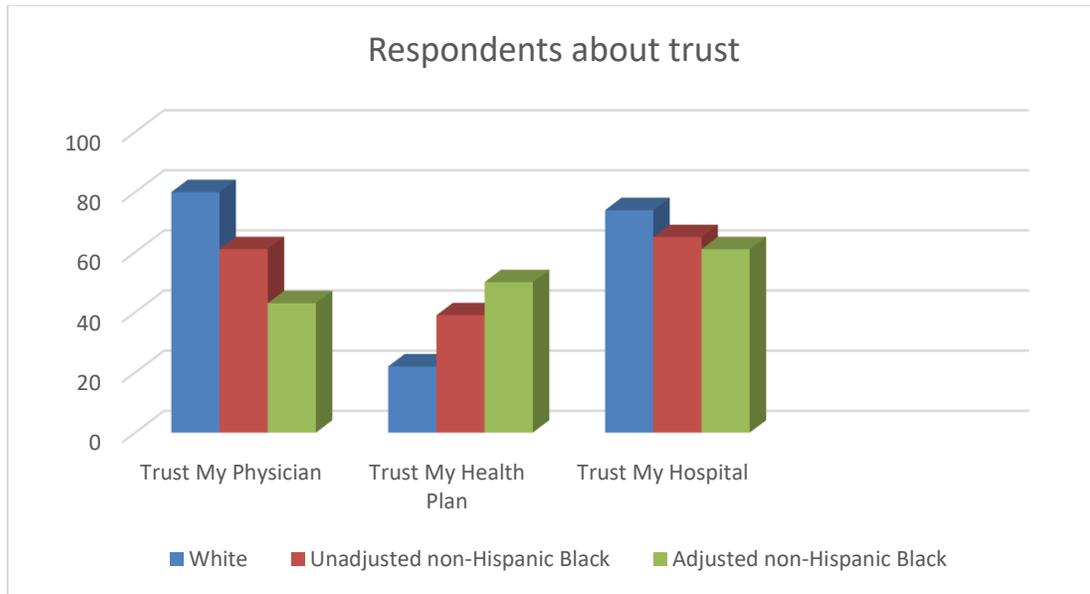
There are legitimate reasons why African-Americans do not trust physicians such as the 1932 Tuskegee Syphilis Study done on untreated African-American males. This study unethically told 400 African-Americans they were receiving free health care but were intentionally infecting

them with Syphilis without their knowledge (Nix, n.d.). They were infecting them and not giving them penicillin, which was a cure for syphilis. Some African-Americans believe doctors are still experimenting on them.

There was another study done on the distrust of African-Americans and their distrust of health care providers. This study was done to see what trust and distrust means to African-American (Jacobs, 2006). The study was done in a large hospital in Chicago, Il with a focus group that used open ended questions with African-American men and women. Most of the participants experienced racism and financial discrimination with their health care providers (Jacobs, 2016). Jacobs (2016) states that he was most disturbed about the participants who were afraid they would be used for experiments. He believes that physicians and health care providers can build trust with their patients by not hurrying thru their exams and to not use the wording, "let's try this medicine". It makes people think they are being used as an experiment.

Some researchers (Boulware, Cooper, & Ratner, (2003) states that more African-Americans distrust their health plans more than they do their physicians, but the physicians are still not trusted also.

Table 6:



Note: Adjusted non-Hispanic Black for self- reported age, household income, gender, type of insurance, and membership in a managed care facility, employment status and previous exposures to medical environments. Adapted from www.ncbi.nlm.nih.gov/pmc.

Some older people do not like going to hospitals because they believe when you go to the hospital, you are going to die. There are others that do not trust that the doctor will use good health care on them. The chart in Table 6 is an example of how whites trust their physicians and hospital more than African-Americans.

According to data from the National Health and Nutrition Examinations Survey (NHANES) racial differences in hypertension is evident at all ages (Lackland, 2014). The treatment of hypertension for both races has been the same but results still show African-Americans having end-stage renal disease five times more than whites. They have strokes twice as often as whites and their life expectancy is much lower (Lackland, 2014). The NHANES is a continuous study done every two years to assess the health and nutrition of people in the United States (Liu, Zhu, Manojlovich, Cohen, & Tsilimingras, 2017).

There was a study done on the effects of smoking among different races and the control of hypertension. The study was done using 6 different surveys stemming from 1999 - 2000 and 2009 - 2010 using 7,7586 hypertensive patients (Liu et al., 2017). They did their study on African-American women and men, Hispanic men and women and on White men and women. The study was done on smokers, non-smokers and current smokers. The African-Americans in the study were less educated, poorer and had higher rates of diabetes (Liu et al, 2017). The study did not detail which medications the patients were on nor were the participants equal when it came to economics and education. The study concluded that current smokers were more likely to have uncontrolled blood pressure in African-Americans and Whites who currently smoked were less likely to have uncontrolled blood pressure (Liu et al, 2017).

The Barker hypothesis states that low birth rate is a cause for hypertension. It believes that a low birth rate will cause you to have hypertension later in life (Lindhorst, Alexander, Blignaut & Raynor, 2007). The research by Barker (as cited in Lindhorst et al, 2007) states there is a higher probability low birth rate babies will retain sodium due to a reduced nephron number. There is a prevalence of low birth rate in Black babies more so than White babies in the United States (Lindhorst et al, 2007).

African-Americans have a higher prevalence of hypertension than other groups even when given the same treatments or medicines (see Heart, 2017) Some blood pressure medicines do not work on African Americans (see Heart, 2017). Thiazide- type diuretics, known as water pills and calcium channel blockers will lower blood pressure in African Americans (see Heart, 2017). Some evidences suggest that the quality of treatment of some medical conditions vary by race with African-Americans receiving poorer services than whites (Smedley, Stith, & Nelson, 2003).

Morenoff (2007) states that African- Americans living in segregated areas experience greater exposure to health risks and less access to medical care.

There was a study done on understanding social disparities with hypertension with grants given to support the study. The study had 3,105 participants starting at the age of eighteen from the Chicago area (Morenoff et al., 2007). The study found that blacks with and people with lower levels of education had higher blood pressure levels than whites or people with sixteen or more years of education. It also found that blood pressure was lower in affluent neighborhoods. The study showed that blacks knew about their conditions before whites. It proved that what neighborhood you lived in played a role in the prevalence and awareness of hypertension but not in the treatment and control of hypertension (Morenoff et al., 2007).

Some factors for disparities in hypertension among African-Americans are diet, physical activity, health insurance, and access to quality health care (Howard, Carson, Holmes, & Kaufman (2009). They believe it is mostly an inconsistency of care or no care at all with the health care system. Some researchers believe there is a gene that African-Americans have that causes them to be more salt sensitive. In people that have this gene, a half of a teaspoon could raise their blood pressure five mm Hg (see Heart, 2017). There are many causes for hypertension, but more studies need to be done to find the cause of the disparity.

Analysis

The disparities of hypertension in African-American people is because of stress and racism. Of all the literature I studied, this seemed to have more known facts. I looked at the studies about salt being a cause of hypertension disparity. I did not find anything that could prove that African- Americans used more salt than other people. There were studies done about African-Americans having a salt deficiency and having a hormone called aldosterone which makes your kidney retain salt (Brown, 2007). Brown believes the hormone acts differently in African-Americans and whites because of the way our body distributes fat. One author said it was a hormone found in African-Americans called aldosterone but as I read more the same hormone is in all races so why would that be a factor? Another theory is the Slavery hypothesis about the salt depleting journey the slaves made to America. None of these theories have been proven. Kaufman (2007) saw an article from the editor of the American Journal of Cardiology that believe the slaves had inherited a salt retention gene from their descendants that caused hypertension. Salt is a nutrient that all people need to control in their diet.

According to the 2015 U. S Census, the median income for African-Americans was \$36,515 compared to \$61,394 for white households. It was reported that twenty-five percent of African-Americans compared to ten percent of whites were living at poverty level. The unemployment rate for African-Americans were twice that of whites. Compared to thirty-four percent of whites who have a bachelor's degree, only twenty percent of African-Americans have one (see Office of Minority Health, 2019). This is a reason for the disparity of hypertension. African-Americans cannot afford insurance, they cannot find a good doctor and they do not have the education to get a good job to afford these services.

I believe Krieger (2000) said it correctly that racial inequality is the cause for disparity of African-Americans. Education is still separate and unequal for minorities. According to where they live will put them in an economically disadvantage. Parents are stressed because they cannot provide the best schools for their children which causes them to have high blood pressure.

Recommendations

In order to stop the disparities of hypertension in African-Americans and whites, there needs to be more studies and trials done on the disparity. The main recommendation I would use is to do studies on different economical environments. If we are going to see what the differences are, we should use the same type of neighborhood when doing the study with the same class of people white and black. Stop comparing lower educated people to higher educated people. There needs to be studies done on children with hypertension to see if we can stop it before they become adults. The most important way to solve the disparity problem is to have free universal health care and insurance for all people.

Conclusions

The aim of this research is to find out why there are disparities of hypertension between African-Americans and whites. Hypertension is a national and international health problem that is rising in all races but most of the reports say that African-Americans are affected more than anyone else. There are a lot of studies done on what causes African-Americans to have this disease. Although hypertension is called the silent killer, getting an annual exam every year could catch this disease. African-Americans are fifty percent more likely to have a stroke from hypertension than other races. Forty-one percent of African-Americans get hypertension compared to twenty-seven percent of whites (wedmd.com, 2017). The way these percentages are taken are not a fair and accurate total.

Some of the way studies are done are not accurate because of the statistics used. Morenoff (2013) did a study that said African-Americans with a lower level education had a higher blood pressure than Whites with sixteen years or more of education. They should have studied lower level education in whites and black and then determined who was at a greater risk.

There are many factors that contribute to hypertension, such as smoking, alcohol, salt, diabetes, stress, genetics, lack of exercise, obesity, and not enough calcium, potassium and magnesium. Salt is one of the first causes the studies show that all Americans are eating too much salt. No matter what you do or eat, (John Hopkins Medical) says when you turn from fifty-five to sixty-five you will have a ninety percent chance of having hypertension. Age is a factor for hypertension. When we age, we will have vascular stiffness inflammation which will cause us to have hypertension regardless of our race.

Webmd says African-Americans respond differently to medicines than whites but in my interviews, I see where whites have tried different medicines to find the one that works. It's the same with African-Americans, they try different ones to see which one will work on them. I do not see that much difference in diet, medicine, and the amount of salt eaten between African-Americans and whites to cause a big disparity. Obesity and renal disease in children are causing them to have hypertension but no distinction is made between African-American or white. The slavery hypothesis was not proven by Clarence Grimm, so it is no longer creditable.

There is a disparity in trust of physicians and health care facilities among African-Americans. Physicians are not spending enough time with their patients and explaining the treatment which causes the patient to lose trust and not return for treatment. The health care centers in the African-American communities are not giving the best care to the community, they do not seem to try and relate to the people with real help. They are treated differently because they do not have the money to pay for their medicines. They feel racially discriminated against.

Stress is a major disparity of hypertension in African-Americans because they are not always treated equally or fairly. It seems that the racism stressor is one thing that African Americans have that Whites do not have and could be the cause of hypertension and the disparity for Africa Americans.

Interviews

Interview A

In an interview with J. Rankin (2019) who is an African-American woman with high blood pressure. She is 68 years old and was diagnosed with hypertension at the age of 27. She said her hypertension is inherited from her family and her stressful life in the military. Her mother, father and several siblings have hypertension presently. I asked her about any cardiovascular diseases in her family and she said there is.

Mrs. Rankin has a stressful job now because she does quite a bit of traveling. She says she probably could control her blood pressure better if she did not work, but she is going to work if she can. She is currently taking Amlodipine and Miccardis medicines for her hypertension. Mrs. Rankin said she was tired of her doctor changing her medicine every few months. She feels like they are experimenting on her trying to find something that works. She does not have any problems paying for her medicine. Mrs. Rankin has never smoked and she only drinks moderately. She does not exercise daily but when she wants to bring her blood pressure down quickly, she has some exercises she does to help her. She has no restrictions to her diet except she uses a minimal amount of salt. The way she copes with hypertension is taking her medicine, using a minimal amount of salt and taking long regular walks. (J. Rankin, personal communication, March 7, 2019).

Interview B

In an interview with R. Saunders (2019) who is an African-American male with high blood pressure. He was diagnosed with hypertension at the age of 34 and he is presently 48 years old. He has a family history of hypertension going as far back as his grandfather. Besides his family history, he said his long military schedules of being in so many different places are a

cause of his hypertension. He says he had poor eating habits of eating fast foods and eating on the run which contributed to his high blood pressure.

Mr. Saunders says he takes Micardis and HCTZ to control his hypertension now. In the past, the medicines he had taken made him gain weight and feel tired. He feels he has a good control over his high blood pressure now. The way he brings his blood pressure down quickly is to drink plenty of water and eat less salty foods. His family does have a history of cardiovascular disease. Since he has military insurance, he does not have a problem paying for his insurance. Mr. Saunders does not drink or smoke and has no restrictions on his diet. He says he cannot find the time to exercise. The way he has coped with hypertension is by cutting back on fried foods and he has stopped eating pork. He quit eating frozen foods because they were high with sodium. (R. Saunders, personal communication, March 7, 2019).

Interview C

In an interview with G. Peattie (2019) who is a Caucasian female who has high blood pressure. She was diagnosed with hypertension at the age of 45, she is now 58. When I asked her to describe her history, she said she did not have any prior health issues. When she was diagnosed 13 years ago, she was a healthy runner. Now she has gained 30 pounds and she does not run any more. She keeps her blood pressure under control with medicine every day. She takes Losartan HCL and has no problem paying for her medicine because she has insurance.

Mrs. Petrie says she does not worry about bringing her blood pressure down because her medicine has it under control. She does not smoke but she does drink. She exercises about 4 days a week. There are no restrictions on her diet, she basically eats what she wants, but she tries to watch her sodium intake. I asked her about family history of hypertension and cardiovascular

and she said her father had a pace maker and hypertension. The way she copes with her hypertension is she takes her medicine, eat low sodium foods and loves to walk. (G. Petrie, personal communication, March 8, 2019).

All the people that I interviewed seemed to be very similar in taking medicines and controlling their hypertension. They all had family members with hypertension, so it may be that it is hereditary. They all had a lot of stress in their lives and a history with watching their salt intake. I could not find a big difference in the disparity of been African-American or Caucasian with these three people. They all had similar type jobs and medical insurance, maybe that's the difference.

Interview D

I contacted Tammy Cox, R.N., for a knowledgeable discussion about hypertension. She is an expert in the field, having worked in the hospital for 20 years. She works in the cardiology department of the Blanchfield Army Hospital. I asked Tammy Cox in person, "What could a person do to prevent getting hypertension?" She answered,

"There are several risk factors that we cannot control such as age, 55 or older for men, 65 or older for women, family history of early heart disease before age 55 or having a mother or sister diagnosed before age 65. The factors we can control are our blood pressure, our cholesterol levels, tobacco use, diabetes, weight, maintain a healthy diet and increase your physical activity."

I also asked (T. Cox, personal communication, March 18, 2019), about the disparities

in different races with hypertension. She answered, “Hypertension seems to be more common with Black women and men. There is an increase in heart disease, stroke, blindness, chronic kidney disease and premature death in Black people. I asked her,” What diet does she recommend for a person with hypertension?” She answered, “The Dash Plan by eating foods that are low in saturated fat, total fat, and cholesterol.” She said to eat foods such as fruits and vegetables, low-fat dairy foods, whole grains, poultry, fish and nuts. She also said to decrease the amount of fats, red meats, sweets and sugared drinks. I also asked her if hypertension was hereditary. She answered, hypertension is not hereditary, but family history does play a part in it and it is a proposed factor that we cannot control (T. Cox, March 18,2019).

I asked Tammy Cox, “Is hypertension reversable?” She answered, “Hypertension can be controlled with healthy eating, exercise, monitoring and medication: With all three we can live a healthy life with a healthy blood pressure.” My last question that I asked her was, “Do we need to worry if your blood pressure goes way down?” She answered, “Low blood pressure is okay if you do not have the following symptoms, dizziness, fainting, blurred vision, nausea, fatigue and lack of concentration.” Life threatening symptoms would be rapid pulse, confusion, cold clammy pale skin and rapid breathing which you should go directly to an emergency facility (T. Cox, personal communication, March 18, 2019).

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