

# Non-Hispanic Black Women face staggering hypertension rates and ineffective treatment outcomes

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## Introductions

Since 2015, 45.5% of the US adult population (108 million people) have been diagnosed with hypertension, blood pressure of 140/90 or higher.<sup>1</sup> Of those 108 million individuals, only 25% have their condition under control.<sup>2</sup> Uncontrolled hypertension can cause many complications and lead to disability, stroke, heart attack, kidney damage, heart failure, sexual dysfunction, and premature death. Untreated hypertension can also lead to higher costs of medical treatment that is incurred by society.

Every year, high blood pressure costs the United States an estimated \$131-198 billion dollars, making it one of America's costliest health conditions.<sup>2</sup> This total cost accounts for both the direct cost of health care services and indirect costs associated with this condition. With the steady increase in hypertension rates amongst American adults, these healthcare costs will only increase with time.

The prevalence of high blood pressure is high amongst all racial groups across the nation. However, NHBs consistently have a higher rates of the disease.<sup>1</sup> Social determinants of health—low socioeconomic status, educational attainment, availability of healthy foods and pharmacies, environment, etc.—can heighten existing racial disparities and impact hypertension awareness, prevalence, and treatment in NHBs.<sup>3</sup> These racial disparities impact health at the individual, community, and societal level. This is reflected in the health behaviors and coping strategies of NHB Americans, their availability of services to combat this condition within their communities, and health care policies that are adopted.

Differences in pathophysiology may also contribute to the propensity of high blood pressure within the black community. NHBs have “higher nocturnal blood pressures and less circadian ‘dipping’ compared to their Non-Hispanic white counterparts” (Saeed).<sup>4</sup> These differences in pathophysiology also affect the types of medication NHBs receive. Studies determined that “calcium channel blockers are the most effective class of drugs to reduce blood pressure in patients of African ancestry.”<sup>5</sup> Unfortunately, the efficacy of these drugs is questionable. NHBs, despite having similar rates of awareness and treatment, had lower control rates compared with white Americans.<sup>6</sup>

Even though these factors can somewhat explain the higher rates of hypertension among NHBs, they do not fully illustrate why NHB women tend to have higher blood pressure than their male counterparts. Stress and stigma among NHB women have been proposed as possible reasons that explain “poor adherence to their treatment regimen and negative health outcomes.”<sup>7</sup> NHB women face both race and gender-related stressors which lead to disparities in hypertension awareness, treatment, and management and results in negative health outcomes.<sup>7</sup> More studies are needed to better comprehend the various factors that contribute to NHB women's rising hypertension rates.

## Methods

The focus of the study was initially to differentiate which racial/ethnic groups had higher high blood pressure rates as these groups would be particularly vulnerable. With a cursory look at national data on hypertension, it became evident that NHB individuals had the highest rates of blood pressure, and that NHB women had higher rates than NHB men, a trend that was not seen in any other racial group but was noticed in the Hispanic cohort.<sup>7</sup>

Published studies were identified that considered potential explanations for why hypertension was prevalent within the black community in the United States, with a focus on why NHB women had significantly higher blood pressure than NHB men and women of other races and ethnicities. The search was narrowed to include self-identified black female adults (18 years or older) that had been diagnosed with hypertension for at least one year, and that were currently living in the United States. Initially, patients with comorbidities such as diabetes, were excluded from the search. However, because of limited data concerning NHB women's blood pressure, the search was expanded to include participants with comorbidities and other chronic conditions.

Using these inclusion factors, a systematic literature search through electronic databases, including PubMed, AHA Journal, JAMA network, American Journal of Hypertension (AJH), the Center for Disease Control (CDC), and the American College of Cardiology was conducted. These databases were searched from their inception through October 2023 without language restriction. Key words and phrases used in the search engines included: hypertension, black women, disparities, and hypertension management.

Given that many of the studies in the search focused on similar aspects of hypertension within the black community and other racial groups, further attention was directed at articles with a unique focus that could lend a distinctive perspective to the discussion surrounding disparities within hypertension management. Four studies were ultimately chosen for further analysis, two of which measured the relationship between stress and hypertension, one which measured the relationship between stigma and hypertension, and the last which sought to identify the extent to which hypertension management was effective for NHBs.

Abel's article on stigma used a qualitative descriptive design and an open-ended questionnaire to ask the sample 90 NHB women (later 83) during a 6-week self-management program. These women were between the ages of 18 to 70 and were administered the questionnaire in 6 groups, each ranging in size from 10-16. Moody's prospective study on everyday discrimination, incorporated the use of 9-items Williams' Everyday Discrimination Scale to assess everyday discrimination exposure to 2,180 women of different racial and ethnic backgrounds. For this study, The effect of everyday discrimination exposure on the risk of developing hypertension was assessed among women that were hypertension-free at baseline, for a period of 10 years. The Jackson Heart Study analyzed 1829 participants without hypertension at baseline and assessed their exposure to chronic stress at each annual follow-up assessment using the Weekly Stress Inventory (WSI), an 87-item checklist of minor stressors, and the Global Perceived Stress Scale (GPS), an 8-item measure to assess domain-specific stressors experience over 12 months; and this repeated over the course of 13 years. Since these studies defined stress differently and measured hypertension differently, it was difficult to assemble the data. Thus, a flow chart was constructed to establish the relationship between different types of stressors (including stigma) and blood pressure.

Aggarwal's study on the treatment, awareness, prevalence, and control of hypertension among different racial groups and genders over the course of 5 years. Treatment of hypertension was defined by an affirmative response to being asked if they were now taking medication for hypertension or if they had been told they needed to take prescribed medication. Hypertension control was determined as the number of patients with hypertension whose average blood pressure was less than 140/90. For the purposes of this review, focus was placed on the treatment and control of hypertension from the study to determine if the medications prescribed to NHBs were effective. Their data was gathered and presented in a histogram comparing treatment and control of hypertension based on different race/ethnicity.

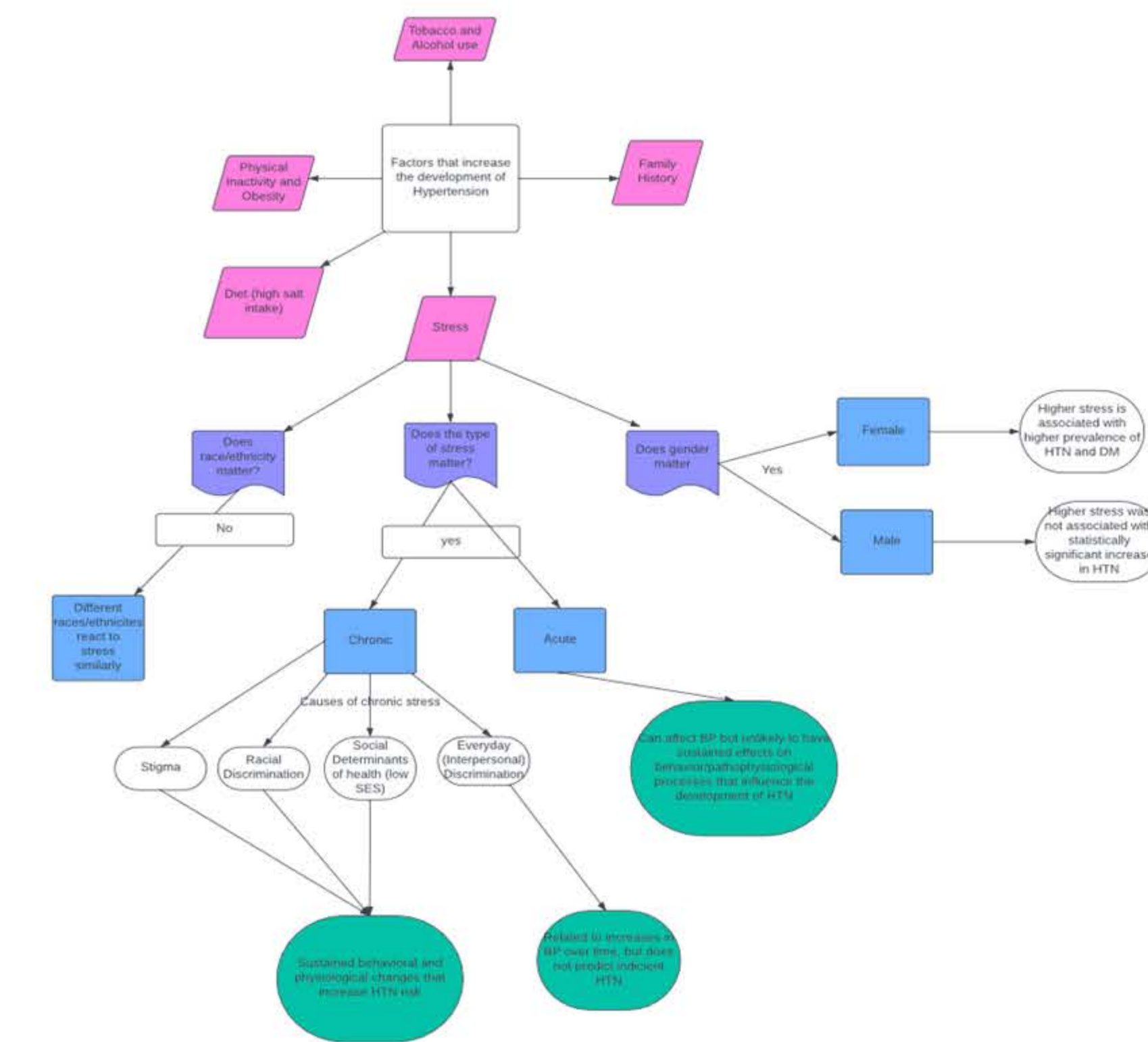
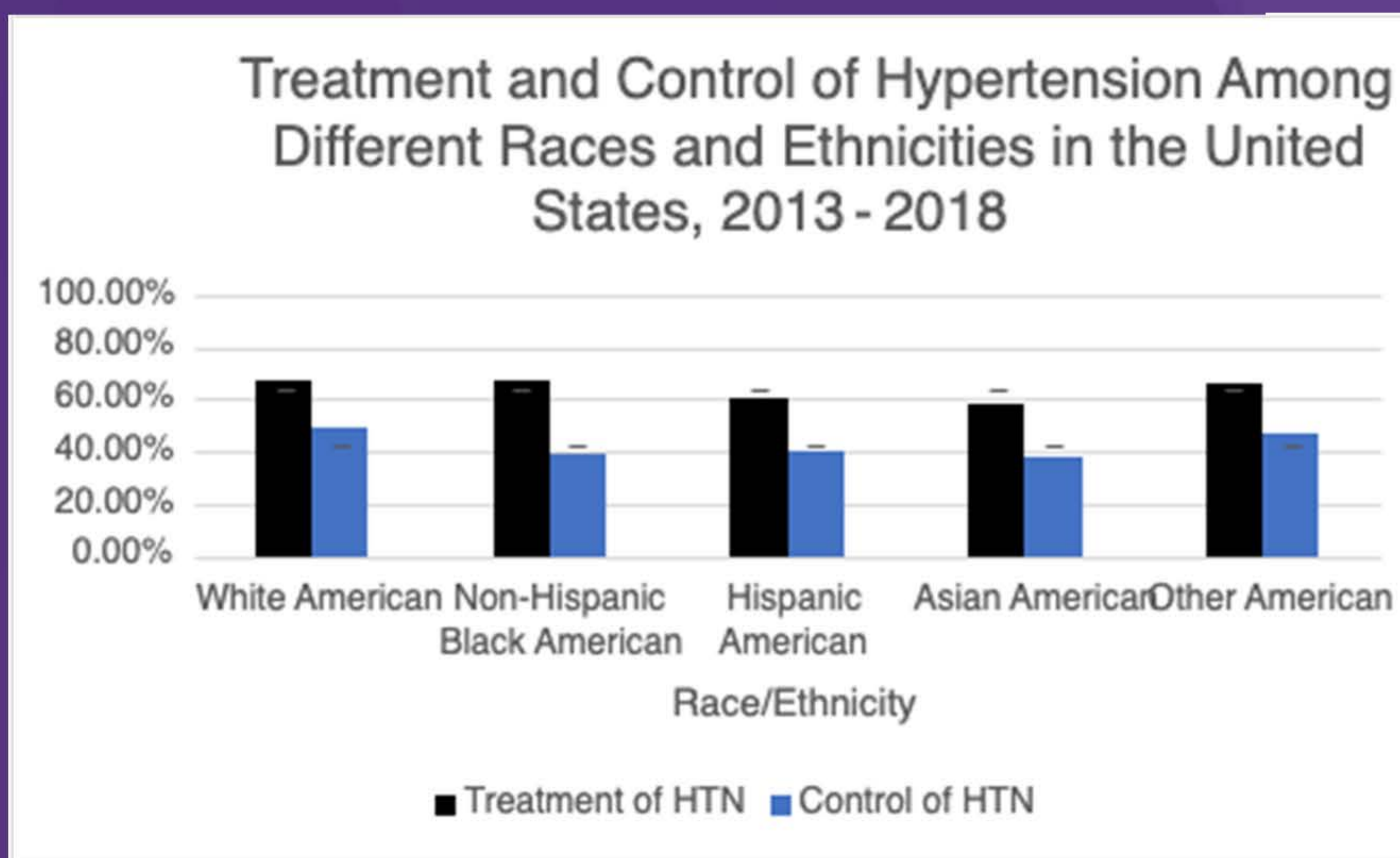
## Results

According to the data presented in Aggarwal's study, NHBs have similar rates of treatment (67.2%), compared to White Americans (67.3%), but lower levels of control (NHB: 39.2%, White American: 49.1%). This indicates that despite taking their medication as prescribed, NHBs will still have worse rates of hypertension. The data was age and sex adjusted and only NHB women had increased hypertension prevalence than NHB men, as there were no other statistical differences by sex in hypertension treatment or control indicated in the study. Compared with White Americans, Hispanic Americans had lower rates of both treatment and control (60.5% and 40.0% respectively). Asian Americans, like NHBs, showed similar treatment rates when compared to White Americans (66.0%), but had lower levels of control (47.2%).

Based on the study on hypertension stigma among NHB women, 40% of the 62 women reported that stigma and shame were associated with having high blood pressure. And of those 40%, 32% (n=8) “were silent about their hypertension diagnosis.” Even those within the non-stigma believing group, 32% (n=12), included written responses that were akin to the written responses in the stigma-believing group. Thus, displaying that there some connection between stigma, stress, and hypertension.

The study on everyday discrimination sought to illustrate how discrimination predicts increases in systolic blood pressure and diastolic blood pressure in women. According to the study, NHB “women had the highest waist circumference, BMIs, and prevalence of hypertensive blood pressure readings and also reported the highest rates of exposure to everyday discrimination.”<sup>8</sup> Their study indicated that waist circumference and BMI were mediating factors in the presentation of hypertension. The association of everyday discrimination exposure to systolic and diastolic blood pressure did not vary by race/ethnicity. Their data indicated that everyday exposure to discrimination increased both systolic and diastolic blood pressures for all groups. However, everyday discrimination did not predict hypertension risk.

In the Jackson Heart study, higher levels of stress were associated with incident hypertension in both NHB women and NHB men, however, the association proved only statistically significant in women.



Flow Chart Displaying Questions Asked and Reported Results Concerning the Relationship Between Stress/Stigma and Hypertension

## Conclusion

Over 119 million adults in the United States suffer from high blood pressure. NHB people tend to have higher rates of hypertension, with NHB women having higher rates than NHB men. Many factors, such as like increased central adiposity, medication noncompliance, and lower socioeconomic status are associated with higher rates of blood pressure. Another notable factor that influences blood pressure is stress.

NHB women are in the precarious position of being both a woman and a part of a racial minority group. They would then, presumably, endure both racial and gender-based discrimination that could heighten their levels of chronic stress and explain why NHB women have higher blood pressure than women of other races/ethnicities. While the Jackson Heart study indicated that higher levels of stress are associated with incident HTN in NHB women, the study that focused on everyday discrimination did not find that higher stress rates correlated with incident hypertensin (though they did correlate with higher systolic and diastolic blood pressures). The discrepancy in these findings can be a result of the fact that they measured stress differently and that the Jackson heart study identified based on blood pressure measurements in a single visit rather than based on ≥2 visits as the clinical guidelines recommend.

It is important to consider, however that stress appears to affect men and women differently. In many of the articles that were reviewed, men and women were often lumped together, and studies focused on racial and ethnic differences. While these racial differences are certainly important to understand why NHBs have higher rates of hypertension compared to whites and other minority groups, it is simply not enough.

Stigma is another factor that was observed to identify whether it could potentially worsen blood pressure in NHB women. The data displayed that there is an association with hypertension stigma and NHB women choosing to remain silent about their diagnosis out of shame and embarrassment. As a result of these feelings, NHB women that feel stigmatized over their hypertension diagnosis, are less likely to adhere to medications and improve their lifestyle habits. Though the study does indicate that some NHB women perceive an association between stigma, stress, and hypertension, more studies need to be conducted to fully understand this relationship, and the extent to which stigma impacts blood pressure.

In conjunction with stigma, stress, and other social determinants of health that influence blood pressure rates, it is crucial to consider the medication NHBs, both men and women, take and the impact that this has on them. Currently, the most recognized biological profile that is associated with high blood pressure in NHBs is “the low renin physiology,” which is a phenotype with excess effective circulating volume (Williams). Current strategies aim to address these issues in volume through the use of calcium channel blockers (CCB) and diuretics. This is important to consider, especially when data suggests that even when NHBs are adhering to treatment protocols at similar rates of White Americans, they still have lower rates of control. This suggests that the medication they are taking is not as effective as was once believed. If the pathophysiology is different in many of those from African ancestry and if the current medications cannot and do not help control hypertension rates, then new approaches must be constructed.

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