AN ONLINE INVESTIGATION WITH BLACK HYPERTENSIVE ADULTS TO IDENTIFY PREDICTORS OF SELF-RATINGS FOR BEING MEDICATION NON-ADHERENT AND FOR RACISM AND DISCRIMINATION IMPACTING ENGAGEMENT WITH MEDICAL PROVIDERS

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ABSTRACT

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This online COVID-19 pandemic era investigation with Black hypertensive adults (N=612) who were 93.6% U.S. born, 54.7% male, 44.3% female with a mean age of 37 years sought to identify predictors of self-ratings for being medication non-adherent and for racism and discrimination impacting engagement with medical providers.

Findings showed over 70% were medication non-adherent on Morisky Medication Adherence Scale, and 49.3% self-classified as medication non-adherent. Regarding behaviors of following provider instructions for taking medication, maintaining appointments, and uninterrupted receipt of medication, these deteriorated during the pandemic, but improved by currently—as resilience; yet, maintaining appointments and uninterrupted receipt of medication were better currently than pre-pandemic. While social support was low and unchanged from before the pandemic to currently, social support with medications deteriorated during the pandemic, but improved currently.

Participants rated providers as follows: having closest to moderate cultural competence; moderate level of discrimination; moderately high for discriminating against their personal demographics, identity, or appearance (e.g. 85.3% for being Black, 80.6% for skin color, 66% for hair); 64.5% exposed them to racism/ discrimination so it impacted engagement with

providers for willingness to regularly attend appointments; and, low-moderate frequency of microaggressions related to being Black. Not surprisingly, moderate medical mistrust was found.

Two backward stepwise logistic regression models highlighted recurrent predictors for medication adherence as being 1-less provider discrimination for demographics/ identity/ appearance, and 2-less frequent provider microaggressions for being Black; and, one highlighted higher provider cultural competence. In a third model, greater provider discrimination was a predictor of self-classifying for racism/discrimination impacting engagement with providers.

Findings highlight less provider discrimination and less frequent microaggressions by providers as key experiences—such that lower levels of exposure to provider racism, discrimination and microaggressions emerge as powerful determinants of medication adherence.

The study has important implications for the urgency of addressing providers' racism, discrimination and racial microaggressions as factors playing a role in medication non-adherence and patients' unwillingness to return for medical appointments.

Training in cultural competence is vitally needed with specific attention in training to actually observing, addressing and changing providers' behavior of enacting racism, discrimination, and microaggressions with Black hypertensive patients.

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Chapter 1: INTRODUCTION

The disproportionately high prevalence of hypertension among racial and ethnic minorities persist as a cause of health disparities, while posing the challenge of hypertension management (Abrahamowicz et al., 2023). As per Harrison et al. (2023), hypertension among African Americans or Black adults is less likely to be controlled in comparison to non-Hispanic White adults. Meanwhile, hypertension is the leading preventable risk factor for cardiovascular disease in the U.S; and, research from "randomized clinical trials have shown that lowering blood pressure (BP) with antihypertensive medications reduces the risk" of cardiovascular disease (Harrison et al., 2023, p. 103. As a "leading preventable contributor to mortality and disease burden," hypertension poses a formidable challenge to health care providers in the face of an "epidemic of hypertension" where efforts to control the epidemic may be viewed as poor and inadequate (Agbonlahor, et al., 2023).

Burnier and Egan (2019) indicated that hypertension is a worldwide epidemic that is widely uncontrolled (p.1124). Hypertension is a blood pressure (BP, mmHg) ≥ 140 systolic or ≥90 diastolic and the condition has been predicted to increase "from 918 million adults in calendar year 2000 to 1.56 billion in 2025" (Burnier & Egan, 2019, p.1124).

Alvarez et al (2021) emphasized how uncontrolled hypertension is big cause of cardiovascular morbidity and mortality. In America, poor blood pressure control is a contributing factor to hypertension (HTN) (Alvarez et. al, 2021).

Ferdinand et al (2020) drew attention to the fact that cardiovascular disease (CVD) morbidity and mortality in African-Americans are on the rise, despite advances in the management of the disease. "Multiple factors have contributed to this major public health crisis"

(p.1). These include poor medication adherence, racial inequities, poor cultural competence among health care providers, and disparities in access to healthcare (Ferdniand et al (2020).

Schober et al (2021) reinforced the notion that African Americans are disproportionately affected by hypertension; and stressed the importance of medication adherence in combating this chronic condition. Medication inconsistency, can prevent optimal blood pressure (BP) goals and increase the risk for heart disease. The "risks are greater for African Americans than for Caucasians" (p.1).

1.1 Hypertension and Factors Related to Control

According to Burnier and Egan (2019), with hypertension, poor medication adherence consists of failing to initiate pharmacotherapy, follow a prescribed pharmacotherapy routine, failure to take medications as scheduled, failure to maintain the long-term medication regime and to persist in treatment for the long-term (p.1126). Poor adherence may be related to several categories of factors including demographic, socioeconomic, concomitant medical-behavioral conditions, therapy-related, healthcare team and system-related factors, and patient factors are associated with nonadherence (p.1124). Understanding these contributing factors can help in the management of medication nonadherence among hypertensives. Healthcare providers can help improve adherence by: shared decision making on management; educating patients so they are knowledgeable about consequences of their disease and benefits of treatment; promoting blood pressure (BP) self-monitoring; prescribing low-cost, effective medications, such as single pill combinations; and scheduling routine follow-up of patients with uncontrolled hypertension (p.1129). Screening tests can help identify nonadherent patients with uncontrolled hypertension. Patients who have treatment resistant hypertension, have greater chances of nonadherence (p.1129). These patients are at higher risk for cardiovascular events and electronic or

biochemical monitoring are useful for detecting nonadherence and for improving adherence (p.1130). Therefore, guidelines have stressed the importance of targeting “drug adherence as a major issue in hypertension management” (Burnier & Egan, 2019).

Nakata et al (2021) pointed out that long-term adherence to medication among the chronically ill is a serious issue. Most of these patients need to take medications for long periods and even for a lifetime. To better understand the knowledge gap, they studied the long-term medication-taking experiences of “thirty adults, mostly African American, with chronic hypertension in the U.S” (p.1). A long-term experience-centered, narrative approach was used to examine retrospective patient reports of adherence efforts over a period of a year to more than four decades. Using Gergen and Gergen's concept of narrative forms (1983), four patterns of medication consumption were identified and labeled as “Out of the Gate, Existential Turn, Fits and Starts, and Slow Climb” (p.2). There were also individual and social factors that influenced participant practices over time. Aside from Out of the Gate, all other arcs were found to have a more tough time with adherence. Even when non-adherence had profound consequences such as emergency room visits or hospital admissions, people remained noncompliant (Nakata, et al., 2021).

Wright et al (2021) emphasize that African Americans above the age of sixty are unequally at greater risk of developing hypertension, and this can be alleviated with diet and lifestyle (p.1). In older African Americans there are many barriers that “hinder the adoption of healthy self-care behaviors” (p.1). These include low self-efficacy, inadequate support from family/rends toward healthy behaviors, and poor access to health foods (Wright et al, 2021).

Cummings et al (2021) identified several factors that correlate with poor blood pressure management in African Americans. These include structural inequities in access along

with greater challenges using antihypertensive medication (p.1). A total of 1596 African American men and women with a history of uncontrolled hypertension from primary care clinics were included in a cluster randomized trial evaluating the effectiveness of patient-level coaching, compared to "practice level facilitation and the combination of the two" (p.1). Bivariate and correlation analyses were used to examine the relationship of systolic blood pressure (SBP) with "self-reported medication adherence vs. self-reported medication challenges" (p.2). The associations were also examined "while controlling for age, gender, and annual income" (p.2). The patients were taking an average of at least two blood pressure medications. A significant correlation was associated between the SBP value and "the number of antihypertensive medication challenges reported" (p.3). Also, patients reporting poor medication adherence "also reported significantly more medication challenges" (p.4). Although SBP was not remarkably different by self-reported adherence, SBP was notably "higher in patients reporting four or more medication challenges" (p.4). Also, age, income, and self-reported medication challenges were independently associated with the SBP level, "while gender and self-reported medication adherence were not" (p.4). Although African Americans with uncontrolled BP tend to need more aggressive antihypertensive regimens, these regimens are linked with medication "challenges that may adversely impact adherence and BP control" (Cummings et al., 2021).

1.2 Social Support as a Relevant Factor—Along With Reminders and Routines

Schober et al (2021) conducted research in light of how African Americans face many "barriers and facilitators of medication adherence" (p.1). Interview results with twenty-four hypertensive African Americans, using a sample that was 58.5% women with the average age of 59.5 years, showed twenty-two barriers and thirty-two facilitators to medication adherence.

Barriers included the side effects and neglect "while facilitators included reminders, routines, and social support" (p2). This information was used to create a "diagram of theme connectedness of factors that affect medication adherence" (p.3). This can serve as a guide for research that aims at African Americans to enhance medication adherence, prevent heart disease, and address health disparities (Schober et al., 2021).

1.3 Health Disparities and Social Determinants of Health

Lackland (2014) pointed out that the decades long disparities in hypertension that exist among African Americans in comparison to Caucasians continue to be a big public health issue. While the disparities in blood pressure levels and hypertension prevalence and control are evident, the factors associated with the racial differences are less evident. There are several parameters "proposed that may contribute to the disparities" (p.5). One of them is salt sensitivity. Although salt intake affects blood pressure in most people, racial differences exist in intake and the body's handling of sodium and potassium. The effect of salt sensitivity on blood pressure increase was found to be greater in African Americans, and a positive association has been linked with "salt sensitivity and Na Ca2 intake and the ratios of Na to K and Ca2 to Mg2" (p.4). African Americans have been identified as also having higher rates of obesity and overweight at different age groups. African Americans also have a "higher rate of refractory hypertension" when compared with individuals with "resistant hypertension" [HTN] (p.5). Resistant HTN is uncontrolled blood pressure regardless of using three or more "antihypertensive agent classes or controlled blood pressure with 4 plus agents" (p.5). Refractory hypertension represents hypertension treatment failure and refers to high blood pressure despite the "use of 5 or more antihypertensive classes of medication" (p.5). The racial disparities in hypertension and

hypertension risks have significant implications for high blood pressure prevention, management and control programs and strategies, as well as gaps in research (Lackland, 2014).

Ibe et al (2021) revealed that addressing health care disparities in order to address the burden of hypertension can be accomplished through the use of collaborative care teams, "comprising nurse care managers and community health workers" (p.1). The social determinants and disparities that influence patient engagement in such care teams were identified using a "cluster randomized trial that aims to reduce disparities in hypertension" (p.2). Patients who were not working and had better health literacy tend to not be involved with the care team when compared to patients that were working or had poor health literacy. Patients who reported more stress at baseline were also associated with greater chances of being referred to community health workers. Poverty and food insecurity were also linked with higher chances of being arranged to meet with community health workers. Also, patients who reported an annual income of $30,000 or greater were less likely to be referred to community health workers. Identifying the social determinants that influence health referrals and participation in care can be pivotal in creating initiatives that focus on the African American population and their needs (Ibe et al., 2021).

1.4 Social Determinants, Perceived Stress, and Discrimination

Alvarez et al (2021) stressed how medical management of the disease along with targeting the social determinants of health can better address hypertension control. Alvarez et al (2021) explained which social determinants – health care access or community and social stressors - influence medication adherence. A cross-sectional analysis from August 2017 to October 2019 from a pragmatic trial investigated the impact a multi-level intervention including

"collaborative care and a stepped approach with enhanced standard care for improving blood pressure" (p.1). Logistic regression analyses examined the link between patient experiences and "community and social stressors with medication adherence" (p.1). The diverse sample were an average of 60 years old; and "59% female; 57.3% Black, 9.6% Hispanic, and 33.2% White" (p.2). All of the participants "had a blood pressure reading ≥140/90 mm Hg" (p.2). Fifty percent of the participants reported non-adherence to medication. Results of regression analyses showed that compared with Whites, Blacks (AOR .47; 95% CIs: .37-.60, P<.001) and Hispanics (AOR .48; 95% CIs: .32- .73, P<.001) were less likely to report medication adherence. Also, part-time workers and those reporting greater stress and discrimination had lower chances of medication adherence. Among Blacks, greater perceived stress and discrimination were negatively associated with medication adherence. Among Hispanics, higher reported everyday discrimination was related with lower odds of medication adherence. Among Whites, the negative effect of perceived stress was alleviated by emotional support. The social determinants of health framework was found to be useful in identifying "associations between stress, everyday discrimination and medication adherence" (p.2). It was concluded that programs for African American and Hispanic patients should also focus on addressing social stressors in order to promote medication adherence and better blood pressure control (Alvarez, et al., 2021).

Forde et al (2020) point to discrimination as the reason African Americans are at greater risk of developing hypertension in comparison to "other racial or ethnic groups in the United States" (p.715). Discrimination has been suggested to influence racial disparities in hypertension. The Jackson Heart Study looked at the influences of stress on hypertension in the African American population in Mississippi. A total of 1845 African Americans provided self-reports of discrimination. They were 21 to 85 years old without hypertension at baseline during 2000 to

2004. Follow-up visits were conducted from 2005 to 2008 and 2009 to 2013. The associations of discrimination with episodes of hypertension was estimated using "Cox proportional hazards regression" (p.716). Results showed "52% (n=954) of the participants developed hypertension over the follow-up period" (p.717). Adjustment for age, gender, socioeconomic status, and hypertension risk factors were made. A higher incidence of hypertension was associated with "medium versus low levels of lifetime discrimination and high versus low levels of lifetime discrimination (p.717)." However, there were no "statistically significant interactions with gender, age, attribution, or coping" (p.717). Lifetime discrimination stress affected hypertension risk after adjustment for demographics, but the association was decreased after adjusting for hypertension risk factors (hazard ratio, 1.14 [95% CI, 0.97–1.35]). "Lifetime discrimination may increase hypertension risk in African Americans" (Forde et al., 2020).

Vargas at al (2020) point out that African Americans with hypertension "represent a vulnerable population regarding psychological health" (p.1). "African Americans face significant inequalities and experiences of discrimination" (p2). Specifically, discrimination may be related to psychological health via an indirect effect of perceived control, which was investigated among a sample of nine hundred African Americans with hypertension (p.2). Quality of life is much lower in people with hypertension compared to those without the chronic condition. The American Heart Association reported the stress of hypertension is highest among African Americans when compared to other racial/ethnic groups in the United States. According to the Minority Stress theory, African Americans are a group that may face race related stressors, "and these stressors negatively impact psychological health" (p.2). Perceived control is the perception that outcomes in a person's life are "controllable and not attributable to external factors" (p.4). Given this background, the researchers used an enhanced face to face interview method.

Findings showed that greater perceived discrimination was significantly linked to decreased perceived control, which also was related to increased psychological distress and poor psychological well-being. Due to the stress inflicted by discrimination, health care institutions and health providers need to ensure respectful environments which promote patient's perceived control (Vargas et al., 2020).

1.5 Role of Medical Mistrust

Hall and Heath (2021) noted that there are alarming disparities in adhering to healthcare provider advice and prescriptions among African American patients. An outstanding factor that hinders care and adherence to prescribed treatment is medical mistrust. Also, accepting a diagnosis and following recommended interventions are influenced by varying factors. Among these are access to care, "patient preferences, trust of a provider, and treatment recommendations" (p.1). Patient trust of a provider can influence adherence to treatment and advice. Studies have reviewed views and misconceptions "African Americans hold regarding the treatment of hypertension and diabetes" (p.3). Lack of belief in health provider diagnosis and distrust for medications, with the belief that medications can do more harm than good, are barriers that hinder care in the management of chronic disease like diabetes and hypertension. Many African Americans also have a "mistrust for physicians" and the "healthcare system" (p.4). Many African Americans hold a strong preference for "natural remedies." (p.3). African Americans tend to rely more on alternative medicine and cultural/generational norms that promote non-medical remedies that are viewed as safer and better for health. Poor access and affordability of care also put African Americans at a disadvantage. Addressing these issues is important in order to lessen the burden of disease among this population (Hall & Health, 2020).

1.6 Acknowledging Provider Microaggressions, Discrimination, Racism, and Bias

The original work of Pierce et al (1977) provided the concept of microaggressions. The work of Sue et al (2007) contributed to contemporary knowledge of microaggressions. The work of others has noted a role for this concept in evaluating the health care delivered by providers.

Pederson et al (2022) posed the following questions of relevance: "Have you ever considered whether some of your patients of color might be receiving less-than-optimal care? Have you been uncertain about how you might discuss their responses to "microaggressions" or to perceived discrimination in health care?" They go on to acknowledge how Black people are often stigmatized within the health care system because of their race, while racism is a social determinant of health. Skin tone also serves to elicit racial bias. Being male can also trigger perceptions of greater aggressiveness—while perceived as taller, heavier and stronger, even when controlling for actual body size. Further, they explain that racism is a social construct that is a primary driver of racial disparities in health, while health care providers may frequently be found to be perpetuators of both racial stigma and implicit bias in medicine; and, this leads to both greater mistrust of the providers and health care systems—not to mention the psychological distress experienced by patients. Not surprisingly, medical mistrust is prevalent among Black patients and is a barrier to their engagement in health care services. This mistrust seems justified when one considers how the National Academy of Medicine (NAM) reported that Black people and other minorities experienced a lower quality of care than White people—as a finding across virtually every therapeutic intervention in the United States. With provider implicit bias being a likely driver of such findings, what is recommended is provider engagement in cultural humility. They recommend cultural humility, as it involves a lifelong commitment to a provider focusing

on their own self-evaluation, self-critique—as well as a focus on addressing power imbalances in the patient-physician encounter. The resultant physician humility can promote better communication between providers and patients with providers listening to patients as the experts on their own cultural background and their cultural values influence healthcare decisions. Also recommended is the following: providers practicing shared decision making with patients; providers learning to become aware of and counteract unconscious bias; acknowledging stereotyping as a common tendency that can be recognized and counteracted—versus engagement in stereotype suppression or ignoring stereotyping; providers incorporating mindfulness techniques and enhancing physician wellness to promote positive provider-patient communication; learning about the social determinants of health; and, providers contributing to efforts to build a more diverse workforce (Pederson et al, 2022).

1.7 Interventions for Providers—Training in Cultural Competence

Vella et al (2022) investigated the impact of cultural competence training obtained by health professionals upon patient outcomes via a review of five studies that met inclusion criteria. Due to the dearth of studies and inconsistencies in theoretical rationales for the training and in the training models, they found it difficult to assess the impact of health provider training in cultural competence on patient outcomes. This was despite the general assertion that training in cultural competence for healthcare providers can improve outcomes with culturally diverse patients. Positive impacts were noted via healthcare providers' reports that cultural competence training was perceived as beneficial. "Significant perceived improvements in communication skills were reported in two studies" (p. 6). Further, some patients reported improvements in the healthcare providers' cultural competence. Of note, patient "outcome measures included

biological markers in three" studies, and "self reports in four studies," while "patient perception of health professionals' cultural competence showed some positive changes, and small improvements were observed in patient health outcomes" (p. 8). However, "there were no significant improvements on health outcomes related to the intervention in any of the reviewed studies" (p. 8). It was concluded that the reviews "conducted to date highlight the fact that there is no agreement or consistency in the theoretical frameworks underpinning cultural competence research, nor in approaches to developing the skill base necessary to support health professionals, or methods of measuring training efficacy" (p. 11). Finally, a strong caution was given to the field: "If investigators continue to go their separate ways in providing training and research in this very important field, there will be no generalisable strategies or parameters from which to evaluate the impact and improvement on patient outcomes" (Vella et al, 2022 p.11).

1.8 Potential Impact of the COVID-19 Era

Given impacts during the COVID-19 pandemic era, Özcan and Avcı (2022) investigated the influence of the pandemic on fear of contagion, blood pressure management, and adherence to medication in hypertensive older adults in Turkey. Focusing on older hypertensives, it was found that the" average age of the participants was 70.33 ± 6.93, 67.5% were women, 41.3% had a primary school level of education, 80.4% were married, and 49.9% were living with extended family" (p. 853). The researchers sought to know if they had fear of COVID-19, and if this fear impacted medication adherence. Findings showed that "older people whose hypertension was uncontrolled, who made changes to their medication adherence, who did not seek check-up services due to the pandemic, and who were worried by pandemic-related news and its effect on their health were found to have meaningfully higher scores" on a fear scale (p. 854). Contrary to

other studies that showed the pandemic led some to avoid going to hospitals, this study found that “the greater the fear felt by older individuals due to the pandemic, the greater the likelihood of visiting a hospital” (p. 856). Of note, they found that “one out of every two older people had their blood pressure checked during the pandemic and that one out of every five older people had abnormal/uncontrolled blood pressure” (p. 857). Those with the highest fear levels had uncontrolled blood pressure levels. Those who visited a health center had better medication adherence. The use of homecare teams for older adults during a pandemic was recommended (Özcan & Avcı, 2022).

Roth et al (2022) noted how during the COVID-19 pandemic there were decreases in health care delivery in many countries in the year 2020. This was due to widespread lockdown policies, as well as health care delivery systems shifting their services in order to create capacity for COVID-19 patients. On the other hand, some countries, such as Japan, saw no difference in prescriptions written for medications addressing cardiovascular disease. Studies typically found significant decreases in both admissions and visits for cardiovascular disease. Data suggests the possibility of patients experiencing increased difficulty accessing healthcare early in the pandemic—whether due to patient choices or healthcare system choices. What remains unanswered is the impact of pandemic-related reductions in the accessibility of cardiovascular care, as well as changes in health care-seeking behavior among those with cardiovascular disease (Roth et al, 2022).

Burnier et al (2022) noted many difficulties in hypertension management during the COVID-19 pandemic. The pandemic had a “major negative impact on the daily life and management of patients, particularly those with chronic conditions such as hypertension, diabetes, and cardiovascular and renal diseases” (p. 47). This was due to restrictions placed on

non-urgent visits, fear of contagion in a medical environment, as well as resultant reductions in in-person visits to providers and pharmacies. In sum, there was major interference with the management of chronic diseases. Initially, “hypertension was initially considered as a major risk factor for the development of a COVID-19 infection,” being viewed as increasing the susceptibility to the virus and “leading to more disease course of COVID19 and poorer outcome including higher mortality rates” (p. 47). Over time, this perception changed, as studies corrected “for age, body mass index and comorbidities”—leading to the conclusion that “a direct role of hypertension could not be firmly established” in COVID-19 disease progression (p. 47). Further, the prevalence of hypertension among COVID-19 affected patients “was found to be similar to that observed in the age-matched general population and the prevalence of hypertension” (p. 47). Of concern were other pandemic effects from lockdowns and restrictions in movement, such as indulging in unhealthy diets, increased sedentary behavior, weight gain, and an increased Body Mass Index. While the evidence is lacking, it is possible that “several factors may have contributed to lower drug adherence,” including “a lack of medications, the reduced access to pharmacies, and a decrease in physicians services for medication control and adjustment” (p. 47). Initial reports are inconsistent with some studies showing increased medication adherence and others decreased medication adherence during the pandemic. Also, some assessments suggest that “virtual visits were well accepted and led to better control of BP in patients using this possibility than in those not using it” (p. 48). Yet, access varied and there remained a digital divide with some lacking adequate access to technology (Burnier et al, 2022).

1.9 Interventions to Improve Medication Adherence and Blood Pressure Control

Marseille et al (2022) looked at the feasibility of a culturally tailored education program targeted at hypertensive Haitian immigrants. Haitians and other Black populations living in the U.S. are disproportionally affected by hypertension. “Advanced practice nurses are uniquely qualified to implement evidence-based programs” (p.3). This can help increase patient knowledge and adherence in the management of hypertension. Culturally tailored programs that adopt an evidence-based method are important to improve patient outcomes. A total of 44 Haitian immigrants were enrolled in this evidence-based education program that was part of the feasibility study. The intervention consisted of “culturally tailored education focused on improving knowledge, medication adherence and blood pressure” (p.1). Results were measured with the “Hill-Bone Medication Adherence Scale and Hypertension Knowledge” (p.2). Of the 44 participants, 42 completed the study, the average age was 61.95 (± 9.75) years and 59% of the participants were women. “Baseline systolic and diastolic blood pressures were 143 (±18.15) and 85 (±7.23)” (p.2). Six weeks post- intervention revealed a “significant decrease in mean systolic, 126 (±12.07)” and “diastolic 78.50 (± 7.23) blood pressures” (p.2). Six-week follow up results also showed greater medication adherence and increased hypertension knowledge” (p.3). A healthcare provider implementation of a culturally tailored intervention can help manage hypertension, but future research is necessary to better create ways to manage hypertension among Haitians and other Black immigrant communities (Marseille et al, 2022).

Hedegaard et al (2015) pointed to suboptimal medication adherence as a factor contributing to increasing the risk of ischemic heart disease and stroke (1351). The effectiveness of a multifaceted pharmacist intervention in a hospital setting to improve medication adherence

in hypertensive patients was investigated using a randomized controlled trial (p.1351). A total of 532 patients with hypertension from three hospital outpatient clinics were recruited and randomly placed into usual care or a 6-month pharmacist intervention that had collaborative care, medication review, along with "tailored adherence counseling including motivational interviewing and telephone follow-ups" (p.1352). The primary outcome was composite medication possession ratio (MPR) to antihypertensive and lipid-lowering medication, "at 1-year follow-up, assessed by analyzing pharmacy records" (p.1352). The secondary outcomes at 12 months were adherence to medications, blood pressure, hospitalization, and a "combined clinical endpoint of cardiovascular disease or death" (p.1353). Results at 12 months showed 20.3% of the patients in the intervention group were nonadherent, while 30.2% in the control group were nonadherent (n = 285); and the MPR (interquartile range) was 0.93 (0.82-0.99) and 0.91 (0.76-0.98), respectively, P = .02 (1356). Also, the combined clinical endpoint was achieved by "1.3% in the intervention group and 3.1% in the control group" (p.1356). However, there were no significant differences for persistence, blood pressure, or hospital admission among the two groups. The multifaceted pharmacist intervention in a hospital setting resulted in "sustained improvement in medication adherence for patients with hypertension" (Hedegaard et al., 2015).

As per Ferdinand et al (2020), community outreach efforts have been shown to engage others in helping to lower risk factors and lower the negative effects of hypertensive disease (p.2). Community partnerships can help vulnerable populations, specifically when it comes to targeting the African American community to promote positive health behavior changes. Initiative can address issues such as medication adherence, health provider visits, regular screening, and self-monitoring of blood pressure (Ferdinand et al., 2020).

Svarstad et al (2022) investigated the impact of an intervention on medication refill adherence and patient satisfaction with health care among 576 Black patients from 28 pharmacies who were enrolled in a cluster-randomized trial consisting of a TEAM group and a control group. Those in the TEAM group had 6 visits with a pharmacist-technician team for blood pressure check and they used questionnaires and checklists along with other "novel tools to identify and reduce barriers to adherence in Black patients" (p.1). However, those in the control group only got printed information. Refill adherence was considered to be "> 80% days covered per refill records during months 7 to 12 (postintervention)" (p1). During month 6 mediators and satisfaction levels were evaluated with research questionnaires. A total of 4 mediators were assessed as part of intervention success. Among the 4 potential mediators, the prime factors for better refill adherence were more "pharmacist collaboration with patient in barrier reduction and patient use of a pillbox" (p.3). Pharmacists contact with physician and possible change in regimen did not significantly impact adherence. TEAM participants compared to control participants were more likely to rate "pharmacist care as "very satisfactory" (80.2% vs. 44.2%, $P < 0.001$) and technician care as "very satisfactory" (81.2% vs. 47.4%, $P < 0.001$)" (p.3). It was concluded that medication refill adherence and satisfaction can be improved with a collaborative approach TEAM model with novel tools (Svarstad, 2022).

Still et al (2020) emphasize the importance of self-management in controlling hypertension. An important aspect of self-management of a chronic condition such as hypertension is medication adherence. Medication adherence is crucial to achieving and maintaining desired blood pressure goals (1). A community and technology-based intervention was utilized to investigate a hypertension self-management model (COACHMAN) and "health-related quality of life (HRQoL) in African Americans" (p.1). A total of 60 African Americans on

medication for hypertension and owning a smartphone were enrolled and randomly placed into one of the following two groups: COACHMAN or usual care groups. There were a total of thirty participants in each group. The 12-week long study consisted of COACHMAN had four sections made up of: blood pressure (BP) management and education using web-based teaching, home blood pressure check-in, a "medication management application, and nurse counseling" (p.2). Hypertension understanding, self-efficacy, technology use, medication adherence, BP, and HRQoL were all assessed and measured. At the end of the 3-month intervention, although the groups did not significantly differ in BP control and HRQoL, a "clinically relevant BP reduction was observed in the intervention group" (p.4). Paired *t*-test revealed average medication adherence scores were much better in the intervention group ($P = 0.023$) in comparison to the control group ($P = 0.075$). Technology was shown to be an asset in helping patients to self-manage their blood pressure and it was particularly useful when it came to promoting medication adherence (Still, et al., 2020).

Wright et al (2021) reported on a co-created health education intervention was created based "on the Information-Motivation-Behavioral (IMB) model" (p.1). Systematic review results showed that the IMB can promote positive outcomes. The three parts of the IMB model are basic information about disease, motivation via learning in a supportive environment, and improving self-efficacy for "behavioral skills acquired to manage a chronic illness" (1). The approval and price of a patient-focused, co-created education intervention for older African Americans was examined, in order to address hypertension. It was noted that interventions need to also be culturally tailored to meet the needs of African Americans. A total of twenty women from Midwest America were involved in the study that consisted of "four weekly, two-hour group sessions centered on hypertension knowledge" (p.3). Home BP monitoring and measures were

also evaluated along with stress andinterpersonal “relationship management, sleep and pain management, and healthy eating” (Wright et al, 2021, p.3).

Wright et al’s (2021) results “included attendance and a brief investigator-generated questionnaire” (p.4). The health education intervention was carried out by a Registered Nurse who was assisted by two graduate nursing students, and one Licensed Dietitian. Automatic blood pressure monitors were used for self-monitoring of BP. They used educational materials from the National Heart, Lung and Blood Institute and American Heart Association (p.2). Topics covered in the group sessions included: information on hypertension, interpersonal communication, stress, sleep and pain, and nutrition focused eating. Learning new information was promoted through a “group- based environment that “fostered social engagement the participants and providers (p.3). A total of sixteen participants attended all four sessions, and all twenty felt the intervention met their culture, routine, and self-care needs. The estimated cost “of the intervention was “$227.00 (U.S. dollars) per participant” (p.4). Incentives offered to participants consisted of a taxi to transport those who could not drive, and a payment for gas mileage for those who could drive. A laptop computer was used to present PowerPoint slides. Healthy snacks such as fresh fruit and bottled water were provided. Participants in the study received a “one-time $50 U.S. dollars retail gift card” (p.4). At the end of the study, the participants were gifted “either a scented candle or a picture frame” (p.4). It was concluded that cost-effective measures are necessary to improve the “adoption of health promoting self-care management behavior” (p.1). This can help alleviate widespread hypertension in African Americans. This research results “have implications for future research and practice” (Wright et al., 2021).

1.10 Research with the Morisky Medication Adherence Scale

Wan et al (2022) defined medication adherence as the magnitude to which a patient's conduct "corresponds to the agreed recommendations from a medical staff member" (p.1370). Medication adherence is crucial for the maintenance and control of health and chronic diseases such as hypertension. A cross sectional study was used to examine the risk factors that contributed to poor medication adherence among older hypertensives. They obtained demographic characteristics, while also using the four-item Morisky Medication Adherence Scale scores. This observational cross-sectional study conducted from June 2019 to December 2019 looked at inpatient geriatric patients in a hospital in Wuhu, China. Participants included those age ≥60 years who were willing to participate and had a diagnosis of hypertension (Wan et al., 2022).

Wan et al (2022) noted how the Morisky Medication Adherence Scale is a four-item "self-reported reliable scale that consists of four validated items that indicate adherence levels and related factors that may influence medication adherence" (p.1371). The scores on this scale range from 0 to 4. A "0" or "1" indicated a response of "yes" or "no," respectively. Scores determined people how those hypertension could be grouped into one of the following two groups: "poor adherence group (score ≤2) and good adherence group (score ≥3)" (p.1371). Trained staff were recruited to administer and collect questionnaires, and illiterate participants received assistance from the researchers. The questionnaires were collected and used to create a database using the EpiData 3.1 software.3.4. (Wan et al., 2022).

Wan et al (2022) conducted statistical analysis with SPSS 23.0. Co-living, hypertension complications, falls, and blood pressure were associated with medication adherence. This study can help nurses in the identification of people with poor adherence, so as to identify them and provide help. Univariate analysis showed five factors were "statistically significantly associated with medication adherence" (p.1373). These consisted of "education level (χ^2 = 8.073, p = .045), co-living (χ^2 = 11.364, p = .010), hypertension complications (χ^2 = 10.968, p = .001), admission blood pressure (χ^2 = 8.876, p = .003), and falls (χ^2 = 6.703, p = .010)" (p.1373). Multivariable binary logistic regression analysis showed that there were four statistically significant predictors that put participants at higher risk for poor medication adherence. These consisted of living with spouse and children, and having high admission blood pressure. However, those without hypertension related complications and without falls had a lower risk when it came to medication adherence. The findings can help identify those at increased risk for poor adherence more efficiently (Wan et al., 2022).

1.11 Statement of the Problem

The problem that this study addresses involves the health disparities for African Americans with regard to the higher prevalence of hypertension or high blood pressure, in comparison to Whites/Caucasians, and the need to better understand the factors related to non-adherence to high blood pressure medication. In addition, there is value in enhancing understanding regarding whether there were factors operating during the height of the COVID-19 pandemic (2020-2021) which were impacting blood pressure treatment and management, as well as whether these factors were significantly different from those operating pre-pandemic and currently (past three months). Further, toward being able to improve the training of health care

providers and design interventions to ensure African Americans can attain improved high blood pressure control and medication adherence, there is value in identifying significant predictors of: (1) a patients' self-classification (Yes, I am medication non-adherent) as someone who does not consistently/always adhere to medication for high blood pressure treatment; and (2) a patients' self-classification (Yes, racism and discrimination has impacted my engagement with providers) as someone who has had experiences of racism and/or discrimination that impacted their engagement with providers in terms of their willingness to regularly go and get treated by medical providers.

1.12 Purpose of the Study

The main purpose of the study is three-fold, as follows:

1-For **the study outcome variable/dependent variable # 1**, to identify significant predictors of being in a good adherence group (score ≥3) on the 4-item Morisky Medication Adherence Scale (MMAS-4)—using logistic regression.

2-For **the study outcome variable/dependent variable # 2,** to identify significant predictors of a *self-classification that No, I am not medication non-adherent/or, **I am medication adherent***)—using logistic regression.

3-For **the study outcome variable/dependent variable # 3,** to identify significant predictors of a ***Group A self-classification* (*YES, racism/discrimination has impacted my engagement with providers*)**—using logistic regression.

Fourth, an additional purpose of the study is to:

4-determine if there are any significant differences for the three time periods of (a) **before** the COVID-19 pandemic, (b) **during** the pandemic (especially years 2020-

2021), and (c) **currently** (especially the past three months)—using multiple paired t-tests—with regard to:

(a)-rating their behavior (1-very poor to 6-excellent) for three factors potentially impacting high blood pressure medication adherence (i.e. 1)-following provider instructions for taking medication, 2)-maintaining regular contact with provider for management of high blood pressure, and 3)-timely receipt of prescriptions and medications for taking medication on time)

Fifth, an additional purpose of the study is to:

4-determine if there are any significant differences for the three time periods of (a) **before** the COVID-19 pandemic, (b) **during** the pandemic (especially years 2020-2021), and (c) **currently** (especially the past three months)—using multiple paired t-tests—with regard to:

(a) rating their level of receipt of *general social support (Scale A)* and (b) rating their level of receipt of *high blood pressure management social support (Scale B)*

1.13 Research Questions, Survey Parts, and Data Analysis Plans

Given a sample of hypertensive Black adults (N=250) who respond to a social media campaign (*Inviting Black Adults taking medication for high blood pressure for a minimum of 5 years to* ***click on*** **https://tinyurl.com/HighBloodPressureSurvey** *and take a 10-15 minute survey about you & your experiences with medical providers for a 3 in 250 chance of winning 1 of 3 $100 Amazon gift cards*), the study will answer the following research questions, using the data analysis plans indicated:

1-What were their demographic characteristics (i.e. gender, skin color, born in the U.S. [yes/no], annual household income, level of education, employment status [yes/no], number of years diagnosed with hypertension, state of residence)?

Part I: Basic Demographics (BD-12)
Data Analysis Plan: Descriptive statistics, including means, standard deviations, frequencies, and percentages

2-To what extent did they provide socially desirable responses?

Part II: Single Item Rating of Risk of Providing Socially Desirable Responses (SIR-RPSDR-1)
Data Analysis Plan: Descriptive statistics, including means, standard deviations, frequencies, and percentages

3-What health conditions do they report currently having or having had, and what is their Body Mass Index?

Part III: Personal Health Background and Body Mass Index (PHB-BMI-5)
Data Analysis Plan: Descriptive statistics, including means, standard deviations, frequencies, and percentages

4- Using the 4-item Morisky Medication Adherence Scale (MMAS-4), with regard to taking their high blood pressure medication, to what extent are they medication adherent (or scoring "yes" for adherent/good adherence with a score of 3-4 versus "no" for not adherent/poor adherence with a score of 0-2)?

Part IV: Morisky Medication Adherence Scale (MMAS-4)
This is the study outcome variable/dependent variable # 1.
Data Analysis Plan: Descriptive statistics, including means, standard deviations, frequencies, and percentages

5-With regard to three factors impacting high blood pressure medication adherence (i.e. following provider instructions for taking medication, maintaining regular contact with provider for management of high blood pressure, timely receipt of prescriptions and medications for taking medication on time), how do they rate their behavior for these factors (1-very poor to 6-excellent) for before the COVID-19 pandemic, during the COVID-19 pandemic—especially the years 2020-2021, and currently—especially the past three months? And, are there difference across the three time periods?

Part V: Three Factors Impacting High Blood Pressure Medication Adherence—Before and During the Pandemic, and Currently (3FI-HBPMA-BDP-C-9)
Data Analysis Plan: Descriptive statistics, paired t-tests

6-To what extent did they receive *general social support (Scale A*) and *blood pressure management social support (Scale B)* for each of the three time periods of before the COVID-19 pandemic, during the COVID-19 pandemic (especially the years 2020-2021), and currently (especially the past three months)? And, are there difference across the three time periods?

Part VI: Perceived General Social Support Scale (A) and Blood Pressure Management Social Support Scale (B)—For Before and During the Pandemic, and Currently (PGSSS[A]-BPMSSS[B]-BP-DP-C-6)
Data Analysis Plan: Descriptive statistics, paired t-tests

7-What was their past-month perceived stress?

Part VII: Perceived Stress Scale (PSS-4)
Data Analysis Plan: Descriptive statistics, including means, standard deviations, frequencies, and percentages

8-How did they rate their health care providers who treated them in the past year for high blood pressure with regard to level of *cultural competence* and *discrimination* when treating them?

Part VIII: Rating Health Care Providers for Level of Cultural Competence and Discrimination (RHCP-CC-D-2)

Data Analysis Plan: Descriptive statistics, including means, standard deviations, frequencies, and percentages

9-To what extent did they report *perceiving discrimination* by medical providers—including those who have provided treatment for their high blood pressure—*in response to their personal demographics, intersecting identities, and appearance*?

Part IX: Perceived Discrimination by Medical Providers in Response to Personal Demographics, Intersecting Identities, Appearance (PD-ID-A -II-9)

Data Analysis Plan: Descriptive statistics, including means, standard deviations, frequencies, and percentages

10-To what extent do they report experiencing *medical mistrus*t?

Part VII: Medical Mistrust Scale—Short Form (MMS-SF-4)

Data Analysis Plan: Descriptive statistics, including means, standard deviations, frequencies, and percentages

11- During their interactions with medical providers—and specifically, during interactions when being treated for high blood pressure, to what extent did they experience *microaggressions that seemed related to their being Black*?

Part IX: Ratings of Experiences of Microaggressions with Medical Providers (REM-WHCP-5)

Data Analysis Plan: Descriptive statistics, including means, standard deviations, frequencies, and percentages

12-Given the opportunity for a dichotomous self-classification for consistency of adherence to medication for high blood pressure treatment, into which of two groups did they self-classify—(Group A self-classification = YES, I am medication non-adherent; or Group B self-classification = NO, I am not medication non-adherent)? And, what were the significant predictors of a Group A self-classification (YES, I am medication non-adherent)?

Part XII: Dichotomous Self-Classification for Consistency of Adherence to Medication for High Blood Pressure Treatment (DSC-CAM-HBPT-1)

This is the study outcome variable/dependent variable # 2.

Data Analysis Plan: Descriptive statistics, including means, standard deviations, frequencies, and percentages

13- Given the opportunity for a dichotomous self-classification for experiences of racism and/or discrimination impacting their engagement with providers in terms of their willingness to regularly go and get treated by medical providers (i.e. *Group A self-classification =YES, racism/discrimination has impacted my engagement with providers*; or *Group B self-classification =NO, racism/discrimination has not impacted my engagement with providers*)?

Part XIII: Dichotomous Self-Classification for Experiences of Racism or Discrimination Impacting Engagement with Medical Providers (DSC-ERD-IEMP-1)

This is the study outcome variable/dependent variable # 3.
Data Analysis Plan: Descriptive statistics, including means, standard deviations, frequencies, and percentages

14- What were significant predictors for the following three outcome variables specifically for (1) being medication adherent as measured by the Morisky Medication Adherence Scale, (2) self-classifying as medication adherent (no for not being medication non-adherent/or I am medication adherent), and (3) self-classifying as (yes) having experiences of racism or discrimination impact engagement with medical providers?

Part IV: Morisky Medication Adherence Scale (MMAS-4)
This is the study outcome variable/dependent variable # 1.
Part XII: Dichotomous Self-Classification for Consistency of Adherence to Medication for High Blood Pressure Treatment (DSC-CAM-HBPT-1)
This is the study outcome variable/dependent variable # 2.
Part XIII: Dichotomous Self-Classification for Experiences of Racism or Discrimination Impacting Engagement with Medical Providers (DSC-ERD-IEMP-1)
This is the study outcome variable/dependent variable # 3
Data Analysis Plan: Logistic regression analysis.

1.14 Anticipated Findings

The following findings were anticipated:

It is anticipated that for the main purpose of the study, which is three-fold, the following will be found:

1-Using independent variables arising from the survey parts, for **the study outcome variable/dependent variable # 1** the significant predictors of being in a good adherence group (score ≥3) on the 4-item Morisky Medication Adherence Scale (MMAS-4)—*using logistic regression*, while controlling for social desirability, will be: higher age, female gender, higher income, yes-employed, higher years diagnosed with hypertension, lower Body Mass Index, higher social support during pandemic, higher blood pressure management social support, higher provider cultural competence, lower provider engagement in discrimination, higher medical mistrust, lower microaggressions with providers.

2-Using independent variables arising from the survey parts, for **the study outcome variable/dependent variable # 2** the significant predictors of ***Group B self-classification* (*No, I am not medication non-adherent/ or, I am medication adherent*)** – using logistic regression, while controlling for social desirability, will be: higher age, female gender, higher income, yes-employed, higher years diagnosed with hypertension, lower Body Mass Index, higher social support during pandemic, higher blood pressure management social support, higher provider cultural competence, lower provider engagement in discrimination, higher medical mistrust, lower microaggressions with providers.

3-Using independent variables arising from the survey parts, for **the study outcome variable/dependent variable # 3** the significant predictors of a ***Group A self-classification* (*YES, racism/discrimination has impacted my engagement with providers*)** – using logistic regression, and controlling for social desirability, will be: male gender, lower income, no-employed, darker skin color, higher Body Mass Index, lower provider cultural competence, higher medical mistrust, higher microaggressions with providers.

It is anticipated that for the fourth additional purpose of the study the following will be found:

4-Using paired t-tests, when seeking to determine if there are any significant differences for the three time periods [i.e. (a) **before** the COVID-19 pandemic, (b) **during** the pandemic (especially years 2020-2021), and (c) **currently** (especially the past three months)] with regard to

(a)-rating their behavior (1-very poor to 6-excellent) for three factors potentially impacting high blood pressure medication adherence (i.e. 1)-following provider instructions for taking medication, 2)-maintaining regular contact with provider for management of high blood pressure, and 3)-timely receipt of prescriptions and medications for taking medication on time), it will be found that

Scores will be lowest (1-very poor to 6-excellent) for each behavior for the period (b) **during** the pandemic (especially years 2020-2021).

It is anticipated that for the fifth additional purpose of the study the following will be found:

> 5-Using multiple paired t-tests, when seeking to determine if there are any significant differences for the three time periods [(a) **before** the COVID-19 pandemic, (b) **during** the pandemic (especially years 2020-2021), and (c) **currently** (especially the past three months)] with regard to (a) rating their level of receipt of *general social support (Scale A)* and (b) rating their level of receipt of *high blood pressure management social support (Scale B)*), it will be found that
>
> Ratings will be lowest for the period (b) **during** the pandemic (especially years 2020-2021).

1.15 Delimitations

The study was delimited to Black or African American adults age 23 or above who report having been diagnosed with hypertension for a minimum of 5 years (at the very least since 2018), been prescribed medication for their hypertension, and treated by a provider for hypertension in the U.S.

Further, the study will be delimited to those participants who provide data for the study's three outcome variables (i.e. (a) scored on the 4-item Morisky Medication Adherence Scale for being in a "No, poor adherence group (score ≤2) and Yes, good adherence group (score ≥3); (b) self-classified into the group for "Yes, I am medication non-adherent" or the group for "No, I am not medication non-adherent;" and, (c) self-classified into the group for "YES, racism/discrimination has impacted my engagement with providers" or the group for "NO, racism/discrimination has not impacted my engagement with providers."

1.16 Limitations

The study limitations include the use of an online survey that requires access to the Internet and a smart phone, tablet, laptop, or desktop computer—which potentially excludes those Black hypertensive adults with the lowest incomes. Those experiencing the highest levels of past month perceived stress may also be excluded due to the stress and burden of time involved in completing a 10-15 minute survey. Also, those most recently diagnosed with hypertension and advised to take medication (i.e. less than five years) may be the most at-risk and in greatest need of understanding so as to improve their medication adherence, but they are excluded from the study; however, their exclusion does permit comparisons of selected variables for the three periods of before the pandemic, during the pandemic (especially 2020-2021), and currently (especially the past three months).

1.17 Conclusion

This chapter has introduced the topic of focus for the dissertation, while also discussing other important information (i.e., statement of the problem, purpose of the study, research questions, study parts, data analysis plan, study delimitations and limitations, etc.). The next chapter, chapter II, will be a review of literature.

Chapter 2: REVIEW OF THE LITERATURE

This chapter will provide a review of the existing literature that is relevant to this dissertation. More specifically, this chapter will detail literature related to the following topics: 1-Hypertension, Prevalence Data, and Impacts; 2-The Challenge of Medication Non-Adherence; 3-Provider Communication, Bias, Racism, Discrimination, and Cultural Humility; 4-Hypertension Treatment and the COVID-19 Pandemic; John Henryism, Discrimination, and Hypertension ; and, 5-The Theoretical Framework Guiding the Study.

2.1 Hypertension, Prevalence Data, and Impacts

According to Centers for Disease Control (CDC) (2023) BP refers to the force of blood against the artery walls. It is recorded using two numbers; the first or systolic pressure accounts for the pressure of the heart contracting and the second number or the diastolic pressure accounts for the pressure when the heart is at rest. This is identified as follows: stage I, a systolic measure ≥ 130 mmHg or a diastolic measure ≥ 80 mmHg; or stage II which is an SBP of ≥140 mmHg or a diastolic measure ≥ 90 (CDC, 2023). The CDC (2023) asserts that an individual diagnosed with HTN has an increased risk for heart disease and stroke, two conditions which are leading contributors to death in America. In 2020, more than 670,000 deaths in the country had hypertension as a causative agent. However, only one in four adults (24%) have their condition controlled and 45% of those with uncontrolled HTN have a BP of 140/90 mmHg or higher. Uncontrolled high BP is common; however, certain groups of people are more likely to have control over their high BP than others. A greater percentage of men (50%) have high BP than women (44%). High BP is more common in non-Hispanic Black adults (56%) than in non-

Hispanic white adults (48%), non-Hispanic Asian adults (46%), or Hispanic adults (39%). Among those on medication for the condition, BP control is higher among non-Hispanic white adults (32%) than in non-Hispanic Black adults (25%) (CDC, 2023).

HTN can be categorized as primary or secondary. A diagnosis of Primary or Essential hypertension (Primary HTN or Essential HTN) means that there is no identified medical explanation for the disease. Secondary hypertension (Secondary HTN) means that a diagnosis is linked to some underlying condition, such as kidney disease (CDC, 2023). Primary HTN accounts for 90 to 95% of diagnosed HTN, while secondary HTN only accounts for five to 10%.

While primary HTN has no medical source, there are factors that contribute to its development. One of these factors is age; as one ages, arterial BP increases due to the decreased elasticity of arteries and the stiffening of blood vessels, regardless of diet. Another factor is insulin resistance. While insulin regulates the level of glucose in the body it also has vasodilatory effects which can lower BP. However, with insulin resistance, the sympathetic activity of insulin can override its vasodilatory properties. This in turn can lead to increased levels of BP. Another factor for Essential HTN is genetics. Although studies show a relationship between genes and HTN risk, many studies also support the idea that the relationship is not solely due to one gene; more than 50 genes have been studied in relation to HTN (CDC, 2022). For some people, sodium sensitivity is another factor causing Essential HTN. Older people, African Americans, and those with a family history of HTN are also more likely to be salt sensitive (NIH, 2013). Increasing salt intake can raise levels of salt in the bloodstream which causes cells to release water. As a result, there is a rise in the pressure on the walls of blood vessels. Yet, there is no easy way to test for salt sensitivity and people with normal BP should follow federal guidelines and consume no more than 2,300 milligrams of sodium a day. Smoking

is also a risk factor for the development of primary HTN. Tobacco products contain nicotine, which increases BP. Dietary sodium intake is a major determinant of BP levels for individuals and populations (NIH, 2013).

Huguet, et al. (2023) emphasized how HTN impacts 1 in 2 adults in the U.S., as the most prevalent choronic health condition—with most lacking blood pressure control. Further, uncontrolled hypertension is the "largest single contributor to all-cause and cardiovascular

Mortality," while causing approximately 600,000 deaths annually in the U.S. with an estimated $50 billion spent on associated medical costs (p. 631). Black race and being male are notable risk factors for uncontrolled blood pressure (Huguet, et al.. 2023).

Burnier and Egan (2019) indicated that HTN is a worldwide epidemic that is widely uncontrolled (p. 1124). The condition has been predicted to increase "from 918 million adults in calendar year 2000 to 1.56 billion in 2025" (p. 1124). Poor adherence to a prescribed pharmacotherapy routine, and failure to maintain the long-term medication regime are contributing factors to poor BP control (p. 1125). Several categories of factors including demographic, socioeconomic, concomitant medical-behavioral conditions, therapy-related, healthcare team and system-related factors, and patient factors are associated with nonadherence (p. 1124). Understanding these contributing factors can help in the management of medication nonadherence among hypertensives. Poor adherence consists of failing to initiate pharmacotherapy, failing to take medications as scheduled, and failing to persist on treatment for the long-term (p. 1126). Healthcare providers can help improve adherence by shared decision making on management, educating patients to be knowledgeable about consequences of their disease and benefits of treatment, promoting BP self-monitoring, prescribing low-cost, effective medications, such as single pill combinations, and scheduling routine follow-up of patients with

uncontrolled HTN (p. 1129). Screening tests can help identify nonadherent patients with uncontrolled HTN. Patients who have treatment resistant HTN have greater chances of nonadherence (p. 1129). These patients are at higher risk for cardiovascular events; and electronic or biochemical monitoring are useful for detecting nonadherence and for improving adherence (p. 1130). Therefore, guidelines have stressed the importance of targeting "drug adherence as a major issue in hypertension management" (Burnier & Egan, 2019, p.1124).

Ferdinand et al. (2020) indicate mortality as a result of CVD accounts "for 23.1% of all American deaths" (p. 315). HTN is also the primary CVD risk factor and accounted for 45.4% of the disease in adults over the age of 18 during the years 2017–2018. This number has risen from 41.7% in 2013–2014. Epidemiology reports have shown that a diagnosis of HTN is more prevalent among "non-Hispanic Blacks compared to non-Hispanic whites" with gender prevalence being "57.2% of adult males and 56.7% of adult females" (p. 315). HTN unfairly affects African Americans who have higher CVD prevalence, worse HTN control and greater burden of HTN-associated risk factors such as diabetes and chronic kidney disease (Ferdinand et al., 2020, p. 315).

Life expectancy among Blacks is also poorly affected by uncontrolled HTN. In 2017, while mainly accounting for uncontrolled HTN, the life expectancy among White females was higher (81.0 years) compared to 78.1 years for Black females. Also, life expectancy was higher for White males (76.1) compared to Black makes (71.5 years). People who could benefit from medication treatment for HTN often go untreated or even undiagnosed. Although Black people have equal or greater awareness and treatment for HTN, they have lower HTN control rates compared to their White counterparts (47.9% vs 56%, respectively). Greater chances of being

uninsured contributes to non-Hispanic Black people being less likely to get treatment and gain control for HTN (Ferdinand et al., 2020, p. 315).

2.2 The Challenge of Medication Non-Adherence

Medication non-adherence poses the greatest challenge to controlled blood pressure. Uchmanowicz et al, (2019) used the Morkisy Medication Adherence Scale, while noting how adherence can be estimated either directly or indirectly. Direct measurements are "based on the drug or its metabolite concentration in blood and urine, presence of a biological marker delivered with the drug and observation of patient's medication-taking behavior" (p.1). Indirect measurements are conducted via the use of different questionnaires. Although less accurate than direct measurement means, questionnaires with validated scales are "easier to conduct and hence, more suitable for the examination of larger patient populations in a community setting" (p.1). The most popular medication adherence scales, is the Morisky Medication Adherence Scale (MMAS). The initial four-item scale was at first called the Morisky, Green and Levine (MGL) Medication Adherence Scale; it had "yes" or "no" response categories. There is now also an eight-item version (MMAS-8), which aside from seven dichotomous statements, includes also one final question scored on a "five-point Likert-type scale" (p.2). Both have the same scoring system with the higher the score, the better adherence is recorded. Usually, the patient is considered adherent when the score is at least 3 with the 4-item MGL Medication Adherence Scale or at least 6 points for the 8-item MMAS-8 scale. Both versions have "outstanding validity and reliability in patients with arterial hypertension and other chronic conditions" (Uchmanowicz et al, 2019, p.2).

Uchmanowicz et al (2019)) recognized the two Morisky Medication Adherence Scales as the most widely utilized "self-reported medication adherence measures, recommended to serve

as screening tools in a clinical setting" (P.2). They are also linked with financially impacted long-term outcomes, including behavioral change, frequency of emergency department visits, rate of 30-day hospital readmission, and morbidity, and mortality. A systematic review and meta-analysis was conducted to (1) estimate the percentage of hypertensive patients aged 60 years and older who adhere to treatment, and to (2) understand some determinants of antihypertensive medication adherence/non-adherence in those 60 years and older. A systematic search of the PubMed, Scopus, and Google Scholar used Cochrane guidelines. Articles published between January 2000 and June 2018 were included. Medication adherence was identified in patients who scored ≥6 points on the Morisky Medication Adherence Scale (MMAS-8) or ≥3 points on the Morisky Green Levine Medication Adherence Scale (MGL). Depending on availability, "also odds ratios (OR) with 95% confidence intervals (95% CI) for determinants of medication adherence were recorded" (p. 2).

Results from the Uchmanowicz et al (2019) investigation did not demonstrate a significant difference in the adherence measured with the MMAS-8 and the MGL (68.31 vs. 70.39%, $P = 0.773$). Also, adherence of patients from Western countries such as Europe and the United States turned out to be remarkably higher than in the patients from other countries (83.87 vs. 54.30%, $P = 0.004$). Some of the important determinants of better adherence found in more than one study were "older age, retirement/unemployment, duration of hypertension >10 years, and a lower number of prescribed drugs" (p.4). Medication adherence among the "oldest old hypertensive patients seem to be higher than in younger persons" (p.4). Age, socioeconomic status, and therapy-related factors were influential in adherence among older adults (Uchmanowicz et al., 2019).

Pandey et al (2015) discussed how screening for non-adherence among patients with chronic conditions, such as hypertension, is done with the Morisky Medication Adherence Scale (MMAS-8). However, the accuracy of the scale is not understood for projecting non-adherence among those with treatment-resistant hypertension (a-TRH). Hence, this was investigated in 47 patients with TRH using a retrospective study. The patients completed the eight-item MMAS at their initial clinic visit. Therapeutic drug monitoring was used to determine medication adherence. This was accomplished by identifying the presence of undetected blood levels of at least one prescribed antihypertensive medication. Low adherence scores (<6) were seen in 26% of patients. "The actual prevalence of non-adherence was 51% by therapeutic drug monitoring" (p.2). "Sensitivity of the MMAS-8 was 26% (95% confidence interval, 10.3%-48.4%) with specificity of 75% (95% confidence interval, 53.3%-90.2%)" (p.2). Thus, there is limited accuracy of the MMAS-8 in detecting medication non-adherence among hypertensives. Based on multivariate analysis, the MMAS-8 score did not independently prodict non-adherence. Although, "clinical parameters such as heart rate were found to be independent predictors of non-adherence" (Pandey et al., 2015, p.2).

Marcum et al. (2013) emphasized the need to measure the self-reports of medication nonadherence in older adults with chronic cardiovascular conditions such as HTN. A total of 897 participants consisting of members from the Health, Aging and Body Composition Study who had cardiovascular conditions of coronary heart disease (CHD), diabetes, and/or HTN at Year 10 were of focus. They used the four-item Morisky Medication Adherence Scale (MMAS-4) to measure self-reported nonadherence to medication (MMAS-4). The 2-item cost-related nonadherence (CRN-2) scale was also used at Year 11. Demographic, health status, and access to care factors were also investigated for associations with the two scales. Marcum et al. (2013)

emphasized how the MMAS-4 is widely used and is known for its reliability and validity in measuring self-reported medication adherence. Results of multivariable logistic regression analyses using both scales found that Black race was significantly associated with nonadherence. The significance values for both scales were MMAS-4 ($P = 0.002$) and the CRN-2 scale ($P = 0.005$). Other factors associated with nonadherence found with the MMAS-4 were having cancer ($P = 0.04$), a history of falls ($P = 0.02$), sleep disturbances ($P = 0.04$) and having a hospitalization in the previous six months ($P = 0.005$). Also, significant independent associations with nonadherence found with the CRN-2 scale included being unmarried, worse self-reports of health, and a poor level of meeting needs due to low-income status (Marcum et al., 2013, p. 820).

2.3 Provider Communication, Bias, Racism, Discrimination and Cultural Humility

Rodriguez et al. (2023) discussed how a central tenet of patient-centered care is that effective patient-provider communication is essential—while poor communication results in decreased adherence. Here, adherence involves "the extent to which a patient follows, or intends to follow, the treatment guidelines and recommendations made by their healthcare provider" (p. 200). Data shows that 30% of all malpractice lawsuits involve ineffective communication, underscoring the vital role that communication plays. Further, "internal factors such as lived experience, culture, and beliefs – on the side of both the patient and the provider –also impact communication" (p. 190). Factors such as these are key factors that may "serve as barriers or facilitators to effective healthcare communication and thus impact the delivery of care and patient outcomes" (p. 190). Also, the recommended provider use of patient-centered communication involves the process of "eliciting and understanding patient perspectives, psychosocial and cultural contexts, and values"—all toward "the goal of reaching a shared understanding of treatment plans and goals" (p. 200).

A dimension of patient-provider communication involves shared decision making. As per Mhaimeed et al. (2023), shared decision making "is a concept in healthcare that strives to bridge the divide in shared information and best practices between patients and clinician" (p. 1). It includes haring information and taking steps toward building consensus on treatment preferences and ultimate decisions on medical care—which is especially recommended in the care of Black patients. Such a focus is needed on achieving shared decision making, given factors such as "clinician implicit bias" (p. 2). Given the reality that "this implicit bias exists, it is important to promote shared decision making with patients of color" (p. 2). Mhaimeed et al. (2023) concluded that there are significant barriers to widespread engagement in shared decision making, a belief by patients that shared-decision making does not really exist, distrust in clinicians, and the low rates of racial-concordance in the patient-provider relationship.

Schoenthaler et al. (2009) investigated how patients' perceptions of communication by a health care provider influences medication adherence among African Americans with HTN. A total of 439 patients with a mean average of 58 years with uncontrolled HTN were recruited for a cross-sectional study. This was carried out in community-based healthcare settings in New York City. Patients rated providers' communication with a perceived communication style questionnaire. The Morisky self-report measure was used to determine medication adherence. The subjects were female, low-income, and had a high school level of education; and, 18 years and above, getting care at participating sites, had uncontrolled BP, were on at least 1 hypertensive medication, and spoke English. This study was part of an ongoing group "randomized controlled trial, *Counseling African Americans to Control Hypertension* (*CAATCH*), in Community/Migrant Health Centers (C/MHCs)" (p.186). The cross-sectional study had questionnaires administered at the baseline visit prior to any intervention.

Eligible providers had to be an attending healthcare provider in the participating sites and were caring for a minimum of at least five patients with uncontrolled HTN.

Patients' rating of their providers' communication was evaluated with a measure "derived from a study assessing the effect of physicians' initial and follow-up communication styles on the beliefs and behaviors of patients with depression" (Schoenthaler et al., 2009, p. 186). The scale used themes from the Health Communication Model to assess patients' perception of the quality of communication and treatment engagement by the provider—and the extent to which the physician encouraged patient participation in the treatment process. Among the sample, 55% reported medication non-adherence and 51% rated their provider's communication as non-communal. Multivariate analysis was conducted, while adjusting for patient demographics and covariates such as depressive symptoms, and provider degree. Communication that was rated as collaborative was related to finer medication adherence ($\beta = -.11$, $p = .03$). Age ($\beta = .13$, $p = .02$) and depressive symptoms ($\beta = -.18$, $p = .001$). Results showed that more collaborative provider communication *was linked with* better adherence to antihypertensive medications among low-income hypertensive African Americans. Thus, the quality of patient care can be improved by a modifiable component of the medical relationship which is communication. This is crucial to addressing outcomes in African Americans, who are a high-risk population (Schoenthaler et al., 2009, p. 185).

Adams and Craddock (2023) explored the relationship between the quality of patient-provider communication and medical mistrust in a sample of 174 young Black women, aged 18–24. Data was obtained from a "larger mixed-methods study examining sexual health communication and behaviors" (p. 334). Eligible participants took a self-administered online survey to investigate healthcare experiences and medical mistrust. Results of the hierarchical

linear regression showed that "patient-provider communication quality was a significant predictor of medical mistrust" (p. 334). Results showed that as communication quality increased, medical mistrust decreased ($p<.001$). Education level was also a significant predictor, and when compared to not completing any college, completing some college was associated with lower medical mistrust ($p=.031$). These findings indicate that emphasizing patient-centered communication may be helpful in addressing medical mistrust among young female Black patients (Adams and Craddock, 2023, p. 334).

Agbonlahor et al. (2023) discussed how cardiometabolic disorders, including hypertension and stroke, are impacted by social environmental factors, among many others. Relevant factors include racism, structural and systemic variables, skin color, and racial discrimination—as critical determinants of health outcomes. Racial discrimination constitutes critical psychosocial stress. A large body of research documents the association between racial discrimination and a significant increase in the risk of cardiometabolic disorders (Agbonlahor et al., 2023). Of note, there are also profound implications when experiences of racism, discrimination and provider bias occurs within the context of the healthcare system and with providers, in particular.

Akinade, et al. (2023) found that for women of color who perceived racial-ethnic discrimination as occurring in their healthcare, research identified provider communication and provider assumptions as key factors. Women's experiences of racial-ethnic discrimination negatively impacted the women's "future health behaviors and trust in providers" (p 10).

Toward potential solutions to this crisis of discrimination and lack of trust in providers, others have pointed toward provider training that includes a focus on cultural. For example, Tervalon and Murray-Garcia (1998) first proposed cultural humility as the goal for medical

providers, versus cultural competence—which implies an achievable end-goal; whereas, cultural humility involves a lifelong process of reflection and growth where providers learn to interview patients to learn from them as the experts on themselves.

More recently, Wall (2023) focused on the practice of cultural humility as a way to improve quality of care—versus cultural competence. Especially in working with Black and Brown communities, the practice of cultural humility is viewed as the avenue for improving care within a model of best practices.

2.4 Hypertension Treatment and the COVID-19 Pandemic

As per Liu et al. (2023), during the COVID-19 pandemic among the most at-risk patients, there were those with hypertension faced a "higher risk of severe disease and mortality among patients with COVID-19" (p. 1). However, the pandemic ended up revealing "substantial variations in incidence and outcome across race and ethnicity" (p 8). Fair and just health care access emerged as vital during the pandemic, and continues to be of great importance (Lie et al., 2023).

This access includes access to continuity of care, including for patients with hypertension. Huguet, et al. (2023) identified continuity of care, including with the same provider, as an important protective factor for those with hypertension.

Tierney et al. (2023) discussed how there was a rise in the use of telehealth during the pandemic in order to maintain health care access. At community health clinics during the early part of the pandemic, patients with hypertension experienced a decline in their continuity of care when using telehealth—in comparison to before the pandemic. Those who engaged in a higher rate of telehealth use did experience higher continuity of care, along with experiencing lower

blood pressure. Of note, they found that “telehealth use was more common for patients that previously had low utilization of health care,” suggesting how “telehealth could be a tool to enhance care continuity for patient populations that previously” had a low level of continuity of care (p. S66). They concluded that telehealth can permit effective monitoring of hypertensive patients as a “useful tool in maintaining care continuity and processes of care during a crisis” – such as the COVID-19 pandemic (p. S67).

Xu et al. (2023) reviewed the impact of COVID-19 for racial and ethnic groups along with frailty on healthcare during the pandemic. Xu et al. (2023) used the term “double jeopardy hypothesis” to refer to the dual disadvantage faced by older adults of racial minority groups when it comes to accessing needed health care (p. 1). There are dual effects of old age/frailty and race that promote inequities in access to health and healthcare. The research of Xu et al. (2023) was based on the “National Health and Aging Trends Study (NHATS) and COVID-19 public use data files” (p. 1). A multivariate logistic regression model was performed, and results showed 41% of older adults reported postponing care during the pandemic and thi increased by frailty level. However, significant differences were found among Whites and non-Whites. Healthy non-White older people were less likely to delay care than healthy Whites. Frail, non-White older people had more of a tendency to postpone care. There is more of a double jeopardy for non-whites that negatively affects health access. Frail, older adults need access to good health care at the right time due to the “complex health conditions accentuated by health and social disparities” (Xu et al., 2023, p. 1).

2.5 John Henryism, Discrimination, and Hypertension

According to Perez et al. (2023), John Henryism has been rather extensively studied in relation to high blood pressure. The construct of John Henryism involves "three themes: 1) mental and physical strength, 2) commitment to hard work, and 3) single-minded determination to succeed" (p. 2). Scholarship and research has mostly focused on John Henryism "in relation to blood pressure and has generally found a positive association, particularly among those with low socioeconomic status (i.e., limited resources)" (p. 2). There have also been mixed findings, as in "some studies finding weak or null relationships with hypertension, blood pressure, and other stress-related illnesses" (p. 2).

For example, there is the research of Nguyen et al. (2022). As context for their research, the authors noted how discrimination is a big contributing factor to health disparities seen between older Black and White adults. Despite widespread knowledge of consequences of discrimination, ways to intervene in the discrimination–health relationship are still less known. A study was carried out to determine whether "John Henryism" (JH) as high-effort coping moderates the relationship among racial discrimination and HTN in older African Americans and Caribbean Blacks. An analytic sample was drawn from the National Survey of American Life—Reinterview, which was carried out from 2001–2003 (p. 2049). The study sample consisted of 546 African Americans and 141 Caribbean Blacks age 55 years and above. The variables examined were racial discrimination, JH, and HTN. Study results showed that among the two groups, "discrimination and JH were not associated with" HTN (p. 2050). For those low to moderate in JH, discrimination was not related to HTN. Discrimination was "positively associated with" HTN in African Americans high in JH (p. 2055). Among Caribbean Blacks,

there was a positive relationship between discrimination and HTN for respondents who were low in JH. Also, among the same group (Caribbean Blacks), for those moderate and high in JH, there was relationship between discrimination and HTN. These results show that JH, in the midst of discrimination, is associated with HTN in older African Americans. JH may be a good coping strategy for older Caribbean Blacks. Recommendations for future research consist of looking into the various channels by which JH influences health in different ethnic groups of older Black populations (Nguyen et al., 2022, p. 2055).

2.6 Theoretical Framework for the Study

Two theories provide a theoretical framework for the study: the Theory of Racism and Microaggressions of Pierce et al. (1977); and, the Cultural Humility theory of Tervalon and Murray-Garcia (1998).

Theory of Racism and Microaggressions

Pierce et al. (1977) proposed a Theory of Racism that covers how there are dynamics in the U.S. of White superiority and Black inferiority. There is social learning that sustains these dynamics, with feelings of White superiority permitting brutality, violence, and degradation against Blacks. the resultant disease of racism. White superiority is a delusional notion, as is the concept of innate Black inferiority. These dynamics lead Pierce et al. (1977) to declare the resultant rampant racism in the U.S. as a public health problem where racism is a mental health problem and contagious disease—given widespread socialization into the nations of White superiority and Black inferiority.

Pierce et al. (1977) introduced the original concept of microaggressions to explain the mechanisms that perpetuate racism as an interpersonal and societal-wide dynamic.

Microaggressions were conceptualized as involving subtle blows that are incessantly imposed upon Black people by Whites in society. These subtle blows are offensive mechanisms that take a cumulative tool upon Blacks, while being of an incomprehensive magnitude in terms of their weight and impact upon Black people who end up being forced into an inferior status. The impact of microaggressions is such that Black people suffer mental and emotional stress, which can translate into higher morbidity and mortality rates compared to the White population (Pierce et al., 1977).

Further, when it comes to racism is based on skin color and race. Racism includes the belief that it is acceptable for the effort and time of Black people to be dedicated to service to their White counterparts. The "chief vehicle for pro-racist behaviors are microaggressions" (Pierce et al., 1977, p. 65). Microaggression are also the causative factor of great stress in many Black-White interactions, as subtle and nonverbal "put downs of Blacks by offenders" (Pierce et al., 1977, p. 65).

Pierce et al. (1977) says this is evident in an analysis of television commercials where Blacks are never seen teaching Whites, animals are seen more often than Blacks, and Blacks are portrayed as having no family life. The analysis also showed strong stereotypes based on race. Kindness and better grooming and family values were portrayed mostly by white males. The only places Black males were seen more were working for money and eating. White females were seen as taking action, being kind, and being better with self-care. In contrast, Black females were not portrayed this way, and were only seen as working for earnings. Thus, television, the media, magazine, and billboards in the U.S. are a major source of exposure to daily microaggressions for Blacks—in addition to interactions with White individuals (Pierce et al., 1977).

Cultural Competence and Cultural Humility

Tervalon and Murray-Garcia (1998) pioneered the concept of cultural humility while critiquing the training of medical providers and seeking to provide a framework for their effective engagement with racially and ethnically diverse patients. According to Tervalon and Murray-Garcia (1998), whereas cultural competence suggests an end-point of training, which is not practically attainable, cultural humility "incorporates a life-long commitment to self-evaluation" (p. 123). Tervalon and Murray-Garcia (1998) identify cultural humility as involving learning that is life-long and includes self-reflection on one's own beliefs and values and perceptions so that one is able acknowledge those of others. Cultural humility allows for an interpersonal relationship between providers and patients where the provider is willing to learn about and accept the patient's cultural identity—while acknowledging that the patient is the expert on themselves. This knowledge can replace and prevent any stereotyping of clients, as the reality of a patient's complex and multifaceted identity is conveyed by patients to providers. The patient can share information about themselves when the provider is willing to be open, listen, and engage in interviewing of the patient. This process requires training in order to create a mutually beneficial relationship between patient and provider (Tervalon and Murray-Garcia, 1998, p. 123).

Tervalon and Murray-Garcia (1998) also advocate for training for physicians that is responsive to the reality of providers encountering increased racial and cultural diversity. It is important to understand the concepts of cultural competence and cultural humility. Retaining a place for the concept of cultural competence, it is viewed as giving health professionals a better understanding of minority culture in order to better provide services. However, to adequately meet the needs of diverse cultures, it is also important to incorporate cultural humility which involves understanding one's own beliefs and not allowing one's own beliefs to interfere with

the process of learning from patients about themselves, their cultures, values, identity, and beliefs (Tervalon and Murray-Garcia, 1998). Patient centered interviewing and care are important and could be achieved in a less controlling and less authoritative way—than the traditional medical paradigm; and, such interviewing allows patients to also speak and ask questions (Tervalon and Murray-Garcia, 1998, p.123).

2.7 Conclusion

This chapter provided a review of literature on the following topics: 1-Hypertension, Prevalence Data, and Impacts; 2-The Challenge of Medication Non-Adherence; 3-Provider Communication, Bias, Racism, Discrimination, and Cultural Humility; 4-Hypertension Treatment and the COVID-19 Pandemic; John Henryism, Discrimination, and Hypertension ; and, 5-The Theoretical Framework Guiding the Study.

The next chapter, chapter III, will present the study methods.

Chapter III: METHODS

This chapter presents the methods and procedures utilized in this study. This chapter is inclusive of an overview of the study design and procedures, description of the study participants, description of research instrumentation, the data treatment plan, and the data analysis plan.

3.1 Overview of the Study Design and Procedures

An online survey hosted on the Qualtrics platform was administered to a convenience sample of Black adults with hypertension. This section provides an overview of all procedures that were followed in this investigation.

3.2 IRB Approval

On January 20, 2023, this study received approval under the category exempt from the Teachers College, Columbia University Institutional Review Board (IRB) as Protocol # 23-130 (see Appendix A for IRB Approval Letter). The collection of data within this investigation followed this receipt of IRB approval.

3.3 Participant Recruitment

Participants will be recruited using a social media campaign conducted on several online platforms (i.e., Facebook, Twitter, LinkedIn, Instagram, emails, postings on websites). The social media campaign used the following core message:

Inviting Black Adults taking medication for high blood pressure for a minimum of 5 years to ***click on*** **https://tinyurl.com/HighBloodPressureSurvey***and take a 10-15 minute survey about you & your experiences with medical providers for a 3 in 250 chance of winning 1 of 3 $100 Amazon gift cards*

The recruitment campaign permitted snowball sampling in this study, as the email for the study invited participants to share the study opportunity with others. Also, social media messages asked for sharing of the study link with others. The study invitation was specifically shared in various public health groups on social media, such as the following: American Public Health Association (APHA), Public Health Institute, Black Health Commission, NYC Health & Hospitals Corporation, American Association of Nurse Practitioners, Harvard T.H Chan School of Public Health, CDC Center for Preparedness and Response, Blacks in Public Health, African American Health, Center for African American Health, and the African Diaspora Group. In order to post in several of the groups, requests were submitted to the group administrator(s) for approval; and, after permission was granted, the invitation was posted for group members to access. The survey link was also shared through direct messages to a variety of public health professionals on LinkedIn. To reach a larger audience within these social media groups, hashtags such as #publichealth #surveyresearch #hypertension #africanamerican health, and #blacklivesmatter were included in the posts.

3.4 Other Study Procedures

Participants who were interested in participating in the study were able to click an electronic link to begin the survey that was hosted on Qualtrics. Upon being directed to the study link, participants were asked to read the IRB approved informed consent (see Appendix D), which included the participants' rights. To electronically consent to participate, participants had to check a box within the Qualtrics online survey as formal evidence of their informed consent.

3.5 The Screening Tools' Questions: Inclusion-Exclusion Criteria

As shown below and in Appendix F, the study inclusion-exclusion are based on five questions, which appeared after a brief study description:

> The Research Group on Disparities in Health within the Department of Health and Behavior Studies at Teachers College, Columbia University, in New York, New York is conducting a study. We are seeking Black adults who have been diagnosed with high blood pressure, or hypertension for the past 5 years—or since 2018, and have been prescribed high blood pressure medication by a medical provider. We are seeking to identify factors related to taking one's medication as prescribed. To participate in our research study, please answer the following questions to see if you qualify:
>
> 1- Are you an adult age 23 or above? Yes___ No____
> 2-Do you self-identify as Black or African American? Yes___ No____
> 3-Have you been receiving treatment for high blood pressure or hypertension for a *minimum of the past 5 years*, or *at least since the year 2018*? Yes___ No____
> 4-Have you been prescribed medication specifically for your high blood pressure, or hypertension? __No __Yes
> 5-Have you been primarily treated by a health care provider in the United States for your high blood pressure? Yes___ No____
>
> If you answered "Yes" to the above questions, then you are invited to take a survey that will take approximately 10-15 minutes to complete. If you answered "No" to the above questions, then you are not eligible for this survey opportunity; however, you can send the link that took you to this survey opportunity to someone who you think will be eligible for study participation. THANK YOU.
>
> Please note that if you are eligible for study participation and complete the survey that follows, then you will have a 3 in 250 chance of winning one of three $100 Amazon gift cards in a lottery drawing when the study is closed.

Participants who answered "yes" to all the five screening questions met the study's inclusion criteria and were permitted to proceed with access to the full study questionnaire (see Appendix F). Participants who did not meet these criteria were disqualified from the study and were thanked for their interest in the study and told they did not qualify for study participation; and, lastly, they could share the link that allowed them to access the study opportunity with others who might qualify for participation in the study.

3.6 Generating Prizes: The Study Incentive for Participation

The Study Incentive for Participants who completed the entire study survey involved them being directed to a webpage where they could enter their email address—and were officially entered in the lottery for a one in three chance to win a $100 Amazon gift card. Data collection for the study began on February 12, 2023, and closed on March 4, 2023, as the period at which the lottery drawing took place. Upon closing the study, participants who entered the lottery and won were notified by email of winning and told how to redeem the gift card. The prize lottery webpage was created by the Research Group on Disparities in Health (RGDH) webmaster, Dr. Rupananda Misra. Dr. Misra created and operated the program for selecting the Amazon gift card winners. The protocol of Dr. Misra was designed to ensure that all participants' email data was encrypted. As a result, the principal investigator was not able to view any identifying participant data (e.g., individual email addresses) nor associate them with the study results, maintaining participants privacy.

3.7 Description of the Study Participants

Initially, there were 1050 survey records. However, after eliminating those from duplicate IP addresses, this was reduced to N=857. This number was further reduced to N=779 given a determination of their elgibiilty for participation, given responses to the the inclusion/exclusion criteria questions. Next of the 779, only 760 had answered at least 1 demographics question. Further, another 148 did not contribute to final analyses based on survey question answered that disqualified, such as their race/ethnicity) or number of years with hypertension, or because they were missing all three of the primary outcome variables. Thus, the final sample was N=612 for data analysis.

A comparison was made of the demographics for the 612 (study completers) who contributed to the data analyses versus the 148 (non-completers) who were initially eligible, but did not contribute to data analyses. Compared to completers, non-completers were significantly ($p < .05$) younger, had lighter skin color tone, lower income, and had fewer years with hypertension.

See Table 1.

Table 1. Comparing Survey of Completers (N=612) to Non-Completers (N=148) Via Independent T-Tests

					t-test significant at p<.05		
	Has Primary Outcome Variable? Yes=Completer No=Non-Completer	N	M	SD	*t*	df	P
Age	Yes	612	37.16	8.822	-8.234	300.312	<.001***
	No	148	31.95	6.354			
Skin Color	Yes	612	5.64	1.351	-2.244	702	.025*
	No	92	5.29	1.441			
Household Income	Yes	611	5.34	2.428	-2.643	700	.008**
	No	91	4.63	2.096			
More Years with high BP	Yes	612	3.62	1.116	-12.012	128.258	<.001***
	No	89	2.33	.927			

Note: All p values above .05 are considered non-significant, and those below .05 are considered statistically significant.

3.8 The Study Measure/ Description of Research Instrumentation

The study measures appear in **Appendix F**. Appendix F contains the first five screening questions along with 63 survey questions contained in 13 survey parts. This study used a survey developed by the Principal Investigator, Julie Jacob, in conjunction with her dissertation sponsor, Professor of Health Education, Dr. Barbara Wallace, Director of the Research Group on Disparities in Health (RGDH), Teachers College, Columbia University. Additionally, sections of the study were adapted from surveys previously used by fellows of the RGDH, or taken from the

research literature (e.g. Morisky Medication Adherence Scale). This section will describe each of the parts of the survey in detail (see Appendix F for the full study measure). Of note, each survey part will produce descriptive statistics (mean, standard deviation, percentage, frequency, minimum and maximum scores), while some scales will permit determining Cronbach's Alpha for internal consistency, as well as comparison of time periods (pre- versus pandemic) via paired t-tests, or logistic regression analysis (e.g. yes/no outcome variables).

Part I: Basic Demographics (BD-11)

The Basic Demographics (BD-11) scale was developed by Professor Barbara Wallace for use by the Research Group on Disparities in Health (RGD) and was adapted for this present study's population. The Basic Demographics scale has been used by previous fellows in the RGDH (Laryea, 2019). The BD-11 scale created for this study contains 11 questions, such as: gender, race/ethnicity, age, skin color, born in the U.S., number of children, marital status, education, household income, and employment status.

Part II: Single Item Rating of Risk of Providing Socially Desirable Responses (SIR-RPSDR-1)

This is a single item scale created by Dr. Barbara Wallace for studies in 2018 conducted by the Research Group on Disparities in Health (RGDH), and for ongoing use by the RGDH (e.g. Laryea, 2019)—permitting a much shorter assessment of the risk for providing socially desirable responses, in comparison to the Crowen and Marlow (1960) 13-item measure of social desirability. The one item measure poses a question and uses a Likert Scale, as follows:

1-I sometimes say things that I think will please people, or what I think they want to hear—versus the honest truth, which might be difficult or painful for other people to hear and accept, or might lead them to judge me harshly…

I rate myself on a scale of 0 to 10, as follows:

0	1	2	3	4	5	6	7	8	9	10
0-I am not like this at all										10-I am like this all the time

Part II: Personal Health Background

This is a tool created for use by the Research Group on Disparities in Health, which is commonly used, including the more recent addition pandemic-era questions on history of having COVID-19 and common medical conditions (e.g. Radcliffe, 2023). Specifically, questions in this study included asking about having now or in the past two years COVID-19, or having long COVID. Other questions ask about a history of hypertension or heart disease, prior stroke, prior heart attack, lung disease, diabetes, obesity, cancer, HIV/AIDS, and other health conditions. Participants were also asked to report height and weight, permitting Body Mass Index (BMI) being calculated.

Part IV: Morisky Medication Adherence Scale (MMAS-4)

The Morisky Medication Adherence Scale (MMAS) was evaluated by Morisky, et al. (1986), using 4 items, also used in the present study: 1- "Do you forget to take your high blood pressure medication?"; 2- Originally, stated, "Are you careless at times about taking your medicine," but more recently modified to state "Do you have problems remembering to take your high blood pressure medication?", 3- When you feel better, do you sometimes stop taking your high blood pressure medicine?, and 4- Sometimes if you feel worse when you take your high blood pressure medicine, do you stop taking it?" Participants had the option of answering

either “Yes” or “No” for each question. As per Morisky et al (1986), the scoring that was used to determine high to low adherence was for “yes” answers scored 0 and “no” answers scored 1—finding a Cronbach’s Alpha of .61 for acceptable internal consistency. Morisky et al (1986) indicated that this is a “relatively simple scale” that represents an “added contribution to the literature in addressing adherence levels of hypertensive patients”—while “reliable, valid, and useful” (p. 73). For this study, two groups were created, as follows: scoring “yes” for adherent/good adherence with a score of 3-4 versus “no” for not adherent/poor adherence with a score of 0-4.

Part V: Three Factors Impacting High Blood Pressure Medication Adherence—Before and During the Pandemic, and Currently (3FI-HBPMA-BDP-C-9)

This is a new tool created by the Principal Investigator, Julie Jacobs, and Dr. Barbara Wallace, Director of the Research Group on Disparities in Health (RGDH) for first time use in this study—and for ongoing future use by the RGDH. The tool arises from a review of literature indicating some patients may have experienced disruptions in access to health care and pharmacy services during the pandemic, thereby disrupting routine care for chronic disease management. Hence, this survey was created. This new tool asks participants about three periods of time for 3 relevant medication and care related issues. The time periods are (1) before the pandemic, (2) during the pandemic—especially in 2020 and 2021, and (3) currently—especially the past three months. The for 3 relevant medication and care related issues and 3 time periods, follow, while illustrating the scoring on a 6-point Likert scale ranging from 1=very poor to 6=excellent:

> 1-Please rate the extent to which you *followed the instructions given to you by your medical provider for taking your high blood pressure medication* **BEFORE the COVID-19 pandemic**:
> I rate the **extent to which I followed their instructions for taking my medication as:**
> **__1-Very poor __2-Poor __3-Fair __4-Good __5-Very Good __6-Excellent**

2- Please rate the extent to which you *followed the instructions given to you by your medical provider for taking your high blood pressure medication* **DURING the COVID-19 pandemic—especially in the years 2020 and 2021:**
I rate the **extent to which I followed their instructions for taking my medication as:**
__1-Very poor __2-Poor __3-Fair __4-Good __5-Very Good __6-Excellent

3- Please rate the extent to which you *follow the instructions given to you by your medical provider for taking your high blood pressure medication* **CURRENTLY—especially in the PAST THREE MONTHS:**
I rate the **extent to which I follow their instructions for taking my medication as:**
__1-Very poor __2-Poor __3-Fair __4-Good __5-Very Good __6-Excellent

---

4-Please rate to what extent *regular contact with your medical provider was maintained for the management of your high blood pressure* **BEFORE the COVID-19 pandemic**:
I rate the **extent to which regular contact was maintained** with my medical provider as:
__1-Very poor __2-Poor __3-Fair __4-Good __5-Very Good __6-Excellent

5- Please rate to what extent *regular contact with your medical provider was maintained for the management of your high blood pressure* **DURING the COVID-19 pandemic—especially in the years 2020 and 2021:**
I rate the **extent to which regular contact was maintained** with my medical provider as:
__1-Very poor __2-Poor __3-Fair __4-Good __5-Very Good __6-Excellent

6- Please rate to what extent *regular contact with your medical provider is being maintained for the management of your high blood pressure* **CURRENTLY—especially in the PAST THREE MONTHS:**
I rate the **extent to which regular contact is being maintained** with my medical provider as:
__1-Very poor __2-Poor __3-Fair __4-Good __5-Very Good __6-Excellent

---

7-Please rate to what extent *you received your high blood pressure medication prescriptions and actual medication so you could take your medication on time—without interruption* **BEFORE the COVID-19 pandemic**:
I rate the **extent to which I received my prescriptions and medication on time as:**
__1-Very poor __2-Poor __3-Fair __4-Good __5-Very Good __6-Excellent

8- Please rate to what extent *you received your high blood pressure medication prescriptions and actual medication so you could take your medication on time—without interruption* **DURING the COVID-19 pandemic—especially in the years 2020 and 2021:**
I rate the **extent to which I received my prescriptions and medication on time as:**
__1-Very poor __2-Poor __3-Fair __4-Good __5-Very Good __6-Excellent

9- Please rate to what extent *you receive your high blood pressure medication prescriptions and actual medication so you could take your medication on time—without interruption* **CURRENTLY—especially in the PAST THREE MONTHS:**
I rate the **extent to which I receive my prescriptions and medication on time as:**
__1-Very poor __2-Poor __3-Fair __4-Good __5-Very Good __6-Excellent

Multiple paired t-tests will permit a comparison of mean scores for the 3 behaviors of interest for the 3 times periods.

Part VI: Perceived General Social Support Scale (A) and Blood Pressure Management Social Support Scale (B)—For Before and During the Pandemic, and Currently (PGSSS[A]-BPMSSS[B]-BP-DP-C-6).

The Principal Investigator, Julie Jacobs, and Dr. Barbara Wallace, Director of the RGDH, have created this new tool based on a review of the literature—while making substantial modifications to a common tool used by the Research Group on Disparities in Health (RGDH): i.e. a prior tool used by Lian (2017). In recent years, to reduce the burden of time during the stress of the ongoing pandemic, a new one item version of the scale was created by combining the essence of 5 questions used in Lian (2017) into one description of what having social support "means." Participants then indicated the number of people they have in their life, using the 5-option scale. However, as an innovation used for the first time in this study, there is a General Social Support Scale A (GSSS-A-3) with 3 ODD numbered items, corresponding to three time periods for rating general social support: i.e., (1) before the pandemic; (2) during the pandemic—especially in the years 2020 and 2021; and (3) currently, especially in the past three months. SCALE A has 3 items scored on a 5-point Likert scale ranging from 1 to 5. Also, as an additional innovation used for the first time in this study, there is a Blood Pressure Management Social Support Scale B (BPMSSS-B-3) with even numbered items, corresponding to three time periods for rating blood pressure management social support detailed above. Scale B has 3 items scored Yes=1 or No= 0. Both Scales A and B will permit comparing group means for the three periods

of time using multiple paired t-tests. Consider the prompt and items to be rated for the 3 time periods on Scale A (odd items) and Scale B (even items), as shown below:

> Having SOCIAL SUPPORT means having people in your life who provide the following kinds of support and assistance: you can ask them for advice, or receive words of encouragement; get money or get food in an emergency; or have a place to temporarily wait for help, or stay or live in an emergency.
>
> 1-Please indicate the extent to which *you experienced SOCIAL SUPPORT in your life* **BEFORE the COVID-19 pandemic:**
>
> 1. I had no one like this in my life then
> 2. I had at least 1 one person like this in my life then
> 3. I had at least 2 people like this in my life then
> 4. I had 3-5 people like this in my life then
> 5. I had 6 or more people like this in my life then
>
> **2-BEFORE the COVID-19 pandemic**, did you have someone who helped to remind you about taking your high blood pressure medication, or gave you your medication, or helped by picking up your medication prescriptions, or helped you in some other way to manage your blood pressure?
> 0=**__No** 1=**__Yes**
>
> 3-Please indicate the extent to which *you experienced SOCIAL SUPPORT in your life* **DURING the COVID-19 pandemic—especially in the years 2020 and 2021:**
>
> 1. I had no one like this in my life then
> 2. I had at least 1 one person like this in my life then
> 3. I had at least 2 people like this in my life then
> 4. I had 3-5 people like this in my life then
> 5. I had 6 or more people like this in my life then
>
> **4-DURING the COVID-19 pandemic (especially in the years 2020 and 2021)**, did you have someone who helped to remind you about taking your high blood pressure medication, or gave you your medication, or helped by picking up your medication prescriptions, or helped you in some other way to manage your blood pressure?
> 0=**__No** 1=**__Yes**
>
> 5-Please indicate the extent to which *you experience SOCIAL SUPPORT in your life* **CURRENTLY—especially in the PAST THREE MONTHS:**
>
> 1. I have no one like this in my life right now
> 2. I have at least 1 one person like this in my life right now
> 3. I have at least 2 people like this in my life right now
> 4. I have 3-5 people like this in my life right now
> 5. I have 6 or more people like this in my life right now
>
> **6-CURRENTLY (especially in the past THREE MONTHS),** do you have someone who helps to remind you about taking your high blood pressure medication, or gives you your medication,

or helps by picking up your medication prescriptions, or helps you in some other way to manage your blood pressure?
0=__**No** 1=__**Yes**

Part VII: Perceived Stress Scale (PSS-4)

The Perceived Stress Scale (PSS-4) is a 4-item short version of the original 10-item PSS-10 created by Cohen et al. (1983; Cohen, 1994). The scoring for the shorter PSS-4 being utilized for this study has been described elsewhere (i.e., https://ohnurses.org/wp-content/uploads/2015/05/Perceived-Stress-Scale-4.pdf), explaining the following: questions 1 and 4 are scores 0 = never, 1= almost never, 3=sometimes, 3=fairly often, 4=very often; and questions 2 and 3 are scored 4=never, 3=almost never, 2=sometimes, 1=fairly often, 1=very often); and, the possible scores are 0 for a lowest score and 15 for a highest score. Higher scores are correlated to more stress experienced in the past month. According to Karam et al. (2012), a study with pregnant women examining stress, depression, and quality of life found acceptable internal consistency (Cronbach's alpha coefficient = .79) with the PSS. The prompt, items, and scoring follow:

Instructions: The questions in this scale ask you about your feelings and thoughts during the last month. In each case, please indicate with a check how often you felt or thought a certain way.

1. In the last month, how often have you felt that you were unable to control the important things in your life?
___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often
2. In the last month, how often have you felt confident about your ability to handle your personal problems?
___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often
3. In the last month, how often have you felt that things were going your way?
___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often
4. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?
___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

Part VIII: Rating Health Care Providers for Level of Cultural Competence and Discrimination (RHCP-CC-D-2).

This is a new tool created by the Principal Investigator, Julie Jacobs, and Dr. Barbara Wallace, Director of the Research Group on Disparities in Health (RGDH) for first time use in this study—and for ongoing future use by the RGDH. Prior versions of this tool have been used by others, while asking for a rating of provider cultural competence. This version is innovative in providing an explanation or definition of cultural competence, before asking for a rating. This version adds a focus on discrimination by providers as well. This version of the tool arises from explanations of cultural competence and discrimination advanced in 2022 by Dr. Wallace for use in research measures by the RGDH. The resultant improved tool has two items that offer explanations of cultural competence and discrimination, followed by ratings of providers for each explanation. For the main provider or providers' who have treated patients in the past year for their high blood pressure, patients provide a rating of their cultural competence on a six-point Likert scale that ranges from *6=highest level of cultural competence (desired)* to *1=none, no cultural competence at all (undesirable)*. For the main provider or providers' who have treated patients in the past year for their high blood pressure, patients provide a rating of their engagement in discrimination on a six-point Likert scale for Reverse Scoring where *6=highest level of discrimination (undesirable)* to *1=none, no discrimination (desirable).* The prompts, items, and scoring follow:

> Please *think about the main health care provider or providers who have treated you in the past year for your high blood pressure or hypertension*, then read the explanation of the **bolded** term; and, then rate your provider(s).
>
> ***Cultural competence*** is the ability to remain open to learning about the experiences, beliefs, preferences, and needs of individual members of varied racial, ethnic, and cultural groups by asking questions and carefully listening to an individual's answers with patience, empathy and compassion—while consciously refraining from making assumptions.

1 - I rate my provider(s) level of **cultural competence** when treating me for my high blood pressure me, as follows:

1-none, no cultural competence at all	2-very low level of cultural competence	3-low level of cultural competence	4-moderate level of cultural competence	5-high level of cultural competence	6-highest level of cultural competence

Note on Likert scale scoring: 6=highest (desired) to 1=none (undesirable)

Discrimination occurs when a provider's bias and/or stereotyping results in their deviating from (abandoning) the standard of care or standard care protocols (what they are supposed to do) when treating diverse patients; this discrimination involves diverse patients receiving a lower quality of care (worse care than that provided to someone White/Caucasian).

2 - I rate my provider(s) level of **discrimination** when treating me for my high blood pressure, as follows:

1-none, no discrimination at all	2-very low level of discrimination	3-low level of discrimination	4-moderate level of discrimination	5-high level of discrimination	6-highest level of discrimination

Note on Likert scale for Reverse Scoring: 6=highest (undesirable) to 1=none (desirable)

Part IX: Perceived Discrimination by Medical Providers in Response to Personal Demographics, Intersecting Identities, Appearance (PD-ID-A -II-9)

This scale was taken from Hall (2021) and modified for the focus of this study. The original Hall (2021) version was intended for subsequent use by the Research Group on Disparities in Health, while designed for first time use in Hall (2021) with Dr. Barbara Wallace, Director of the RGDH. There are now 8 "yes" (1)/ "no" (0) questions versus 5 in Hall (2021), while using the following 0-8 item scale: summing the items could produce a 0=no discrimination to 9=highest level experience of discrimination for multiple intersecting identities by medical providers. More specifically, the prompt, question and choices follow:

Thinking back and recalling the times that you have be seen by medical providers, including those who provided treatment for your high blood pressure, do you think you **experienced any discrimination (unfair treatment) for the following:** (Please select all that apply):
1-being **Black or African American** ___Yes ___No
2-being a **woman, as man, or because of your gender (transgender or non-binary** ___Yes ___No
3-being **LGBTQ+** ___Yes ___No ___
4-being **overweight or obese** ___Yes ___No __

5-my **skin color/ skin tone** ___Yes ___No
6-my **hair** ___Yes ___No
7-my **appearance (e.g. height, body features, clothing, etc.)** ___Yes ___No
8-being a **person with a disability** ___Yes ___No __

Part X: Medical Mistrust Scale—Short Form (MMS-SF-4)

This study follows the work of Shelton et al (2010) measuring medical distrust. Shelton et al (2010) contributed to the literature an 11-item tool, The Group Based Medical Mistrust Scale (GBMMS), which measures race-based medical mistrust; they shortened it from 12 to 11 items, while finding three factors/scales. For this study, and in a prior study by Williams-Gunpot (2021), the title was shortened to the **Medical Mistrust Scale—Short Form** and just some items were selected for use, as follows: **Suspicion Scale** (Factor 1, 2 of 5 original items included); **Discrimination Scale** (Factor 2, 2 of 3 original items included for reverse scoring**);** and, not used in this study were any items from the Lack of Support Scale (Factor 3). The result is a scale for this study with 4 questions—as a short form. The numbering in this scale reflects the removal of items (i.e. 1, 2, 3, 6, 7, 9, 11) to shorten the scale; only original items 4, 5, 8, 10 are included. Shelton et al (2010, p. 552) reported that internal consistency "was high for the total GBMMS (α=0.87) and the three sub-scales: Suspicion (α=0.89); Discrimination (α=0.83); Lack of Support (α=0.65)" (p. 552). They also "calculated split-half reliability by examining the correlation between odd and even numbered items and found two halves to be highly correlated (r=0.78; p<0.0001)" (p. 552). The present study will determine internal consistency for the 4-item short scale—without separate consideration for Short Suspicion Scale and Short Discrimination Scale]. The resultant Medical Mistrust Scale-Short Form (MMS-SF-4) follows, while showing scoring on a 4 point likert scale ranging from 1-strongly disagree to 5-strongly agree:

Please indicate your agreement or disagreement with the following statements:

[Short Suspicion Scale (Factor 1)]

1-Black people cannot trust doctors and health care workers (***item 5 on original scale)***

1-Strongly Disagree 2-Disagree 3-Neither Agree or Disagree 4-Agree 5-Strongly Agree

2- Black people should be suspicious of information from doctors and health care workers (***item 4 on original scale)***

1-Strongly Disagree 2-Disagree 3-Neither Agree or Disagree 4-Agree 5-Strongly Agree

[Short Discrimination Scale (Factor 2)—reverse score]

3-Black people receive the same medical care from doctors and health care workers as people from other groups (***item 8 on original scale)***

1-Strongly Disagree 2-Disagree 3-Neither Agree or Disagree 4-Agree 5-Strongly Agree

4-Black people are treated the same as people of other groups by doctors and health care workers (***item 10 on original scale)***

1-Strongly Disagree 2-Disagree 3-Neither Agree or Disagree 4-Agree 5-Strongly Agree

Part XI: Ratings of Experiences of Microaggressions with Health Care Providers (REM-WHCP-5)

The Ratings of Experiences of Microaggressions with Health Care Providers (REM-WHCP-5) was created for use by the Research Group on Disparities in Health by Dr. Barbara Wallace, starting with the work of Liss (2015). Since, then it has been modified for use with numerous specific groups, such as with Asians (e.g. Lian, 2017), and Black older lesbians (e.g. Hall, 2021), and Black adults (e.g. Williams-Gunpot, 2021). The modification for this study involves instructions asking if microaggressions were experienced, "While you were being treated by a health care provider in the United States—and it seemed related to your being Black, or African American." In some studies, a question on intersectional experiences (double jeopardy) has appeared, but was not used in this study. The resultant scale and 0-4 likert scale for frequency of experiencing various forms of microaggressions follows:

For the following questions, please indicate to what extent you experienced any of the following **while you were being treated by a health care provider—**and **it seemed related to your being Black, or African American.**

1-Brief exchanges or brief interactions with a health care provider where you felt you were receiving messages that were a put down, denigrating, or conveyed something negative—**that seemed related to your being Black:**
__0-Never/Not At All __1-At Least Once __2-More Than Once __3-A Few Times __4-Many Times
2-A verbal attack from a health care provider that was hurtful and caused mental or emotional pain, whether this involved name-calling, or something said that was insulting—**that seemed related to your being Black**:
__0-Never/Not At All __1-At Least Once __2-More Than Once __3-A Few Times __4-Many Times
3-A nonverbal attack from a health care provider or some behavior that was hurtful and caused mental or emotional pain, whether this involved someone avoiding contact and interaction, or avoiding communication, or some act of discrimination—**that seemed related to your being Black**:
__0-Never/Not At All __1-At Least Once __2-More Than Once __3-A Few Times __4-Many Times
4-An insulting communication from a health care provider that conveyed rudeness and insensitivity or involved put downs or something demeaning being said—**that seemed related to your being Black**:
__0-Never/Not At All __1-At Least Once __2-More Than Once __3-A Few Times __4-Many Times
5-An excluding communication from a health care provider that excluded you, cancelled out your existence, made you invisible, or ignored the reality of your thoughts, feelings, and existence—**that seemed related to your being Black**:
__0-Never/Not At All __1-At Least Once __2-More Than Once __3-A Few Times __4-Many Times

Part XII: Dichotomous Self-Classification for Consistency of Adherence to Medication for High Blood Pressure Treatment (DSC-CAM-HBPT-1)

This is a new tool created by the Principal Investigator, Julie Jacobs, and Dr. Barbara Wallace, Director of the Research Group on Disparities in Health (RGDH) for first time use in this study—and for future use by the RGDH. As an ideal tool for pandemic-era research, while reducing the burden of time, this short tool permits a self-rating of medication non-adherence using just one item, while requiring a **"yes" (I am medication non-adherent**) or **"no" (I am not medication non-adherent/*or I am medication adherent*)** response, as follows:

1-If I only had two choices, overall, I would place myself in the following group:

(Group A self-classification =YES, I am medication non-adherent)

___ A group **THAT <u>DOES NOT</u> CONSISTENTY OR ALWAYS TAKE** their prescribed high blood pressure medication as they have been advised to for the treatment of high blood pressure

(Group B self-classification =NO, I am not medication non-adherent/*<u>or I am medication adherent)</u>*
___ A group **THAT <u>DOES</u> CONSISTENTLY OR ALWAYS TAKES** their prescribed high blood pressure medication as they have been advised to for the treatment of high blood pressure

The responses permit logistic regression analysis being used to identify predictors of answering **"yes" for being medication non-adherent**, or **"no" for not being medication non-adherent**.

Part XIII: Dichotomous Self-Classification for Experiences of Racism or Discrimination Impacting Engagement with Medical Providers (DSC-ERD-IEMP-1)

This is a new tool created by the Principal Investigator, Julie Jacobs, and Dr. Barbara Wallace, Director of the Research Group on Disparities in Health (RGDH) for first time use in this study—and for future use by the RGDH. Being ideal for pandemic-era research, this short single item tool has just one item that permits self-classification into one of two groups: i.e. in a "yes" group for having experienced racism/discrimination as impacting their engagement with providers; or, in a "no" group for not having experienced racism/discrimination as impacting their engagement with providers. This classification into a "yes" or "no" group permits a logistic regression analysis. The single item and classification system follow:

1-If I only had two choices, overall, I would place myself in the following group:

(Group A self-classification =YES, racism/discrimination has impacted my engagement with providers)
(A)___A group **THAT <u>HAS</u>** experienced racism and/or discrimination **SO THAT IT IMPACTED** *my willingness* to regularly go and get treated by medical providers

(Group B self-classification =NO, racism/discrimination has not impacted my engagement with providers)
(B)__ A group **THAT <u>HAS NOT</u>** experienced racism and/or discrimination **SO THAT IT IMPACTED** *my willingness* to regularly go and get treated by medical providers

The responses permit logistic regression analysis being used to identify predictors of answering **"yes" for for having experienced racism/discrimination** as impacting their engagement with providers, or **"no" for** not having experienced racism/discrimination as impacting their engagement with providers

3.9 The Data Treatment Plan

Given a sample of hypertensive Black adults (N=250) who respond to a social media campaign (*Inviting Black Adults taking medication for high blood pressure for a minimum of 5 years to **click on** **https://tinyurl.com/HighBloodPressureSurvey** and take a 10-15 minute survey about you & your experiences with medical providers for a 3 in 250 chance of winning 1 of 3 $100 Amazon gift cards*), the study will answer the following research questions, using the **data analysis plans indicated in bold**:

1-What were their demographic characteristics (i.e. gender, skin color, born in the U.S. [yes/no], annual household income, level of education, employment status [yes/no], number of years diagnosed with hypertension, state of residence)?

Part I: Basic Demographics (BD-12)

Data Analysis Plan: Descriptive statistics, including means, standard deviations, frequencies, and percentages

2-To what extent did they provide socially desirable responses?

Part II: Single Item Rating of Risk of Providing Socially Desirable Responses (SIR-RPSDR-1)

Data Analysis Plan: Descriptive statistics, including means, standard deviations, frequencies, and percentages

3-What health conditions do they report currently having or having had, and what is their Body Mass Index?

Part III: Personal Health Background and Body Mass Index (PHB-BMI-5)

Data Analysis Plan: Descriptive statistics, including means, standard deviations, frequencies, and percentages

4-Using the 4-item Morisky Medication Adherence Scale (MMAS-4), with regard to taking their high blood pressure medication, to what extent are they medication adherent (or scoring "yes" for adherent/good adherence with a score of 3-4 versus "no" for not adherent/poor adherence with a score of 0-2)?Part IV: Morisky Medication Adherence Scale (MMAS-4)

This is the study outcome variable/dependent variable # 1.
Data Analysis Plan: Descriptive statistics, including means, standard deviations, frequencies, and percentages

5-With regard to three factors impacting high blood pressure medication adherence (i.e. following provider instructions for taking medication, maintaining regular contact with provider for management of high blood pressure, timely receipt of prescriptions and medications for taking medication on time), how do they rate their behavior for these factors (1-very poor to 6-excellent) for before the COVID-19 pandemic, during the COVID-19 pandemic—especially the years 2020-2021, and currently—especially the past three months? And, are there difference across the three time periods?

Part V: Three Factors Impacting High Blood Pressure Medication Adherence—Before and During the Pandemic, and Currently (3FI-HBPMA-BDP-C-9)
Data Analysis Plan: Descriptive statistics, paired t-tests

6-To what extent did they receive *general social support (Scale A*) and *blood pressure management social support (Scale B)* for each of the three time periods of before the COVID-19 pandemic, during the COVID-19 pandemic (especially the years 2020-2021), and currently (especially the past three months)? And, are there difference across the three time periods?

Part VI: Perceived General Social Support Scale (A) and Blood Pressure Management Social Support Scale (B)—For Before and During the Pandemic, and Currently (PGSSS[A]-BPMSSS[B]-BP-DP-C-6)
Data Analysis Plan: Descriptive statistics, paired t-tests

7-What was their past-month perceived stress?

Part VII: Perceived Stress Scale (PSS-4)
Data Analysis Plan: Descriptive statistics, including means, standard deviations, frequencies, and percentages

8-How did they rate their health care providers who treated them in the past year for high blood pressure with regard to level of *cultural competence* and *discrimination* when treating them?

Part VIII: Rating Health Care Providers for Level of Cultural Competence and Discrimination (RHCP-CC-D-2)
Data Analysis Plan: Descriptive statistics, including means, standard deviations, frequencies, and percentages

9-To what extent did they report *perceiving discrimination* by medical providers—including those who have provided treatment for their high blood pressure—*in response to their personal demographics, intersecting identities, and appearance*?

Part IX: Perceived Discrimination by Medical Providers in Response to Personal Demographics, Intersecting Identities, Appearance (PD-ID-A -II-9)
Data Analysis Plan: Descriptive statistics, including means, standard deviations, frequencies, and percentages

10-To what extent do they report experiencing *medical mistrus*t?

Part VII: Medical Mistrust Scale—Short Form (MMS-SF-4)

Data Analysis Plan: Descriptive statistics, including means, standard deviations, frequencies, and percentages

11- During their interactions with medical providers—and specifically, during interactions when being treated for high blood pressure, to what extent did they experience *microaggressions that seemed related to their being Black*?

Part IX: Ratings of Experiences of Microaggressions with Medical Providers (REM-WHCP-5)

Data Analysis Plan: Descriptive statistics, including means, standard deviations, frequencies, and percentages

12-Given the opportunity for a dichotomous self-classification for consistency of adherence to medication for high blood pressure treatment, into which of two groups did they place themselves (i.e. *Group A self-classification = YES, I am medication non-adherent*; or *Group B self-classification = NO, I am not medication non-adherent*)?

Part XII: Dichotomous Self-Classification for Consistency of Adherence to Medication for High Blood Pressure Treatment (DSC-CAM-HBPT-1)

This is the study outcome variable/dependent variable # 2.

Data Analysis Plan: Descriptive statistics, including means, standard deviations, frequencies, and percentages

13- Given the opportunity for a dichotomous self-classification for experiences of racism and/or discrimination impacting their engagement with providers in terms of their willingness to regularly go and get treated by medical providers (i.e. *Group A self-classification =YES, racism/discrimination has impacted my engagement with providers*; or *Group B self-classification =NO, racism/discrimination has not impacted my engagement with providers*)?

Part XIII: Dichotomous Self-Classification for Experiences of Racism or Discrimination Impacting Engagement with Medical Providers (DSC-ERD-IEMP-1)

This is the study outcome variable/dependent variable # 3.

Data Analysis Plan: Descriptive statistics, including means, standard deviations, frequencies, and percentages

14- What were significant predictors for the following three outcome variables specifically for (1) being medication adherent as measured by the Morisky Medication Adherence Scale, (2) self-classifying as medication adherent (no for not being medication non-adherent/or I am medication adherent), and (3) self-classifying as (yes) having experiences of racism or discrimination impact engagement with medical providers?
?

Part IV: Morisky Medication Adherence Scale (MMAS-4)

This is the study outcome variable/dependent variable # 1.

Part XII: Dichotomous Self-Classification for Consistency of Adherence to Medication for High Blood Pressure Treatment (DSC-CAM-HBPT-1)

This is the study outcome variable/dependent variable # 2.

Part XIII: Dichotomous Self-Classification for Experiences of Racism or Discrimination Impacting Engagement with Medical Providers (DSC-ERD-IEMP-1)

This is the study outcome variable/dependent variable # 3

Data Analysis Plan: Logistic regression analysis.

3.10 Data Management

The data will be collected using the Qualtrics platform. Thereafter, upon study completion, the data will be transferred to the latest available version of SPSS—version 29. Data analysis will proceed, following the data analysis plans indicated in the prior section.

3.11 Conclusion

This chapter described the details of the methods used in the present study. This consisted of a review of the study design, study procedures, participant recruitment, and research instrumentation. The chapter concluded with how data was managed and analyzed.

The next chapter, chapter IV, will provide the results of data analysis.

Chapter 4: RESULTS

This chapter provides a detailed presentation of the study results. Findings are presented by research question in a summary fashion. Thereafter, data is presented in tables.

4.1 Results for Research Question #1

*What were their **demographic characteristics** (i.e., gender, race, ethnicity, age, skin color, marital status, number of children, born in the U.S. [yes/no], annual household income, level of education, employment status)?* **(BD-11).**

Part I: Basic Demographics (BD-11). The study sample used for final data analysis was comprised of 612 Black adults age of 23 and above. Chapter III provided details on how this final sample emerged, including a comparison of survey completers (N=612) versus non-completers (N=148).

The study sample (N=612) was 100% Black/African American, 44.3% female (N=271), 54.7% male (N=335) with a mean age of 37.16 (SD=8.822, Min=23; Max=65). Their skin color was a mean of 5.64 (SD=1.351, Min=1; Max= 7) for between "medium to dark" and "dark" with 35.9% reporting dark skin tone (N=220). Some 93.6% reported being born in the United States (N=573). Some 75% were married (N=459) and 87.6% had children (N=535). A full 99.6% were employed (N=609) with a mean education level (Mean =3.66; SD=1.394; Min=1, Max=6) between "some college, no degree" and "Associate degree/Technical training. Of note, 46.8% did not have a college degree (N=286), and 53.3% had a college degree (N=326). The mean household income was 5.34, or closest to category five, for $50,000 - $99,999 (SD=2.428; Min =1, Max=11).

See Table 2.

Table 2. *Basic Demographics (BD-11) (N=612)*

	N	%
Gender (N = 612)		
Female	271	44.3
Male	335	54.7
Non-binary	1	.2
Transgender	5	.8
Race/ethnicity (N 612)		
Black/African American	612	100
Age (N=612)		
20-25	37	6.0
26-30	101	16.5
31-35	209	34.1
36-40	87	14.3
41-45	60	9.8
46-50	53	8.6
51-55	35	5.7
56-60	26	4.3
61-65	4	.7
66+	0	0
[Mean age = 37.16; SD = 8.822; Min=23, Max=65]		
Skin Color (N=612)		
7-Very dark	180	29.4
6-Dark	220	35.9
5-Medium to dark	102	16.7
4-Medium to light	56	5.7
3-Light	35	9.2
2-Very light	11	1.8
1-White	8	1.3
[Mean skin color=5.64; SD = 1.351; Min=1, Max=7]		
Marital status (N=612)		
Single	99	16.2
Married	459	75
Separated	24	3.9
Divorced	20	3.3
Living with significant other	1	0.2
Widowed	9	1.5
Born in the US (N=612)		
Yes	573	93.6
No	39	6.4

Children (N=612)		
0	77	12.6
1-2	481	78.6
3-4	45	7.4
5 0r more	9	1.6
[Mean children = 1.46; SD = .999; Min=0, Max=8]		
Education (N=612)		
1-Some high school or less	31	5.1
2-High School or GED	115	18.8
3-Some college credit, no degree	140	22.9
4-Associate degree or technical training	131	21.4
5-Bachelor's degree (e.g., BA, BS)	134	21.9
6-Masters degree (e.g., MA, MS, MD)	61	10.0
[Mean education=3.66; SD=1.394; Min=1, Max=6]		
Household Income (N= 612)		
1-Less than 10,000	10	1.6
2-10,000-19-999	43	7.0
3-20,000-39,999	72	11.8
4-40,000-49,999	129	21.1
5-50,000-99,999	168	27.5
6-100,000-199,999	41	6.7
7-200,000-299,000	20	3.3
8-300,000-399,000	20	3.3
9-400,000-499,000	37	6.0
10-500,000-799,000	68	11.1
11-800,000 or more	3	0.5
I do not know	1	0.2
[Mean income =5.34; SD=2.428; Min.=1, Max.=11]		
Employed (N=612)		
Full-time	500	81.7
Part-time	86	14.1
Per diem	23	3.8
Currently retired	3	0.5

4.2 Results for Research Question #2

To what extent was their a risk of providing socially desirable responses? **(SIR-RPSDR-1).**

Part II: Single Item Rating of Risk of Providing Socially Desirable Responses (SIR-RPSDR-1). The mean risk of providing socially desirable responses was 5.84 (SD = 2.312; Min=0, Max=10), indicating a *moderate level of social desirability*. The binomial logistic regression analysis performed for this study controls for social desirability.

See Table 3.

Table 3. Single Item Rating of Risk of Providing Socially Desirable Responses (SIR-RPSDR-1) (N=612)

	N	**%**
1-I sometimes say things that I think will please people, or what I think they want to hear—versus the honest truth, which might be difficult or painful for other people to hear and accept, or might lead them to judge me harshly…		
I rate myself on a scale of 0 to 10, as follows: **(N=612)**		
0- I am not like this at all	12	2.0
1	34	5.6
2	23	3.8
3	22	3.6
4	52	8.5
5	78	12.7
6	129	21.1
7	131	21.4
8	66	10.8
9	41	6.7
10- I am like this all the time	24	3.9
[Mean risk of providing socially desirable responses (5.84); SD (2.312); Min (0), Max (10)]		

4.3 Results for Research Question #3

Have they had COVID-19 within the past two years, or have long COVID, and do they believe COVID-19 is a hoax? Do they have a history of medical conditions such as HTN, high blood pressure, heart disease, prior stroke, prior heart attack, lung disease (e.g., asthma, copd), diabetes, obesity, cancer, HIV/AIDS, or other health conditions and what is their Body Mass Index? **(PHB-BMI-5)**

Part III: Personal Health Background and Body Mass Index (PHB-BMI-5). Using the Personal Health Background and Body Mass Index (PHB-BMI-5) scale, 85.8% (N=525) endorsed "yes," for "I have now, or had COVID-19 in past 2 years," and 36.3 % (N=222) endorsed "yes" for "I currently have, or had, long COVID-19. Notably, 30.2% (N=185) believe COVID-19 is a hoax and does not exist. They also reported having had or currently having the following medical conditions, for example: 79.9% reported HTN (N=498), 11.8% reported having had a prior stroke (N=72), 21.9% reported having had a prior heart attack (N=134), 13.4% reported lung disease (e.g. asthma, COPD) (N=82), 21.6% reported diabetes (N=132), and 14.7 % reported obesity (N=90). The mean body mass index (BMI) score was 22.5 (SD = 8.19; Min=7.32, Max=61.07) for a normal, healthy weight.

See Table 4.

Table 4. Personal Health Background and Body Mass Index (PHB-BMI-17) (N=612)

	N	%
1-I have now, or had COVID-19 in past 2 years (N=612)		
1) No	75	12.3
2) Yes	525	85.8
3) Not sure	12	2.0
2-I Currently have, or had, long COVID-19 (N=612)		
1) No	360	58.8
2) Yes	222	36.3
3) Not sure	30	4.9
3- I think COVID-19 is a hoax; it does not exist. (N=612)		
1) No	368	60.1
2) Yes	185	30.2
3) Not sure	59	9.6
4- I have also had, or currently have, the following: (please check all that apply) - Selected Choice Hypertension, high blood pressure (N=489)		
1) Hypertension, high blood pressure, heart disease	489	79.9
2) Missing	123	20.1
5- I have also had, or currently have, the following: (please check all that apply) - Selected Choice prior stroke (N=72)		
1) Prior stroke	72	11.8
2) Missing	540	88.2
6-I have also had, or currently have, the following: (please check all that apply) - Selected Choice Prior heart attack (N=134)		
1) Prior heart attack	134	21.9
2) Missing	478	78.1
7-I have also had, or currently have, the following: (please check all that apply) - Selected Choice Lung disease (N=82)		
1) Lung disease (e.g., asthma, copd)	82	13.4
2) Missing	530	86.6
8-I have also had, or currently have, the following: (please check all that apply) - Selected Choice diabetes (N=132)		
1) Diabetes	132	21.6
2) Missing	480	78.4
9-I have also had, or currently have, the following: (please check all that apply) - Selected Choice Obesity (N=90)		
1) Obesity	90	14.7
2) Missing	522	85.3
10-I have also had, or currently have, the following: (please check all that apply) - Selected Choice Cancer (N=2)		
1) Cancer (explain type)	2	.3
2) Missing	610	.997
11-I have also had, or currently have, the following: (please check all that apply) - Selected Choice HIV/AIDS (N=3)		
1) HIV/AIDS	3	.5

2) Missing	609	.995
12-1 have also had, or currently have, the following: (please check all that apply) - Selected Choice Other health conditions (N=1)		
1) Other health conditions (please explain)	1	.2
2) Missing	611	99.8
13-I have also had, or currently have, the following: (please check all that apply) - Selected Choice Not applicable, none apply to me (N=3)		
1) Not applicable, none apply to me	3	.5
2) Missing	609	.995
Body Mass Index		
Weight (pounds) (N=612)		
1)70-120 pounds	146	23.9
2) 121-172 pounds	252	41.4
3) 173-229 pounds	192	31.4
4) 230-280 pounds	12	2.0
5) 281-370 pounds	10	1.9
BMI (N=612) Mean (22.5-normal);		
SD (8.19); Min (7.32-underweight), Max (61.07-obese)		

4.4 Results for Research Question #4

*Using the 4-item Morisky Medication Adherence Scale (MMAS-4), with regard to taking their high blood pressure medication, to what extent are they medication adherent (or scoring "yes" for adherent/good adherence with a score of 3-4 versus "no" for not adherent/poor adherence with a score of 0-4)?(***MMAS-4)**

Part IV: Morisky Medication Adherence Scale (MMAS-4). This study found that the short form of the Morisky Medication Adherence Scale (MMAS-4) had a Cronbach's Alpha of .587 (4 items) for a poor internal consistency. Among the sample (N=612), 73.9% of respondents reported that they forget to take high BP medication (N=452), 73.9% of respondents reported that they had problems remembering to take their BP medication (N=452), 71.4% of respondents reported that they sometimes stop taking BP medication when feeling better (N=437), and 77.1% of respondents reported stopping medication if they feel worse after taking it (N=471).

See Table 5.

Table 5. Morisky Medication Adherence Scale (MMAS-4) (N=612)

	N	%
1. Do you forget to take your high blood pressure medication? (N=612)		
No	160	26.1
Yes	452	73.9
2. Do you have problems remembering to take your high blood pressure medication? (N=612)		
No	160	26.1
Yes	452	73.9
3. When you feel better, do you sometimes stop taking your high blood pressure medicine? (N=612)		
No	175	28.6
Yes	437	71.4
4. Sometimes if you feel worse when you take your high blood pressure medicine, do you stop taking it? (N=612)		
No	141	23.0
Yes	471	77.1

Results for Research Question #5

With regard to three factors impacting high blood pressure medication adherence (i.e. following provider instructions for taking medication, maintaining regular contact with provider for management of high blood pressure, timely receipt of prescriptions and medications for taking medication on time), how do they rate their behavior for these factors (1-very poor to 6-excellent) for before the COVID-19 pandemic, during the COVID-19 pandemic—especially the years 2020-2021, and currently—especially the past three months? And were there any significant differences when comparing the time periods? **(3FI-HBPMA-BDP-C-9)**

Part V: Three Factors Impacting High Blood Pressure Medication Adherence—Before and During the Pandemic, and Currently (3FI-HBPMA-BDP-C-9). Three factors impacting high blood pressure medication adherence—(1) following instructions for taking medication, (2) maintaining regular contact with provider, and (3) uninterrupted receipt of medication—were examined for three time periods: i.e. (a) before the pandemic, (b) during the pandemic, and (c) currently (especially the past 3 months).

Three Factors or Behaviors for Time Period 1—Before the Pandemic

For the factor or behavior (1) of **following instructions** for taking medication for time period (a) of *before* the pandemic, the mean score was 4.01 (SD=1.043; Min=1, Max=6) for *good adherence.*

For the factor or behavior (2) of **maintaining regular contact** with the provider for time period (a) of *before* the pandemic, the mean score was 3.89 (SD=0.989; Min=1, Max=6) for *closest to good adherence.*

For the factor or behavior (3) of **uninterrupted receipt of medication** for the time period (a) of *before* the pandemic, the mean score was 3.91 (SD=.969; Min=1, Max=6) for *closest to good adherence.*

Three Factors or Behaviors for Time Period 2—During the Pandemic

For the factor or behavior (1) of **following instructions** for taking medication for time period (b) of *during* the pandemic, the mean score was 3.74 (SD=1.151, Min=1 Max=6) for *closest to good adherence.*

For the factor or behavior (2) of **maintaining regular contact** with the provider for time period (b) of *during* the pandemic, the mean score was 3.71 (SD=1.125; Min=1, Max=6) for *closest to good adherence.*

For the factor or behavior (3) of **uninterrupted receipt of medication** for the time period (b) of *during* the pandemic, the mean score was 3.74 (SD=1.134; Min=1, Max=6) for *closest to good adherence.*

Three Factors or Behaviors for Time Period 3—Currently/Past 3 Months

For the factor or behavior (1) of **following instructions** for taking medication for time period (c) of *currently or especially the past 3 months*, the mean score was 4.05 (SD=0.993; Min=1, Max=6) for *good adherence.*

For the factor or behavior (2) of **maintaining regular contact** with the provider for time period (c) of *currently or especially the past 3 months*, the mean score was 4.07 (SD=1.00; Min=2, Max=6) for *good adherence.*

For the factor or behavior (3) of **uninterrupted receipt of medication** for the time period (c) of *currently or especially the past 3 months*, the mean score was 4.04 (SD=1.017; Min=1, Max=6) for *good adherence.*

See Table 6.

Table 6. Three Factors Impacting High Blood Pressure Medication Adherence—Before and During the Pandemic, and Currently (N=612)

		N	%
I-Following Instructions for Time Period 1 (Before Pandemic)			
Rate extent to which you followed the instructions given to you by your medical provider for taking your high blood pressure medication BEFORE the COVID-19 pandemic (N=612).			
1	Very poor	5	0.8
2	Poor	36	5.9
3	Fair	146	23.9
4	Good	228	37.3
5	Very good	151	24.7
6	Excellent	44	7.2
7	Missing	2	0.3
(Mean following instructions before pandemic=4.01; SD=1.043; Min=1, Max6)			
I-Following Instructions for Time Period 2 (During Pandemic)			
2. Rate the extent to which you followed the instructions given to you by your medical provider for taking your blood pressure medication DURING the COVID-19 pandemic (especially the years 2020 and 2021) (N=612).			

1	Very poor	16	2.6
2	Poor	81	13.2
3	Fair	128	20.9
4	Good	246	40.2
5	Very good	101	16.5
6	Excellent	38	6.2
7	Missing	2	0.3

(Mean following instructions during pandemic=3.74; SD=1.151; Min=1, Max=6)

I-Following Instructions for Time Period 3 (Currently)

3. Rate the extent to which you followed the instructions given to you by your medical provider for taking your blood pressure medication CURRENTLY (especially in the PAST 3 MONTHS) (N=612).

1	Very poor	1	0.2
2	Poor	34	5.6
3	Fair	132	21.6
4	Good	256	41.8
5	Very good	141	23.0
6	Excellent	46	7.5
7	Missing	2	0.3

(Mean following instructions currently=4.05; SD=0.993; Min=1, Max=6)

II-Maintained Regular Contact for Time Period 1 (Before Pandemic)

4. Rate to what extent regular contact with your medical provider was maintained for the management of your high blood pressure BEFORE the COVID-19 pandemic (N=612).

a.	Very poor	5	0.8
1	Poor	45	7.4
2	Fair	143	23.4
3	Good	251	41.0
4	Very good	138	22.5
5	Excellent	23	3.8
6	Missing	7	1.1

(Mean contact with medical provider before the pandemic=3.89; SD=0.989; Min=1, Max=6)

II-Maintained Regular Contact for Time Period 2 (During Pandemic)

5. Rate to what extent regular contact with your medical provider was maintained for the management of your high blood pressure DURING the COVID-19 pandemic (especially in the years 2020 and 2021) (N=612).

1	Very poor	14	2.3
2	Poor	84	13.7
3	Fair	131	21.4
4	Good	236	38.6
5	Very good	113	18.5
6	Excellent	27	4.4
7	Missing	7	1.1

(Mean contact with medical provider during the pandemic=3.71; SD=1.125; Min=1, Max=6)

II-Maintained Regular Contact for Time Period 3 (Currently)

6. Rate to what extent regular contact with your medical provider was maintained for the management of your high blood pressure CURRENTLY (especially in the PAST 3 MONTHS) (N=612).

1	Very poor	0	0
2	Poor	30	4.9
3	Fair	145	23.7
4	Good	226	36.9
5	Very good	158	25.8
6	Excellent	46	7.5
7	Missing	7	1.1

(Mean contact with medical provider currently=4.07; SD=1.000; Min=2, Max=6)

III-Uninterrupted Receipt of Medication for Time Period 1 (Before Pandemic)

7. Rate to what extent you received your high blood pressure medication prescriptions and actual medication so you could take your medication on time without interruption BEFORE the COVID-19 pandemic (N=612).

1	Very poor	5	0.8
2	Poor	41	6.7
3	Fair	135	22.1
4	Good	265	43.3
5	Very good	133	21.7
6	Excellent	23	3.8
7	Missing	10	1.6

(Mean received medication on time before pandemic=3.91; SD=.969; Min=1, Max=6)

III-Uninterrupted Receipt of Medication for Time Period 1 (During Pandemic)

8. Rate to what extent you received your high blood pressure medication prescriptions and actual medication so you could take your medication on time without interruption DURING the COVID-19 pandemic (especially in the years 2020 and 2021) (N=612).

1	Very poor	13	2.1
2	Poor	79	12.9
3	Fair	140	22.9
4	Good	224	36.6
5	Very good	114	18.6
6	Excellent	32	5.2
7	Missing	10	1.6

(Mean received medication on time during the pandemic=3.74; SD=1.134; Min=1, Max=6)

III-Uninterrupted Receipt of Medication for Time Period 3 (Currently)

9. Rate to what extent you received your high blood pressure medication prescriptions and actual medication so you could take your medication on time without interruption CURRENTLY (especially in the PAST 3 MONTHS) (N=612).

1	Very poor	6	1.0
2	Poor	33	5.4

3	Fair	131	21.4
4	Good	229	37.4
5	Very good	169	27.6
6	Excellent	34	5.6
7	Missing	10	1.6

(Mean received medication on time currently=4.04; SD=1.017; Min=1, Max=6)

Paired T-tests Comparing the Three Factors or Behaviors for Three Time Periods.

The three factors or behaviors (1-*following instructions* to take medication, 2-*maintaining regular contact with the provider* for management of high blood pressure, and 3-*uninterrupted receipt of medication* so it was taken on time) were compared for the three time periods (i.e. before the pandemic, during the pandemic, and currently/especially past three months). This involved 9 paired t-tests with the Bonferroni Adjustment Significance (.05/9 p=.005) level of p < .005 with 8 of 9 comparisons being significantly different, as follows:

Significant Differences for Factor or Behavior 1 – Following Instructions

The mean score for following instructions to take medication was *significantly higher for before the pandemi*c (mean=4.01, SD=1.043) *versus during the pandemic* (mean=3.74, SD=1.151; t=6.230, df=609, p=<.001). Following instructions deteriorated from before the pandemic to during the pandemic.

The mean score for following instructions to take medication was *significantly higher currently* (mean=4.05, SD=.993) *versus during the pandemic* (mean =3.74, SD=1.151; t=-7.146, df=609, p= .001). Following instructions improved from during the pandemic to currently.

Significant Differences for Factor or Behavior 2 – Maintaining Regular Contact

The mean score for maintaining regular contact with the provider for management of high blood pressure was *significantly higher for before the pandemic* (mean =3.89, SD=.989) *versus during the pandemic* (mean=3.71, SD=1.125; t=3.533, df=604, p= .001). Maintaining regular contact deteriorated from before the pandemic to during the pandemic.

The mean score for maintaining regular contact with the provider for management of high blood pressure was *significantly higher for currently* (mean=4.07, SD=1.000) *versus during the pandemic* (mean =3.71, SD=1.125; t=-8.145, df=604, p= .001). Maintaining regular contact improved from during the pandemic to currently.

The mean score for maintaining regular contact with the provider for management of high blood pressure was *significantly higher for currently* (mean=4.07, SD=1.000) *versus before the pandemic* (mean =3.89, SD=.989; t=-4.072, df=605, p= .001). Maintaining regular contact became better currently than it was before the pandemic.

Significant Differences for Factor or Behavior 3 – Uninterrupted Receipt of Meds

The mean score for uninterrupted receipt of medication so it was taken on time was *significantly higher before the pandemic* (mean =3.91, SD=.969) *versus during the pandemic* (mean=3.74, SD=1.134; t=3.282, df=601, p=.001). Uninterrupted receipt of medication deteriorated from before the pandemic to during the pandemic.

The mean score for uninterrupted receipt of medication so it was taken on time was *significantly higher for currently* (mean=4.04, SD=1.017) *versus during the pandemic*

(mean=3.74, SD=1.134; t=-5.916, df=601, p=.001). Uninterrupted receipt of medication improved from during the pandemic to currently.

The mean score for uninterrupted receipt of medication so it was taken on time was *significantly higher for currently* (mean=4.04, SD=1.017) *versus before the pandemic* (mean =3.91, SD=.969; t=-2.763, df=601, p=.006). Uninterrupted receipt of medication became better currently than it was before the pandemic.

See Table 7.

Table 7. Paired T-Tests Comparing the Three Factors Impacting High Blood Pressure Medication Adherence for the Three Time Periods of Before the Pandemic, During the Pandemic, and Currently (N=612)

The 9 Comparisons

Factor or Behavior 1	**Mean**	**N**	**SD**	**T**	**dF**	**P**
I-Following Instructions				6.230	609	.001***
Before Pandemic	4.01	610	1.043			
During Pandemic	3.74	610	1.151			
I-Following Instructions				-1.039	609	.299
Before Pandemic	4.01	610	1.043			
Currently	4.05	610	.993			
I-Following Instructions				-7.146	609	.001***
During Pandemic	3.74	610	1.151			
Currently	4.05	610	.993			
Factor or Behavior 2						
II-Maintaining Regular Contact				3.533	604	.001***
Before Pandemic	3.89	605	.989			
During Pandemic	3.71	605	1.125			
II-Maintaining Regular Contact				-4.072	604	.001***
Before Pandemic	3.89	605	.989			
Currently	4.07	605	1.000			
II-Maintaining Regular Contact				-8.145	604	.001***
During Pandemic	3.71	605	1.125			
Currently	4.07	605	1.000			
Factor or Behavior 3						
III-Uninterrupted Receipt of Medication				3.282	601	.001***
Before Pandemic	3.91	602	.969			
During Pandemic	3.74	602	1.134			

III-Uninterrupted Receipt of Medication				-2.763	601	.006**
Before Pandemic	3.91	602	.969			
Currently	4.04	602	1.017			
III-Uninterrupted Receipt of Medication				-5.916	601	.001***
During Pandemic	3.74	602	1.134			
Currently	4.04	602	1.017			

*p<.05, **p<.01, ***p<.001
Bonferroni Adjustment Significance (.05/9), p=.005). Note: All p values above .005 are considered non-significant; and only those below .008 are considered statistically significant.

Results for Research Question #6

To what extent did they receive general social support (Scale A) and blood pressure management social support (Scale B) for each of the three time periods of before the COVID-19 pandemic, during the COVID-19 pandemic (especially the years 2020-2021), and currently (especially the past three months)? And were there any significant differences when comparing the time periods? **(PGSSS[A]-BPMSSS[B]-BP-DP-C-6)**

Part VI: Perceived General Social Support Scale (A) and Blood Pressure Management Social Support Scale (B)—For Before and During the Pandemic, and Currently (PGSSS[A]-BPMSSS[B]-BP-DP-C-6). Findings will be presented for each scale A and B, while covering three time periods: i.e., (a) before the pandemic, (b) during the pandemic, and (c) currently (especially the past 3 months).

Scale A – Perceived General Social Support – For 3 Time Periods

This scale permitted ratings of 1 to 5, allowing for mean scores. The mean social support for before the pandemic was 2.37 (SD=0.944; Min=1, Max=5) for closest to "I had at least 1 person like this in my life then" for low social support. The mean social support for during the pandemic was 2.32 (SD=0.916; Min=1, Max=5) for closest to "I had at least 1 person like this in

my life then." The mean social support for currently was 2.40 SD=0.898; Min=1, Max=5) for closest to "I had at least 1 person like this in my life then."

Scale B – Blood Pressure Management Social Support – For 3 Time Periods

This scale permitted yes (scored 1) or no (scored 0) ratings. For having "someone who helped to remind you about taking your high blood pressure medication, or gave you your medication, or helped by picking up your medication prescriptions, or helped you in some other way to manage your high blood pressure," some 90.7% (N=555) had this support before the pandemic, 86.3% (N=528) had such support during the pandemic, and 91.7% (N=561) had such support currently.

See Table 8.

Table 8. Perceived General Social Support and Medication Social Support Before the Pandemic, During the Pandemic, and Currently (N=612)

	N	*%*
Scale A: Perceived General Social Support—Before the Pandemic		
1.Indicate the extent to which you experienced SOCIAL SUPPORT in your life BEFORE the COVID-19 pandemic (N=612).		
1- I had no one like this in my life then.	117	19.1
2- I had at least 1 person like this in my life then.	219	35.8
3- I had at least 2 people like this in my life then.	194	31.7
4- I had 3-5 people like this in my life then.	65	10.6
5- I had 6 or more people like this in my life then.	5	0.8
Missing	12	2.0
(Mean social support before the pandemic=2.37; SD=0.944; Min=1, Max=5)		
Scale B: Blood Pressure Management Social Support—Before the Pandemic		
2.BEFORE the COVID-19 pandemic did you have someone who helped to remind you about taking your high blood pressure medication, or gave you your medication, or helped by picking up your medication prescriptions, or helped you in some other way to manage your high blood pressure? (N=612)		
1 No	45	7.4
2 Yes	555	90.7
3 Missing	12	2.0

Scale A: Perceived General Social Support—During the Pandemic

3.Indicate the extent to which you experienced SOCIAL SUPPORT in your life during the *COVID*-19 pandemic (especially in the years 2020 and 2021) (N=612).

1-	I had no one like this in my life then.	119	19.4
2-	I had at least 1 person like this in my life then.	234	38.2
3-	I had at least 2 people like this in my life then.	188	30.7
4-	I had 3-5 people like this in my life then.	55	9.0
5-	I had 6 or more people like this in my life then.	4	0.7
	Missing	12	2.0

(Mean social support during the pandemic=2.32; SD=0.916; Min=1, Max=5)

Scale B: Blood Pressure Management Social Support—During the Pandemic

4.DURING the COVID-19 pandemic (especially the years 2020 and 2021) did you have someone who helped to remind you about taking your high blood pressure medication, or gave you your medication, or helped by picking up your medication prescriptions, or helped you in some other way to manage your high blood pressure? (N=612)

1-	No	72	11.8
2-	Yes	528	86.3
3-	Missing	12	2.0

(Mean medication social support during the pandemic=0.88; SD=0.325; Min=0, Max=1)

Scale A: Perceived General Social Support—Currently

5.Indicate the extent to which you experienced SOCIAL SUPPORT in your life CURRENTLY (especially in the PAST 3 MONTHS). (N=612)

1-	I had no one like this in my life then.	83	13.6
2-	I had at least 1 person like this in my life then.	269	44.0
3-	I had at least 2 people like this in my life then.	178	29.1
4-	I had 3-5 people like this in my life then.	62	10.1
5-	I had 6 or more people like this in my life then.	8	1.3
	Missing	12	2.0

(Mean social support currently=2.40; SD=0.898; Min=1, Max=5)

Scale B: Blood Pressure Management Social Support—During the Pandemic

6.CURRENTLY (especially the PAST 3 MONTHS) did you have someone who helped to remind you about taking your high blood pressure medication, or gave you your medication, or helped by picking up your medication prescriptions, or helped you in some other way to manage your high blood pressure? (N=612)

2	No	39	6.4
6-	Yes	561	91.7
3	Missing	12	2.0

(Mean medication social support currently=0.94; SD=0.247; Min=0, Max=1)

Paired T-Tests Comparing Social Support for Three Time Periods

There were 3 paired t- test comparisons, using the Bonferroni Adjustment Significance (.05/3), p=.016) level of p < .016. No comparisons achieved statistical significance.

See Table 9.

Table 9. Paired T-Tests Comparing Perceived General Social Support for the Three Time Periods of Before the Pandemic, During the Pandemic, and Currently (N=612).

	Mean	**N**	**SD**	**T**	**DF**	**P**
Perceived General Social Support				1.378	599	.169
Before the Pandemic	2.37	600	.944			
During the Pandemic	2.32	600	.916			
Perceived General Social Support				-.848	599	.397
Before the Pandemic	2.37	600	.944			
During the Pandemic	2.40	600	.898			
Perceived General Social Support				-2.280	599	.023*
During the Pandemic	2.32	600	.916			
Currently	2.40	600	.898			

*p<.05, **p<.01, ***p<.001
Bonferroni Adjustment Significance (.05/3), p=.016). Note: All p values above .016 are considered non-significant; and only those below .016 are considered statistically significant.

Results for Research Question #7

What was their past-month perceived stress? **(PSS-4)**

Part VII: Perceived Stress Scale (PSS-4). The Perceived Stress Scale (PSS-4) had a Cronbach's Alpha that was so poor (.019) that it made the use of this scale in subsequent data analysis untenable; hence, only the first item was used in subsequent data analysis.

For the first item ("In the last month how often have you felt that you were unable to control the important things in your life ?" 48.2% of respondents sometimes felt that they were unable to control the important things in life (N=295).

Only the item # 1 variable will be used in subsequent data analyses.

See Table 10.

Table 10. Perceived Stress Scale (PSS4): Focus on Item One Only (N=612)

		N	*%*
*1.In the last month how often have you felt that you were unable to control the important things in your life? (N=612)			
1	Never	6	1.0
2	Almost never	85	13.9
3	Sometimes	295	48.2
4	Fairly often	165	27.0
5	Very often	48	7.8
6	Missing	13	2.1
2.In the last month, how often have you felt confident about your ability to handle your personal problems? (N=612)			
1	Never	3	0.5
2	Almost never	96	15.7
3	Sometimes	258	42.2
4	Fairly often	191	31.2
5	Very often	51	8.3
6	Missing	13	2.1
3.In the last month how often have you felt that things were going your way? (N=612)			
1	Never	8	1.3
2	Almost never	85	13.9
3	Sometimes	265	43.3
4	Fairly often	178	29.1
5	Very often	63	10.3
6	Missing	13	2.1
4.In the last month, how often have you felt difficulties were piling up so high that you could not overcome them? (N=612)			
1	Never	11	1.8
2	Almost never	88	14.4

3	Sometimes	278	45.4
4	Fairly often	174	28.4
5	Very often	48	7.8
6	Missing	13	2.1

*Due to poor Cronbach's Alpha the PSS-4 was deemed unusable in subsequent data analysis. However, just item one will be used going forward.

Results for Research Question #8

How did they rate their health care providers who treated them in the past year for high blood pressure with regard to level of cultural competence and discrimination when treating them? **(RHCP-CC-D-2)**

Part VIII: Rating Health Care Providers for Level of Cultural Competence and Discrimination (RHCP-CC-D-2). The Rating Health Care Providers for Level of Cultural Competence and Discrimination scale permitted two ratings, with results showing, as follows:

First, participants rated their providers' "*level of cultural competence when treating me for my high blood pressure*" a mean of 3.76 (SD=1.369; Min=1, Max=6) for *closest to a moderate level of cultural competence.* For example, 27.3% of respondents rated their providers as having a moderate level of cultural competence (N=167). Of note when combining the categories of (1) none, no cultural competence at all, (2) very low level of cultural competence, and (3) low level of cultural competence, findings showed 38% endorsed (N=232) these levels of cultural competence, as cause for concern.

Secondly, participants rated their providers' "level of discrimination when treating me for my high blood pressure" a mean of 2.85 (SD=1.261; Min=1, Max=6) for *closest to a moderate level of discrimination.* For example, 28.4% of respondents reporting a low level of discrimination (N=174). Of note, when combining the categories of (4) moderate level of

discrimination, (5) high level of discrimination, and (6) highest level of discrimination, findings showed 29.6% (N=181) endorsed these levels of discrimination, as cause for concern.

See Table 11.

Table 11. Rating Health Care Providers for Level of Cultural Competence and Discrimination (N=612)

		N	*%*
1. I rate my provider(s) level of cultural competence when treating me for my high blood pressure as follows (N=612):			
1	None, no cultural competence at all.	45	7,4
2	Very low level of cultural competence.	72	11.8
3	Low level of cultural competence.	115	18.8
4	Moderate level of cultural competence.	167	27.3
5	High level of cultural competence.	150	24.5
6	Highest level of cultural competence.	49	8.0
7	Missing	14	2.3
(Mean provider cultural competence=3.76; SD=1.369; Min=1, Max-6)			
2. I rate my provider(s) level of discrimination when treating me for my high blood pressure as follows (N=612):			
1	None, no discrimination at all.	101	16.5
2	Very low level of discrimination.	140	22.9
3	Low level of discrimination.	174	28.4
4	Moderate level of discrimination.	121	19.8
5	High level of discrimination.	49	8.0
6	Highest level of discrimination.	11	1.8
7	Missing	16	2.6
(Mean provider discrimination=2.85; SD=1.261; Min=1, Max=6)			

Results for Research Question #9

To what extent did they report perceiving discrimination by medical providers—including those who have provided treatment for their high blood pressure—in response to their personal demographics, intersecting identities, and appearance? **(PD-ID-A -II-9)**

Part IX: Perceived Discrimination by Medical Providers in Response to Personal Demographics, Intersecting Identities, Appearance (PD-ID-A -II-9). Regarding findings on the Perceived Discrimination by Medical Providers in Response to Personal Demographics, Intersecting Identities, Appearance scale**,** the mean score was 4.90 (SD=2.205l; Min=0, Max=8) *for a moderately high level of being discriminated against for closest to 5 (out of 8) aspects of their personal demographics, intersecting identity, or appearance*. More specifically, 85.3% for indicated for being Black or African American (N=522), 51.5% for gender (e.g. being a woman, man, transgender, non-binary) (N=315), 46.4% for being LGBTQ (N=284), 49.3% for being overweight/obese (N=302), 80.6% for skin color/tone (N=493), 66% for their hair (N=404), 63.2% for appearance (e.g., height, body features, clothing etc.) (N=387), and 33.5% for being a person with a disability (N=205).

See Table 12.

Table 12. Perceived Discrimination by Medical Providers in Response to Personal Demographics, Intersecting Identities, Appearance (N=612)

	N	%
(Mean perceived discrimination=4.90; SD=2.205l; Min=0, Max=8)		
The 8 Categories of Personal Demographic, Identity, or Appearance In Response to Which Patients Felt Discriminated Against by Providers		
1.Being Black or African American (N=612)		
0-No	73	11.9
1-Yes	522	85.3
Missing	17	2.8
2.Being a woman, a man, or because of your gender (transgender or non-binary) (N=612)		

0-No	280	45.8
1-Yes	315	51.5
Missing	17	2.8
3.Being LGBTQ+ (N=612)		
0-No	311	50.8
1-Yes	284	46.4
Missing	17	2.8
4.Being overweight or obese (N=612)		
0-No	293	47.9
1-Yes	302	49.3
Missing	17	2.8
5.My skin color/skin tone (N=612)		
0-No	98	16.0
1-Yes	493	80.6
Missing	21	3.4
6.My hair (N=612)		
0-No	187	30.6
1-Yes	404	66.0
Missing	21	3.4
7.My appearance (e.g., height, body features, clothing etc.) (N=612)		
0-No	204	33.3
1-Yes	387	63.2
Missing	21	3.4
8.Being a person with a disability (N=612)		
0-No	386	63.1
1-Yes	205	33.5
Missing	21	3.4

Results for Research Question #10

To what extent do they report experiencing medical mistrust? **(MMS-SF-4)**

Part VII: Medical Mistrust Scale—Short Form (MMS-SF-4). The Medical Mistrust scale had a low internal consistency with a Cronbach's alpha (4 items) of .587. The medical mistrust mean was 2.952 (SD=0.7605; Min=1; Max=5) for closest to a *moderate level of medical mistrust.* For example, 14.5% (n=89) strongly disagreed and 26.6% (N=163) disagreed with the

statement, “Black people are treated the same as people of other groups by doctors and health care workers.”

See Table 13.

Table 13. Medical Mistrust Scale—Short Form (N=612)

	N	%
Cronbach’s alpha (4 items) =.587 **(Mean medical mistrust=2.952; SD=0.7605; Min=1; Max=5)**		
1.Black people cannot trust doctors and healthcare workers (N=612)		
1. Strongly disagree	85	13.9
2. Disagree	204	33.3
3. Neither agree nor disagree	156	25.5
4. Agree	115	18.5
5. Strongly agree	32	5.2
6. Missing	22	3.6
2.Black people should be suspicious of information from doctor and healthcare workers (N=612)		
1. Strongly disagree	66	10.8
2. Disagree	188	30.7
3. Neither agree nor disagree	197	32.2
4. Agree	95	15.5
5. Strongly agree	44	7.2
6. Missing	22	3.6
3.Black people receive the same medical care from doctors and healthcare workers as people from other groups (N=612)		
1. Strongly disagree	79	12.7
2. Disagree	166	27.1
3. Neither agree nor disagree	187	30.6
4. Agree	109	17.8
5. Strongly agree	50	8.2
6. Missing	22	3.6
4.Black people are treated the same as people of other groups by doctors and healthcare workers (N=612)		
1. Strongly disagree	89	14.5
2. Disagree	163	26.6
3. Neither agree nor disagree	175	28.6
4. Agree	92	15.0
5. Strongly agree	71	11.6
6. Missing	22	3.6

Results for Research Question #11

During their interactions with medical providers—and specifically, during interactions when being treated for high blood pressure, to what extent did they experience microaggressions that seemed related to their being Black? **(REM-WHCP-5)**

Part IX: Ratings of Experiences of Microaggressions with Medical Providers (REM-WHCP-5). The Ratings of Experiences of Microaggressions with Medical Providers (REM-WHCP-5) scale had a Cronbach's alpha (5 items) of .868 for very good internal consistency. The mean score for experiencing microaggressions "that seemed related to you being Black" was 1.589 (SD=0.875; Min=0, Max=4) or between rating 1 "for never/not at all" and a rating 2 "for at least once," while closer to "at least once"— *as a low-moderate frequency.*

For example, the most common experience for 37.3% (N=228) that occurred "at least once" was for "Brief exchanges or brief interactions with a healthcare provider where you felt you were receiving the messages that were a put down, denigrating, or conveyed something negative – that seemed related to you being Black." The second most common experience for 33.7% (N=206) that occurred "at least once" was for "An excluding communication from a health care provider, that excluded you, cancelled out your existence, made you invisible, or ignored the reality of your thoughts, feelings, and existence-that seemed related to your being Black." The third most common experience for 33.5% (N=205) that occurred "at least once" was for "A verbal attack from a healthcare provider that was hurtful and caused mental or emotional pain, whether this involved name-calling, or something said was insulting-that seemed related to your being Black."

See Table 14.

Table 14. Ratings of Experiences of Microaggressions with Medical Providers That Seemed Related to Being Black (N=612)

	N	%
Cronbach's alpha (5 items) =.868		
(Mean provider microaggressions=1.589; SD=0.875; Min=0, Max=4)		
1.Brief exchanges or brief interactions with a healthcare provider where you felt you were receiving the messages that were a put down, denigrating, or conveyed something negative – that seemed related to you being Black (N=612)		
1. Never/Not at all	82	13.4
2. At least once	228	37.3
3. More than once	191	31.2
4. A few times	56	9.2
5. Many times	30	4.9
6. Missing	25	4.1
2.A verbal attack from a healthcare provider that was hurtful and caused mental or emotional pain, whether this involved name-calling, or something said was insulting-that seemed related to your being Black (N=612)		
1. Never/Not at all	99	16.2
2. At least once	205	33.5
3. More than once	171	27.9
4. A few times	75	12.3
5. Many times	37	6.0
6. Missing	25	4,1
3.A nonverbal attack from a healthcare provider or some behavior that was hurtful and caused mental or emotional pain, whether this involved someone avoiding contact and interaction, or avoiding communication, or some act of discrimination-that seemed related to your being Black (N=612)		
1. Never/Not at all	92	15.0
2. At least once	180	29.4
3. More than once	182	29.7
4. A few times	97	15.8
5. Many times	36	5.9
6. Missing	25	4.1
4.An insulting communication from a healthcare provider that conveyed rudeness and insensitivity and involved put downs or something demanding being said-that seemed related to you being Black (N=612)		
1. Never/Not at all	103	16.8
2. At least once	181	29.6
3. More than once	175	28.6
4. A few times	92	15.0
5. Many times	36	5.9
6. Missing	25	4.1

5.An excluding communication from a health care provider, that excluded you, cancelled out your existence, made you invisible, or ignored the reality of your thoughts, feelings, and existence-that seemed related to your being Black (N=612)

1. Never/Not at all	92	15.0
2. At least once	206	33.7
3. More than once	195	31.9
4. A few times	63	10.3
5. Many times	31	5.1
Missing	25	4.1

Results for Research Question #12

Given the opportunity for a dichotomous self-classification for consistency of adherence to medication for high blood pressure treatment, into which of two groups did they self-classify—(Group A self-classification = YES, I am medication non-adherent; or Group B self-classification = NO, I am not medication non-adherent)? And, what were the significant predictors of a Group A self-classification (YES, I am medication non-adherent)? **(DSC-CAM-HBPT-1)**

Part XII: Dichotomous Self-Classification for Consistency of Adherence to Medication for High Blood Pressure Treatment (DSC-CAM-HBPT-1). Findings with the Dichotomous Self-Classification for Consistency of Adherence to Medication for High Blood Pressure Treatment scale showed that 49.3% (N=302) self-classified as medication non-adherent and 46.6% (N=285) classified as medication adherent.

See Table 15.

Table 15. Dichotomous Self-Classification for Consistency of Adherence to Medication (N=612)

	N	*%*
1-If I only had two choices, overall, I would place myself in the following group:		
A: Medication Non-Adherent Group	302	49.3
A group THAT DOES NOT CONSISTENTY OR ALWAYS TAKE their prescribed high blood pressure medication as they have been advised to for the treatment of high blood pressure		
B: Medication Adherent Group	285	46.6
A group THAT DOES CONSISTENTLY OR ALWAYS TAKES their prescribed high blood pressure medication as they have been advised to for the treatment of high blood pressure		
Missing	25	4.1

Results for Research Question #13

Given the opportunity for a dichotomous self-classification for experiences of racism and/or discrimination impacting their engagement with providers in terms of their willingness to regularly go and get treated by medical providers (i.e. Group A self-classification =YES, racism/discrimination has impacted my engagement with providers; or Group B self-classification =NO, racism/discrimination has not impacted my engagement with providers)? And, what were the significant predictors of a Group A self-classification (YES, racism/discrimination has impacted my engagement with providers)? **(DSC-ERD-IEMP-1)**

Part XIII: Dichotomous Self-Classification for Experiences of Racism or Discrimination Impacting Engagement with Medical Providers (DSC-ERD-IEMP-1)

Findings with the Dichotomous Self-Classification for Experiences of Racism or Discrimination Impacting Engagement with Medical Providers scale showed that 64.5% (N=395) indicated "YES, racism/discrimination has impacted my engagement with providers," while 31% (N=190) indicated "NO, racism/discrimination has not impacted my engagement with providers."

See Table 16.

Table 16. Dichotomous Self-Classification for Experiences of Racism or Discrimination Impacting Engagement with Medical Providers (DSC-ERD-IEMP-1) (N=612)

	N	%
1. If I had only 2 choices, overall, I would place myself in the following group:		
A: YES, racism/discrimination has impacted my engagement with providers A group THAT HAS experienced racism and/or discrimination SO THAT IT IMPACTED my willingness to regularly go and get treated by medical providers.	395	64.5
B. NO, racism/discrimination has not impacted my engagement with providers A group THAT HAS NOT experienced racism and/or discrimination SO THAT IT IMPACTED my willingness to regularly go and get treated by medical providers.	190	31.0
Missing	27	4.4

Results for Research Question #14

What were significant predictors for the following three outcome variables specifically for (1) being medication adherent as measured by the Morisky Medication Adherence Scale, (2) self-classifying as medication adherent (no for not being medication non-adherent/or I am medication adherent), and (3) self-classifying as (yes) having experiences of racism or discrimination impact engagement with medical providers?

Part IV: Morisky Medication Adherence Scale (MMAS-4)
This is the study outcome variable/dependent variable # 1.
Part XII: Dichotomous Self-Classification for Consistency of Adherence to Medication for High Blood Pressure Treatment (DSC-CAM-HBPT-1)
This is the study outcome variable/dependent variable # 2.
Part XIII: Dichotomous Self-Classification for Experiences of Racism or Discrimination Impacting Engagement with Medical Providers (DSC-ERD-IEMP-1)
This is the study outcome variable/dependent variable # 3

The following **three study outcomes variables** of interest were investigated, using **backward stepwise binomial logistic regression**, while controlling for socially desirable responses:

(1) **being medication adherent as measured by the Morisky Medication Adherence Scale** (or scoring "yes" for adherent/good adherence with a score of 3-4 versus "no" for not adherent/poor adherence with a score of 0-4)

(2) **self-classifying as medication adherent** (or scoring "no" for not being medication non-adherent/or I am medication adherent versus indicating "yes" for being medication non-adherent), and

(3) **self-classifying for racism/discrimination having impacted engagement with providers** (or scoring "yes" for racism/discrimination impacted my engagement with providers versus "no" racism has not impacted my engagement with providers)

The following **21** independent variables were explored via backward stepwise binomial logistic regression analysis, while controlling for socially desirable responses: 1-gender (yes/no—dichotomous variable); 2-partner (yes/no—dichotomous variable); 3-if has/had COVID

(yes/no—dichotomous variable); 4-participant age (continuous variable); 5-number of children (continuous variable); 6-skin color (continuous variable); 7-annual household income (continuous variable); 8-level of education (continuous variable); 9-number of years since diagnosed with hypertension (continuous variable); 10-number of chronic medical conditions (continuous variable); 11-Body Mass Index, BMI (continuous variable); 12-factor or behavior #1 of following instructions provided by the medical provider—current time period (continuous variable); 13-factor or behavior #2 of maintaining regular contact with provider—current time period (continuous variable); 14-factor or behavior # 3 of uninterrupted receipt of medication – current time period (continuous variable); 15-general perceived social support—current time period; 16-medication social support –current time period (continuous); 17-Perceived Stress Scale item # 1 – unable to control important things in life (continuous variable); 18-level of provider cultural competence (continuous variable); 19-level of provider discrimination in response to demographics, identity, appearance (continuous variable); 20-level of medical mistrust (continuous variable); 21-extent of provider microaggression for being Black (continuous variable).

Backward Stepwise Binomial Logistic Regressions. The model began with the above list of 21 independent variables in one regression model. Each time the model was re-run, the variable with the weakest association with the outcome variable was removed. Using the $p. < .05$ level of statistical significance, the backward stepwise program repeated the elimination process, doing so until only those variables that were statistically significant were left in the regression model.

Outcome Variable 1

The backward stepwise binomial logistic regression findings for predictors of **outcome variable 1 of being medication adherent as measured by the Morisky Medication Adherence Scale** (or scoring "yes" for adherent/good adherence with a score of 3-4 versus "no" for not adherent/poor adherence with a score of 0-2) follow. While controlling for social desirability, the backward stepwise binomial logistic regression found that scoring "yes" for **being adherent/good adherence on the Morisky Medication Adherence Scale** was significantly predicted by the following:

- **Darker skin color** (B=-.572, P=<.001)
- **Lower BMI** (B=-.052, P=.005)
- **Less** provider discrimination for demographics, identity, appearance (B=-.345, P=<.001)
- **Less** frequent provider microaggressions for being Black (B=-.611, P=<.001)

See Table 17.

Table 17. Backward Stepwise Binomial Logistic Regression Results for Significant Predictors of Good Adherence on the Morisky Medication Adherence Scale--Controlling for Social Desirability (N=612)

Variables	B	SE	Wald	df	P	OR	Lower	Upper
Darker Skin Color	0.572	0.149	14.697	1	.001***	1.771	1.322	2.372
Lower Body Mass Index	-0.052	0.019	7.86	1	0.005**	0.949	0.915	0.984
Less Provider Discrimination towards Demographics, Identity	-0.345	0.059	34.132	1	.001***	0.708	0.631	0.795
Less Provider Micro Aggressions	-0.611	0.153	15.936	1	.001***	0.543	0.402	0.733

*p<.05, **p<.01, ***p<.001; *X2=2.708 (1), p=.100*

Outcome Variable 2

The backward stepwise binomial logistic regression findings for predictors of **outcome variable 2 of self-classifying as medication adherent** (or scoring "no" for not being medication non-adherent/or I am medication adherent versus indicating "yes" for being medication non-adherent) follow. While controlling for social desirability, the backward stepwise binomial logistic regression found that significant predictors of **self-classifying as medication adherent** were, as follows:

- **Yes,** has a partner (B=.579, P=.009)
- **Younger** age (B=-.033, P=.006)
- **Better** at following instructions for taking medication—current time period (B=.254, P=.014)
- **More/higher** level of general perceived social support –current time period (B=.291, P=.005)
- **Higher** rating of provider cultural competence (B=.263, P=.001)
- **Less** provider discrimination for demographics, identity, appearance (B= -.130, P= .008)
- **Less** frequent provider microaggressions for being Black (B=-.522, P=<.001)

See Table 18.

Table 18. Backward Stepwise Binomial Logistic Regression Predicting Self-Classification as Medication Adherent – Controlling for Social Desirability (N=612)

							95% CI	
Variables	B	S.E.	Wald	df	P	OR	Lower	Upper
Yes Partner	0.579	0.223	6.738	1	.009**	1.784	1.152	2.761
Younger Age	-0.03	0.012	7.506	1	.006**	0.968	0.945	0.991
Better at following Med Instructions, Current	0.254	0.103	6.041	1	.014*	1.289	1.053	1.578
More Social Support, Current	0.291	0.104	7.846	1	.005**	1.338	1.091	1.639
Higher Provider Cultural Competence	0.263	0.08	10.818	1	.001***	1.301	1.112	1.522
Lower Provider Discrimination towards Demographics, Identity	-0.13	0.049	7.086	1	.008**	0.878	0.798	0.966
Less Frequent Provider Micro Aggressions	-0.55	0.115	22.9	1	.001***	0.576	0.459	0.722

*p<.05, **p<.01, ***p<.001; X2=-1.354 (1), p=.245

Outcome Variable 3

The backward stepwise binomial logistic regression findings for predictors of **outcome variable 3 of self-classifying for racism/discrimination having impacted engagement with providers** (or scoring "yes" for racism/discrimination impacted my engagement with providers versus "no" racism has not impacted it) follow. While controlling for social desirability, the backward stepwise binomial logistic regression found that significant predictors of **self-classifying for racism/discrimination having impacted engagement with providers** were**:**

- **Yes,** had COVID (B=.863, P=.005)
- **Older** age (B=.034, P=.017)
- **More** years diagnosed with hypertension (B=.367, P=<.001)
- **More** chronic medical conditions (B=.325, P=.039)
- **Higher** BMI (B=.046, P=.001)
- **Lower** medication social support—current time period (B= -1.156, P= 0.15)
- **More** provider discrimination for demographics, identity, appearance (B=.237, P=.019)
- **Higher** medical mistrust (B=.381, P=.038)
- **Less** frequent provider microaggressions for being Black (B=.679, P=<.001)

See Table 19.

Table. 19. Backward Stepwise Binomial Logistic Regression Predicting Self-Classification for Racism/Discrimination Impacted Engagement with Providers – Controlling for Social Desirability (N=612)

Variables	B	S.E.	Wald	df	P	OR
Yes, Had COVID19	0.863	0.31	7.743	1	.005**	2.37
Older Age	0.034	0.014	5.724	1	.017*	1.035
More years with Hypertension	0.367	0.109	11.342	1	.001***	1.444
More Chronic Medical Conditions	0.325	0.157	4.261	1	.039*	1.384
Higher Body Mass Index	0.046	0.014	10.507	1	.001***	1.048
Lower Medication Social Support, currently	-1.156	0.474	5.959	1	.015*	0.315
More Provider Discrimination for Demographics, Identity, Appearance	0.237	0.101	5.475	1	.019*	1.267
Higher Medical Mistrust	0.381	0.184	4.3	1	.038*	1.464
More Provider Micro Aggressions	0.679	0.151	20.176	1	.001***	1.973

*p<.05, **p<.01, ***p<.001; X2=161.827 (10), p=<.001

4.2 Conclusion

This chapter presented the results of data analyses. The next chapter, chapter V, will present a discussion results, implications and recommendations, as well as limitations and a final conclusion.

Chapter V: DISCUSSION, IMPLICATIONS, RECOMMENDATIONS, LIMITATIONS AND CONCLUSION

This chapter will present a discussion of findings, as well as implications and recommendations. The limitations of this study and the final conclusion will also be included in this chapter**.**

5.1 Discussion of Findings on Demographic Characteristics

The study findings are most comparable to other COVID-19 pandemic era online studies that used 100% Black convenience samples recruited via social media campaigns as cross-sectional investigations, as was the present study. In the present study with data collected in the Spring of 2023, the study sample (N=612) was 100% Black, 44.3% female (N=271), 54.7% male (N=335) with a mean age of 37 years (SD=8.822, Min=23; Max=65). Their skin color was a mean of 5.64 (SD=1.351, Min=1; Max= 7) for between "medium to dark" and "dark." Some 93.6% were U.S. born, 75% were married (N=459), and 87.6% had children (N=535). The mean household income was $50,000 - $99,999 (SD=2.428; Min =1, Max=11)—with a full 99.6% employed (N=609). The mean education level was between "some college, no degree" and "Associate degree/Technical training). Similarly, using the same demographics and background scale as in this study, Radcliffe's (2023) conducted a pandemic-era study on knowledge of physical activity and dietary intake guidelines with data collection in Spring of 2023 and obtained a 100% Black nearly as large sample (N=470) with 53% female and 47% male with a mean age of 33 years; the sample had a mean skin color of 5.44, which was between "medium to dark" and "very dark." For Radcliffe (2023),

similar to the present study, 96.6% were U.S. born; and 50.0% were married, and 60% (n = 282) had children. Radcliffe's (2023) sample had the same mean annual household income and same mean education level as in the present study—being highly comparable. This will support a forthcoming comparison of findings on health variables and social support.

Two other pandemic-era studies that collected data in Spring 2021 are worth a special focus for comparisons to the present study, as several measures were also used in those studies. For example, Williams-Gunpot (2021) conducted a study on COVID-19 knowledge with a 100% Black (N=188) sample that was comparatively gender imbalanced versus the present study; and had an older sample—with a mean age of 43 years; and, this sample had a higher mean education level for between a bachelor's and a master's degree versus what was found in the present study. Also, Hall (2021) conducted a study with older lesbians in Spring 2021 with a focus on their experiences of perceived stress, disparities in healthcare service delivery, discrimination, and microaggressions with healthcare providers; that sample was older, 100% Black, and mostly lesbian and female (N=118) where all were over the age of 50; and, that sample had a mean education level for between a bachelor's and a master's degree. The Williams-Gunpot (2021) study is important for a forthcoming comparison of findings on social support, medical mistrust, and microaggression. Also, the Hall (2021) study permits a forthcoming comparison of findings for social support, perceived stress, provider cultural competence, healthcare providers' discrimination based on demographic/ identity/ appearance factors, and provider's microaggressions.

When evaluating the findings on the subsequent survey parts that the present study used, it is worth keeping in mind that the sample had a moderate level of social desirability (mean= 5.84, SD = 2.312; Min=0, Max=10), being essentially the same as Radcliffe (2023)

who found a moderate level of social desirability (mean=5.63 (SD = 2.865, min= 0, max = 10), for example.

Discussion of Findings on Physical Health

As a pandemic era study, it is noteworthy that 85.8% (N=525) endorsed "yes," for "I have now, or had COVID-19 in past 2 years," and 36.3 % (N=222) endorsed "yes" for "I currently have, or had, long COVID-19. Radcliffe (2023) reported that a somewhat lower 68.5% (n=322) have now, or had COVID-19 in past 2 years; and, a somewhat lower 20.9% (n = 98) currently have now or had long COVID-19.

The present study found a mean Body Mass Index (BMI) of 22.5 (SD = 8.19; Min=7.32, Max=61.07) for a healthy weight. Similarly, Radcliffe (2023) found a BMI mean of 24.04 for healthy weight (Min= 7.14, Max=68.65, SD=9.25).

In the present study with adults with hypertension, the 5 screening questions for study inclusion necessitated answering "yes" to the following 2 questions: 3-Have you been receiving treatment for high blood pressure or hypertension for a *minimum of the past 5 years*, or *at least since the year 2018*?; and, 4-Have you been prescribed medication specifically for your high blood pressure, or hypertension? Surprisingly, only 79.9% (N=489) indicated having currently or having had "hypertension, high blood pressure, heart disease. This raises the question as to whether or not data analyses would have been any different if the those who did not check off having hypertension or high blood pressure were excluded.

Also, in the present study 11.8% indicated a history of stroke (N=72), 21.9% had a prior heart attack (N=134), 21.6% reported diabetes (N=132), and 14.7 % reported obesity (N=90). Consider how Radcliffe (2023) found, in a study drawing a convenience sample where the topic

was physical activity and dietary intake guidelines, prevalent conditions were hypertension (26%), overweight (29,1%), obesity (24.9%), diabetes (30.2%), a prior heart attack (18.5%), and a history of stroke (12.3%).

Discussion of Findings on Medication Adherence—Using Two Approaches

Medication adherence was examined in more than one way in the present study. First, medication adherence was examined using the long-standing Morisky Medication Adherence Scale (MMAS-4). Using the Morisky Medication Adherence Scale, 73.9% reported that they forget to take high BP medication (N=452), 73.9% of respondents reported that they had problems remembering to take their BP medication (N=452), 71.4% of respondents reported that they sometimes stop taking BP medication when feeling better (N=437), and 77.1% of respondents reported stopping medication if they feel worse after taking it (N=471). This study found a high prevalence of medication non-adherence with over 70% indicating non-adherence on the four dimensions captured by the four items of the Morisky Medication Adherence Scale.

Daramola (2008) conducted a study with a sample of hypertensive African Americans (N=134) where participants had a higher (than in the present study) mean age of 64 years (SD=12.88), and ages ranging from 27 to 88. Daramola (2008) also used the Morisky Medication Adherence Scale, however, it was a version with 9 scale items that permitted classifications for low adherers, medium adherers, and high adherers. Daramola (2008) found that 68.7% (n=92) scored as low adherers, 29.8% (n=40) scored as medium adherers, and 1.5% (n=2) scored as high adherers. Thus, as in the present study, there were similar high rates for non-adherence in the Daramola (2008) study. Pandley et al (2015) found low adherence scores (<6) in 26% of patients. Schoenthaler et al. (2009) also used the Morisky Medication Adherence Scale with (N=438)

African Americans with hypertension and found 55% were medication non-adherent, as a rate lower than in the present study.

Secondly, the present study examined medication adherence by using a self-classification into one of two groups, as follows: (a) a medication non-adherence group (49.3%, N=302) who selected the option that they did not consistently or always take their prescribed high blood pressure medication as they have been advised to for the treatment of high blood pressure; and, (b) a medication adherent group (46.6%, N=285) who selected the option that they did consistently do so. Using this classification system, this study's 49.3% being medication non-adherent is similar to the Schoenthaler et al. (2009) finding of 55% who were medication non-adherent.

Using these two methods of investigating medication adherence, this study found, on the one hand, that over 70% indicated non-adherence on the four dimensions captured by the four items of the Morisky Medication Adherence Scale; while, on the other hand, approximately 50% self-classified into a medication non-adherent group. This study contributes a self-classification system for being adherent or non-adherent to medication, adding to options for investigating medication adherence.

Discussion of Findings of Three Factors Impacting High Blood Pressure Medication Adherence—Before and During the Pandemic, and Currently

Nozato, et al. (2022) emphasized how "the COVID-19 pandemic has disrupted our daily life, restricted access to healthcare, and altered some of the conventional management of hypertension" (p. 2). In the present study, in search of potential COVID-19 impacts on adherence for taking high blood pressure medication, this study focused on three factors or

behaviors across three time periods (i.e. before the pandemic, during the pandemic, and currently/especially past three months)—using multiple paired t-tests.

First, for the factor or behavior of *following instructions for how to take their high blood pressure medication*, findings indicated that the patients deteriorated in the extent to which they followed instructions for taking their medication from the pre-pandemic level to their behavior during the pandemic; and, that their current behavior of following instructions had improved from during the pandemic. This suggested resilience or bouncing back from the negative impact of the pandemic with a return to pre-pandemic levels for following instructions for how to take their high blood pressure medication. These differences were anticipated.

Second, for the factor or behavior of *maintaining regular contact with the provider for management of high blood pressure*, the patients in the sample deteriorated in this behavior from before the pandemic to during the pandemic; and, their behavior for doing this had improved currently, in comparison to during the pandemic; yet, their current behavior for maintaining regular contact with their provider was significantly better than before the pandemic. These differences were anticipated—except for current behavior for maintaining regular contact with their provider being better than before the pandemic. The findings suggested *not only* resilience or bouncing back from the negative impact of the pandemic with a return to pre-pandemic levels for maintaining regular contact with the provider for management of high blood pressure; *but also* suggested that there were potentially some positive lessons from which they currently benefit regarding ensuring the maintenance of provider contact despite obstacles (e.g. pandemic).

Third, for the factor or behavior of *having uninterrupted receipt of medication so it was taken on time*, they deteriorated in this factor from before the pandemic to during the pandemic; and, their behavior for doing this had improved currently, in comparison to during the pandemic;

yet, their current experience of having uninterrupted receipt of medication was significantly better than before the pandemic. These differences were anticipated—except for their current experience of having uninterrupted receipt of medication being significantly better than before the pandemic. This suggested *not only* resilience or bouncing back from the negative impact of the pandemic with a return to pre-pandemic levels of having uninterrupted receipt of medication so it was taken on time; *but also* suggested that there were potentially some positive lessons learned from which they currently benefit regarding the importance of having uninterrupted receipt of medication despite obstacles (e.g. pandemic). For example, having learned that if there is an emergency like a pandemic with shut-downs, it is important to always have one's medication on hand.

The findings may be contextualized by the work of Ishmail et al. (2021) and their focus on how the interruption in health-related services because of the COVID-19 pandemic created interruptions in access to both primary health care and pharmacy services that hindered care for people with chronic diseases. This included access to vital medications and health resources. Ishmail et al. (2021) found via a Web-based survey (N=1103) that 51% experienced a medication-related problem, 19.6% problems obtaining one or more medications due to provider office closures during the pandemic, 31.7% reported forgetting or failing to take one or more of their medications; and over 50% stated worsening symptoms of their chronic conditions during the pandemic—likely due to problems with access.

In the present study, during the pandemic, 36.7% rated their following instructions given to them by their medical provider as very poor, poor, or fair. Also during the pandemic 37.4% rated as very poor, poor, or fair their maintaining regular contact with their medical provider for the management of their high blood pressure. And, during the pandemic 37.9% rated as very

poor, poor, or fair their receiving their high blood pressure medication prescriptions and actual medication so they could take it medication on time without interruption. This suggests that over one third of the sample suffered negative impacts during the pandemic that may have been related to pandemic-related closures, emphasis on social distancing, and warnings for those with chronic diseases to especially avoid COVID-19 transmission. Nozato, et al. (2022) cautioned that there is a need to find a "balance between taking measures to prevent infection, and at the same time maintaining individual access to medical care and activity" in a "new normal" era (p.4). The present study's findings emphasize the importance of this cautionary statement.

Discussion of Findings on Social Support and Medication Social Support

The present study had findings for both (a) *perceived general social support,* and (b) blood pressure management social support or *medication social support*—while examining three time periods (before the pandemic, during the pandemic, currently).

First, for *perceived general social support* the paired t-tests showed there were no statistically significant differences across the three time periods for social support—with participants reporting in Spring 2023 a mean closest to the category, "I had at least 1 person like this in my life then" for low social support This finding was not anticipated.

On the other hand, Hall (2021) used the same tool at an earlier point in the pandemic, collecting data in Spring 2021, while finding that older Black lesbians had a higher level of social support for currently, indicating having "at least 2 people like this in my life." Williams-Gunpot (2021) also found earlier in the pandemic with data collected Spring 2021 that the Black adult sample reported a higher level of social support than in this study for currently: i.e. between having "at least two people" and "at least 3-5 people."

Also, in contrast to the present study, while also having an all-Black sample (N=470), Radcliffe (2023) found participants had closer to "2 people like this in my life" for all time periods, including currently. Unlike the present study, Radcliffe (2023) also found statistically significant differences when comparing all the time periods for level of social support, while using the same research measure with data collected in the same time-frame as this study: i.e. Spring 2023. More specifically, Radcliffe (2023) found significant: increases in social support during the pandemic versus before the pandemic; increases in social support for currently compared to before the pandemic; and increases in social support for currently compared to during the pandemic. Compared to the present study, Radcliffe (2023) found what appeared to be the use of social support as a coping mechanism that increased during the stress of the pandemic—with those increases continuing post-pandemic.

Second, for blood pressure management social support or *medication social support*, scoring permitted yes (scored 1) or no (scored 0) ratings for the three time periods in response to a prompt (i.e. "someone who helped to remind you about taking your high blood pressure medication, or gave you your medication, or helped by picking up your medication prescriptions, or helped you in some other way to manage your high blood pressure"). Findings showed that 90.7% had such medication social support before the pandemic, 86.3% had it during the pandemic, and 91.7% had it currently. There appeared to be a slight decline in receipt of medication social support during the pandemic, while medication social support rebounded post-pandemic to the pre-pandemic level.

This study's finding of no increase in *general perceived social support* during the pandemic, and a decline in receipt of *medication social suppor*t may reflect what Burnier et al. (2022) discussed as the many difficulties in hypertension management patients faced during the

COVID-19 pandemic. This may have been due to fear of contagion and major interference with the management of chronic diseases such as hypertension (Burnier et al., 2022). Avoiding others (including members of one's family who could transmit COVID-19) and social distancing for the present study sample may have led to no increase in social support during the pandemic and a decline in medication social support. Moreover, "hypertension was initially considered as a major risk factor for the development of a COVID-19 infection," being viewed as increasing the susceptibility to the virus and leading to a more severe "disease course of COVID19 and poorer outcome including higher mortality rates" (Burnier et al., 2022, p. 47). It is possible that the dissemination of such messages and the disproportionate mortality rates for Blacks early in the pandemic led the adults in this sample to take seriously the initial lockdown, need to socially distance, and even socially isolate—such that there was no increase in their use of social support during the pandemic; and even a decline in medication social support during the pandemic. In support of this analysis, Roth et al (2022) discussed changes in health care-seeking behavior among cardiovascular patients during the pandemic.

Discussion of Findings on Perceived Stress

Hall (2021) used the same 4-item version of the Perceived Stress Scale (PSS-4), finding adequate internal constancy (i.e. Cronbach's Alpha of 0.749) and a low-moderate past month level of stress (mean=1.17, min=.00, max=3, SD=0.699). In contrast, the present study found that the PSS-4 had a Cronbach's Alpha that was so poor (.019) that it could not be used in subsequent data analyses. Instead, only the first item was used: i.e., "In the last month how often have you felt that you were unable to control the important things in your life ?" Some 48.2% endorsed that they "sometimes" felt that they were unable to control the important things in life. For this same first

item, Hall (2021) found that 34.2% endorsed this item with "sometimes"—being somewhat lower stress than this study's hypertensive sample that was at greater risk for morbidity and mortality during the pandemic. Som (2023) had a sample (N=831) of Asian adults who participated in an online survey on Asian hate, hate crimes, and anti-Asian microaggressions, while also finding the PSS-4 had such poor internal consistency (i.e., Cronbach's Alpha of .349) that it could not be used in subsequent data analysis; instead the same first item was used, finding 26.5% endorsed "sometimes" they were unable to control the important things in their life; again, this Asian sample appeared to have less stress than the present study's at-risk (i.e. especially during the pandemic) hypertensive sample of Black adults.

Discussion of Findings on Providers' Cultural Competence and Discrimination

In the present study, The Rating Health Care Providers for Level of Cultural Competence and Discrimination scale permitted two ratings. First, for providers' "*level of cultural competence when treating me for my high blood pressure*"-- finding a mean of 3.76 (SD=1.369; Min=1, Max=6) for *closest to a moderate level of cultural competence;* and when combining the lowest ratings of (1) none, no cultural competence at all, (2) very low level of cultural competence, and (3) low level of cultural competence, findings showed 38% endorsed (N=232) these levels of cultural competence, as cause for concern.

In comparison, using an earlier version of this measure with the same 6-point likert scale, Hall (2021) found that her sample of older Black lesbians rated their health care providers' level of cultural sensitivity and competence—given their sexual orientation—as *closest to very good* (mean= 4.70, min=1, max=6, SD=1.182); and, combining the worse ratings of very poor, poor, and fair some 17.8% endorsed these. Hall (2021) found providers' sensitivity and cultural

competence given their race was between good to very good (mean=4.57, min=1, max=6, SD=1.178); and, combining the worse ratings of very poor, poor, and fair some 18.6% endorsed these ratings.

The difference in ratings between this study and those in Hall (2021) may reflect the lack of males in the Hall (2023) sample that was female and older (> age 50)—with older females potentially having greater experience in selecting their primary care providers to avoid those with less cultural sensitivity and competence. The present study was 54.7% male, and Black males may face greater discrimination from providers who may also be perceived as having less cultural competence. Perhaps the older lesbians were more experienced in selecting providers who had more cultural competence training than the younger sample in the present study. In the present study the mean age was 37 years. Vella et al. (2022) emphasized the impact of cultural competence training obtained by health professionals upon patient outcomes. Positive impacts were noted via healthcare providers' reports that cultural competence training was perceived as beneficial. Improvements in communication skills were reported and some patients reported improvements in the healthcare providers' cultural competence.

A First Measure of Discrimination

In total, the present study had three measures addressing perceptions of provider discrimination. Also arising from The Rating Health Care Providers for Level of Cultural Competence and Discrimination scale, was a measure of provider discrimination. Participants provided a rating of their providers' "*level of discrimination when treating me for my high blood pressure*," finding a mean of 2.85 (SD=1.261; Min=1, Max=6) for *closest to a moderate level of discrimination;* and, when combining the worse ratings of (4) moderate level of discrimination,

(5) high level of discrimination, and (6) highest level of discrimination, findings showed 29.6% (N=181) endorsed these levels of discrimination, as cause for concern.

As possible explanation of this concerning exposure to discrimination for the Black sample of hypertensives, consider how the present study sample had Black men and women with a mean skin color of 5.64 (SD=1.351, Min=1; Max= 7) for between "medium to dark" and "dark" with 35.9% reporting dark skin tone and 17% very dark skin tone. To put this in some context, using the same scale, in contrast, the Hall (2021) sample of older lesbian women had a much lower mean skin color of 4.45 (SD=.921, min=2, max=7) for between "medium to light" and "medium to dark" -- with 7.6% reporting dark skin tone and 1.7% very dark. The prevalence of male gender and substantially darker skin tone found in the present study is noteworthy and meaningful. Gender in the present study is also noteworthy and meaningful. Assari et al. (2017) found that Black men experienced more discrimination in healthcare than did Black women. Also, being male can also trigger perceptions of greater aggressiveness—while perceived as taller, heavier and stronger, even when controlling for actual body size (Pederson et al, 2022). Hudson et al (2012) reported that the men in their sample, in comparison to women, were significantly ($p < .001$) more likely to report incidents of both major and everyday racial discrimination compared to women.

The investigation of Perreira et al. (2014) found that darker skin color is associated with greater exposure to class discrimination. Klonoff and Landrine (2000) conducted an investigation with findings showing that dark-skinned Blacks were 11 times more likely to experience frequent racial discrimination, in comparison to their light-skinned counterparts—with skin color emerging as a marker for exposure to racial discrimination. Further, Klonoff and Landrine (2000) emphasized how there numerous studies "have revealed that dark-skinned Blacks have

significantly higher rates of hypertension than their lighter-skinned cohorts and have noted that the high rates for dark-skinned Blacks may account for racial differences in hypertension prevalence" (p. 329). Since the present study recruited an all-Black sample of adults with hypertension, it may not be surprising that this study found darker skin color was highly prevalent (i.e. 29.4% very dark, 35.9% dark, and 16.7% medium to dark skin color) in the sample; and, also not surprising that 29.6% experienced moderate to high, to very high levels of discrimination.

A Second Measure of Discrimination

The present study also followed Hall (2021) in having a second measure of provider engagement in discrimination. Specifically, the present study used the Discrimination by Medical Providers in Response to Personal Demographics, Intersecting Identities, Appearance scale**,** findings a mean score of 4.90 (SD=2.205l; Min=0, Max=8) for a moderately high level of *being discriminated against for closest to 5 (out of 8) aspects of their personal demographics, intersecting identity, or appearance*. More specifically, 85.3% indicated experiencing provider discrimination for being Black or African American (N=522), 51.5% for gender (e.g. being a woman, man, transgender, non-binary) (N=315), 46.4% for being LGBTQ (N=284), 49.3% for being overweight/obese (N=302), 80.6% for skin color/tone (N=493), 66% for their hair (N=404), 63.2% for appearance (e.g., height, body features, clothing etc.) (N=387), and 33.5% for being a person with a disability (N=205). The present study used a slightly different version of the tool than was used in the Hall (2021) study (i.e. only 5 items in Hall, 2021). Hall (2021) found a lower percentage of 64.4% experiencing discrimination in the healthcare system for being Black or African American, a similar 48.3% for their female gender/being a woman, a

lower 31.4% for being overweight/obese, a lower 29.7% for appearance, and a lower 7.5% for being a person with a disability—while skin color tone was not an item.

In particular, noteworthy are the present study findings with an all-Black hypertensive sample that reported a higher 85.3% experienced discrimination for being Black, in comparison to Hall's (2021) all-Black lesbian female sample where 64.4% experienced discrimination for being Black. Also, noteworthy is the present study was finding 63.2% experienced discrimination for their appearance, in comparison to Hall's (2023) finding that 29.7% experienced discrimination for their appearance. As discussed earlier, with the present study finding 80.6% experienced provider discrimination for their skin tone, as a potential dimension of appearance, this could reflect how hypertensive adults tend to have darker skin color (Klonoff & Landrine, 2000). Recall that darker skin color was found in this study—in comparison to Hall's (2023) sample having lighter skin color; and, recall other research finding that dark-skinned Blacks were 11 times more likely to experience frequent racial discrimination, in comparison to light-skinned adults (Klonoff &Landrine, 2000).

A Third Measure of Discrimination

The present study evaluated the innovation of yet a third measure of discrimination, which produced findings of note. This study introduced the Dichotomous Self-Classification for Experiences of Racism or Discrimination Impacting Engagement with Medical Providers scale, as a single-item measure. Participants self-classified into one of two categories, with findings as follows: (1) a self-classification by endorsing "yes" for "experiences of racism and/or discrimination impacting their engagement with providers in terms of their willingness to regularly go and get treated by medical provider"— with 64.5% (N=395) doing do; or, (2) a self-

classification by endorsing “no” racism/discrimination has not impacted my engagement with providers,” and not impacted their “willingness to regularly go and get treated by medical providers” – with 31% (N=190) doing so. This study’s finding that 64.5% had racism/discrimination negatively impact their engagement with providers is similar to Hall’s (2023) all-Black lesbian female reporting potential disparities in healthcare service delivery related to their demographics, with 64.4% experiencing discrimination for being Black.

Collectively, findings with the three measures of discrimination used in this study add to a growing body of literature on the high prevalence of experiences of racial discrimination during healthcare service delivery with providers treating hypertension. As per the findings in the present study, this includes evidence of negative impacts from racism and discrimination—such as for racism and discrimination negatively impacting engagement with providers in terms of willingness to regularly go and get treated by medical providers. In support of these findings, Greer (2010) documented racial discrimination in the form of providers avoiding touching Black hypertensive patients, leading to patients not keeping medical appointments after such experiences. Cuffee et al. (2013) found with a male and female sample of Black hypertensive adults that experiences of racial discrimination were associated with lower mediation adherence.

Discussion of Findings on Medical Mistrust

The present study also investigated medical mistrust among the sample of Black hypertensive adults, finding that the Medical Mistrust Scale—Short Form had a low internal consistency (Cronbach’s Alpha of .587), while producing a mean of 2.952 (SD=0.7605; Min=1; Max=5) for closest to a *moderate level of medical mistrust.* For example, 14.5% (n=89) strongly disagreed and 26.6% (N=163) disagreed with the statement, “Black people are treated the same

as people of other groups by doctors and health care workers." As the study that innovated the use of the Medical Mistrust Scale—Short Form with just 4 items, Williams-Gunpot (2021) found the tool had good internal consistency (Cronbach's Alpha of .755); and, the medical mistrust mean was 3.273 (min=1.50, max=5.00, SD=.7615) for *moderately high medical mistrust*. For example, Williams-Gunpot (2021) reported that 34% (n=64) strongly disagreed and 44.7% (N=84) disagreed with the statement, "Black people are treated the same as people of other groups by doctors and health care workers." The Williams-Gunpot (2021) sample of Black men and women drawn to volunteer for a study on COVID-19 knowledge had higher medical mistrust than in the present study. Of note, the Williams-Gunpot (2021) study was conducted at an earlier point in the pandemic when disproportionately large numbers of Blacks were being becoming infected with COVID-19, being hospitalized, and dying at alarmingly high rates (e.g. Vargas et al., 2023)—which could have contributed to such high ratings of medical mistrust. In support of this analysis, consider how Vargas et al (2023) reflected on the pandemic and concluded that "racialized minorities feel much more at risk and vulnerable to the virus compared to whites" (p. 11).

Hall et al. (2022) cited experiences of racial discrimination in the medical setting among Black patients as a common event that is linked to mistrust in medical advice and the causative factor for poor clinical outcomes. In their study with 143 Black adults from two university addiction treatment facilities in Columbus, Ohio, they assessed "racial discrimination in the medical setting and group-based medical mistrust" (Hall et al., 2022, p. 1). Among their 113 participants, 78% reported having previous experiences of racial discrimination during healthcare, which was "associated with greater mistrust in the medical system and worse expectations regarding racial discrimination in addiction treatment" (Hall et al., 2022, p. 1).

Other studies regarding medical mistrust support the present study's rationale in prioritizing medical mistrust as a significant factor in the management of hypertension throughout the COVID-19 pandemic (e.g. Sanford & Clifton, 2022). A new Medical Mistrust Multiformat Scale (MMMS) was developed and tested by Sanford and Clifton. They highlighted the importance of measuring medical mistrust, especially "with diverse racial/ethnic identities, people with chronic medical conditions, and people with lower incomes" (Sanford and Clifton, 2022, p. 10). Adams and Craddock (2023) explored the relationship between the quality of patient-provider communication and medical mistrust in a sample of 174 young Black women, aged 18–24. Results showed that as communication quality increased, medical mistrust decreased ($p<.001$). These findings indicate that emphasizing patient-centered communication may be helpful in addressing medical mistrust among young female Black patients (Adams and Craddock, 2023, p. 334).

Discussion of Findings on Microaggressions

The present study also investigated with the sample of Black hypertensive adults the following: *During their interactions with medical providers—and specifically, during interactions when being treated for high blood pressure, to what extent did they experience microaggressions that seemed related to their being Black?* Using The Ratings of Experiences of Microaggressions with Medical Providers scale, a Cronbach's alpha (5 items) of .868 for very good internal consistency was found; and, also found was a mean score of 1.589 (SD=0.875; Min=0, Max=4) for experiencing microaggressions by medical providers at a frequency between rating 1 "for never/not at all" and a rating 2 "for at least once," while closer to "at least once"—*as a low-moderate frequency.* In comparison with a Black sample of older lesbians, Hall (2021

found with the same scale a high internal constancy (i.e. Cronbach's Alpha of 0.929); and found a mean of 1.839 (min=.00, max=4, SD=1.151) for a *low-moderate frequency closest to "at least once" for experiencing microaggressions* in the U.S., in general. Williams-Gunpot (2021) found with a sample of Black male and female adults that the same tool had excellent internal consistency (Cronbach's Alpha .911); and, found a mean of 2.091 (min=0, max=4,SD=1.128) for experiencing microaggressions in the U.S. "more than once," or to a moderate extent.

More specifically, for the item "Brief exchanges or brief interactions with a healthcare provider where you felt you were receiving the messages that were a put down, denigrating, or conveyed something negative – that seemed related to you being Black" the present study found 37.3% (N=228) endorsed that this occurred "at least once."

In comparison, Hall (2021) found for the item "To what extent have you experienced brief exchanges or brief interactions where you felt you were receiving messages that were a put down, denigrating, or conveyed something negative?" (for in the U.S.) that some 22.6% responded with a few times (n=26) and 19.1% responded with many times (n=22). Wiliams-Gunpot (2021) found 21.3% (n=40) had experienced in the U.S. "more than once" such "Brief interactions where you felt you were receiving messages that were a put down, denigrating, or conveyed something negative,"

This study confirms findings in prior research studies, and justifies the questions posed by Pederson et al (2022): "Have you ever considered whether some of your patients of color might be receiving less-than-optimal care? Have you been uncertain about how you might discuss their responses to "microaggressions" or to perceived discrimination in health care?" This study's findings on both discrimination and microaggressions underscore the importance of these questions. Pederson et al (2022) remind us of vital information to keep in mind when

evaluating this study's findings: i.e., Black people are often stigmatized within the health care system because of their race; racism is a social determinant of health; skin tone also serves to elicit racial bias; and, being male can also trigger perceptions of greater aggressiveness—while perceived as taller, heavier and stronger, even when controlling for actual body size (Pederson et al, 2022).

Discussion of Findings on Predictors of the Study Outcome Variables

The study conducted backward stepwise binomial logistic regression to identify significant predictors of 3 study outcome variables: (1) **being medication adherent as measured by the Morisky Medication Adherence Scale**; (2) **self-classifying as medication adherent; (3) self-classifying for racism/discrimination having impacted engagement with providers**.

First, findings showed that significant predictors of **being medication adherent as measured by the Morisky Medication Adherence Scale,** while controlling for social desirability, were darker skin color, lower BMI, less provider discrimination for demographics/ identity/ appearance, and less frequent provider microaggressions for being Black. The finding of darker skin color was not anticipated, while Marcum et al. (2013) found that Black race was significantly associated with nonadherence. Anticipated were the findings of less provider discrimination for demographics/ identity/ appearance, and less frequent provider microaggressions for being Black.

Second, findings showed that significant predictors of **self-classifying as medication adherent,** while controlling for social desirability, were having a partner, younger age, being better at following instructions for taking medication—current time period, having more/higher

level of general perceived social support –current time period, higher rating of provider cultural competence, less provider discrimination for demographics/identity/appearance, and less frequent provider microaggressions for being Black. Younger age was not an anticipated finding, while less provider discrimination for demographics/identity/appearance and less frequent provider microaggressions for being Black were anticipated findings

With regard to these two measures for being medication adherent—one using the popular widely used Moriksy Medication Adherence Scale and this study's new dichotomous self-classification system, the findings from the two regressions both highlighted the common predictors of less provider discrimination for demographics/identity/appearance and less frequent provider microaggressions for being Black. Both a lower level of discrimination and lower level of microaggressions are capturing key experiences of encountering with medical providers lower levels of exposure to provider bias, racism, discrimination and microaggressions as powerful determinants of medication adherence. Thus, the findings provide support for the prior work of Cuffee et al. (2013) who found with a male and female sample of Black hypertensive adults that experiences of racial discrimination were associated with lower mediation adherence. In this study, lower levels of racial discrimination – as also captured via microaggressions – with providers were associated with medication adherence.

Third, findings showed that significant predictors of **self-classifying for racism/discrimination having impacted engagement with providers,** while controlling for social desirability, were having had COVID-19, older age, more years diagnosed with hypertension, having more chronic medical conditions, higher BMI, lower medication social support—current time period, more provider discrimination for demographics/ identity/ appearance, higher medical mistrust, and less frequent provider microaggressions for being

Black. Instead of what was found, what was anticipated was a higher frequency of provider microaggressions for being Black. It may be that microaggressions are more subtle and higher to perceive than is a greater level of/more provider discrimination for demographics/ identity/ appearance. Given the above prior findings that less provider discrimination was associated with medication adherence, it is not surprising that greater/more provider discrimination was a predictor of self-classifying for racism/discrimination having impacted engagement with providers. It appears that provider bias of racism and discrimination is more damaging and impactful for engagement with providers when patients are older, have had COVID-19, have had hypertension for a longer period of time, have more chronic medical conditions, and a higher BMI. These may be the very patients who need continuity of care and the highest quality of care the most, yet are the most negatively impacted by provider racism and discrimination.

5.2 Implications and Recommendations

The study had many implications and the findings give rise to many recommendations. A strength of this online COVID-19 pandemic era investigation with Black hypertensive adults (N=612) involves the large sample size, despite being a sample of convenience of volunteers drawn via the social medica campaign to participate . Another strength of the study is the fact that 93.6% were U.S. born—and likely more attuned to racism and discrimination as it occurs in this country, compared to immigrants. Also, the sample was largely well balanced for gender, while having a large 54.7% male representation, as well as 44.3% female representation. This is important, as Black males may have unique experiences of racism and discrimination with medical providers in the U.S., as per Pederson et al (2022) noting how being male can trigger perceptions of greater aggressiveness—while perceived as taller, heavier and stronger, even

when controlling for actual body size. Also, this study's sample had a mean skin color between "medium to dark" and "very dark" with 52.9% reporting dark skin tone or very dark skin tone. Again, as per Pederson et al (2022), this is noteworthy, since skin tone serves to elicit racial bias, while, in general, Black people are often stigmatized within the health care system because of their race, and racism is a social determinant of health. The main study findings have implications that may be framed by this introduction.

More specifically, there are implications that follow from the backward stepwise logistic regression models. Two of the models highlighted recurrent predictors for medication adherence as being 1-less provider discrimination for demographics/ identity/ appearance, and 2-less frequent provider microaggressions for being Black; and, one model highlighted higher provider cultural competence. In the third regression model, greater provider discrimination was a predictor of self-classifying for racism/discrimination impacting engagement with providers with an unwillingness to regularly attend medical appointments. Collectively, these findings highlight less provider discrimination and less frequent microaggressions by providers as key experiences—such that lower levels of exposure to provider racism, discrimination and microaggressions emerge as powerful determinants of medication adherence and adherence to medical appointments. In this study, 70% were medication non-adherent on the Morisky Medication Adherence Scale, 49.3% self-classified as medication non-adherent, while at the same time 85.3% reported experiencing provider discrimination for being Black, 80.6% for skin color, 66% for hair; and, 64.5% had been exposed to racism/ discrimination so it negatively impacted engagement with providers with an willingness to regularly attend appointments. Not surprisingly, medical mistrust was moderate, while 41.1% strongly disagreed or disagreed with

the statement, “Black people are treated the same as people of other groups by doctors and health care workers.”

As implications of the findings, two related questions arise, as follows:

- “How can the U.S. healthcare system achieve the goal of there being lower levels of exposure to provider racism, discrimination and microaggressions for Black hypertensive adults, since these factors emerge as powerful determinants of medication adherence?” And, “How can the goal be achieved of lowering exposure to racism and discrimination so it does not negatively impact engagement with providers as an unwillingness to regularly attend medical appointments?” Thus, the study has important implications for the urgency of addressing providers’ racism, discrimination and racial microaggressions as factors playing a role in medication non-adherence and patients’ unwillingness to return for medical appointments.
- Training in cultural competence for providers is vitally needed with specific attention in training to actually observing, addressing and changing providers’ behavior of enacting racism, discrimination, and microaggressions with Black hypertensive patients. This training needs to occur during their education in medical school, as well as in the education and training of all other healthcare providers, including physician assistants, nurse practitioners, nurses, and all members of the healthcare team. For those providers already in practice, then this training needs to be mandatory for continuing education.
- This study had no information on the patients’ providers’ exposure to cultural competence training, or training in cultural humility, or any training in diversity, equity and inclusion. In this study, providers were rated as having a moderate level of cultural competence. Encouragement comes from the work of Vella et al. (2022) who emphasized the impact of cultural competence training obtained by health professionals upon patient outcomes, while healthcare providers reported that cultural competence training was perceived as beneficial; and, improvements in communication skills were reported and some patients reported improvements in the healthcare providers’ cultural competence. However, the

present study suggests that provider racism and discrimination includes elements that go beyond communication—such as perceptions by patients for what may be unspoken.

- There is a need for mandatory provider training in provider's professional school education and in continuing education that covers what goes beyond communication and involves powerful unspoken dynamics. Consider how in the present study 85.3% indicated experiencing provider discrimination for being Black or African American, 51.5% for gender (e.g. being a woman, man, transgender, non-binary), 46.4% for being LGBTQ , 49.3% for being overweight/obese, 80.6% for skin color/tone, 66% for their hair, 63.2% for appearance (e.g., height, body features, clothing etc.), and 33.5% for being a person with a disability. And, in this study microaggressions by medical providers occurred at as a low-moderate frequency. Microaggressions, as per Pierce et al. (1977), are subtle and non-verbal, involving subtle blows that are incessantly imposed upon Black people by Whites in society. These subtle blows are offensive mechanisms that take a cumulative toll upon Blacks, while being of an incomprehensive magnitude in terms of their weight and impact upon Black people who end up being forced into an inferior status. The impact of microaggressions is such that Black people suffer mental and emotional stress, which can translate into higher morbidity and mortality rates compared to the White population (Pierce et al., 1977). It is vital that provider trainings be developed that enlighten providers to what are unspoken, subtle and non-verbal, yet subtle blows that they appear to play a part in imposing upon their Black hypertensive patients, while contributing to higher morbidity and mortality rates for Blacks—even if it is occurring outside of provider awareness. This may necessitate implementation and evaluation of a particularly challenging type of provider training so they cease and desist (or at least reduce) their engagement in racism, discrimination and microaggressions that are subtle and non-verbal blows.
- Training in cultural competence is vitally needed with specific attention in training to actually observing, addressing and changing providers' behavior of enacting racism, discrimination, and microaggressions with Black hypertensive patients. This may necessitate observational studies where providers are shadowed and a healthcare team member certified to be culturally competent can use a

check-list to ensure adherence to protocols and a standard of care that is free of discrimination; and, an additional check-list can document the observation of any subtle and non-verbal cues given to patients that constituted racism, discrimination and microaggressions. Debriefing sessions can begin to raise provider awareness regarding what may have been outside of their awareness as non-verbal and subtle cues given to patients that constituted racism, discrimination and microaggressions. Repeated experiences of being shadowed and given debriefing feedback may be necessary for improvements to occur. Results of such observational studies could be used as preliminary studies data for larger grant-funded studies on the value of such check-lists for wider implementation by certified culturally competent team members in varied settings. Hospitals and clinics could adopt the recommended observational protocols with the use of check-lists of these kinds as standard practices for quality assurance purposes, while reducing patient exposure to subtle, non-verbal, yet impactful forms of racism, discrimination, and microaggressions. Patient attendance at scheduled appointments could be tracked for improvements, as well as medication adherence—at the same time of conducting observational and check-list research studies.

- Findings showed over 70% were medication non-adherent on the Morisky Medication Adherence Scale, and 49.3% self-classified as medication non-adherent. There may be a role in clinical practice for using this study's one item tool that permits classification into either a medication non-adherent or adherent group. This self-classification could lead to a patient-provider discussion regarding barriers to adherence, so that a social determinants framework could be applied, allowing for exploration of the role of any social and structural factors (e.g. lack of insurance, lack of funds, or lack of funds for co-pays for medication). Or, self-classification as medication non-adherent might lead to referrals to interventions such as motivational interviewing, which might resolve patient ambivalence about taking medication or address any patient-level factors—above and beyond those provider-level factors discussed above.
- Future research could use the package of tools in this study for a replication with a nationally representative sample of Black hypertensive adults, permitting inclusion of those without social

media usage or without technology and internet access. Also, Black immigrants could be included, allowing for exploration of any differences with those who are U.S. born.

5.3 Limitations

Although the social media campaign recruited a large sample, there were several study limitations worth noting. First, this study had a sample of convenience of volunteers, resulting in the sample not being representative of the general population of Black adults with hypertension in the United Stated. Also, many older Black adults and those who lack time or interest do not use social media—and so they were excluded from study participations. As another study limitation, the use of an online survey that required access to the Internet and a smart phone, tablet, laptop, or desktop computer potentially excluded those Black hypertensive adults with the lowest incomes. Those experiencing the highest levels of past month perceived stress may also be excluded due to the stress and burden of time hypertension and advised to take medication (i.e. less than five years) may be the most at-risk and in greatest need of understanding so as to improve their medication adherence, but they are excluded from the study; .

The study also offered a one in three chance of receiving a $100 Amazon gift card, potentially contributing to participant bias. This may have enticed participants to take part and respond to screening questions in an affirmative way, in order to enter and complete the study. It is possible that participants would be willing to falsify their self-reporting of personal data, in order to be entered into a lottery for an Amazon gift card. This may explain why, after answering all screening survey questions affirmatively to gain entrance into the study, later in the actual survey, only 79.9% (N=489) indicated having currently or having had “hypertension, high blood pressure, heart disease. This raises the question as to whether or not data analyses would have

been any different if the those who did not check off having hypertension or high blood pressure were excluded.

These study limitations must be kept in mind when evaluating the results of the study. And, future studies may benefit by considering ways to overcome these study limitations.

5.4 Conclusion

This online COVID-19 pandemic era investigation with Black hypertensive adults (N=612) who were 93.6% U.S. born, 54.7% male, 44.3% female with a mean age of 37 years sought to identify predictors of self-ratings for being medication non-adherent and for racism and discrimination impacting engagement with medical providers.

Findings showed that over 70% indicated medication non-adherence on the 4-item Morisky Medication Adherence Scale, and 49.3% self-classified into a group that did not consistently or always take their prescribed high blood pressure medication as they have been advised to for the treatment of high blood pressure.

Regarding COVID-19 pandemic impacts on factors impacting medication adherence, findings showed that *following instructions for how to take their high blood pressure medication* deteriorated during the pandemic, but improved by Spring 2023; *maintaining regular contact with the provider for management of high blood pressure* deteriorated during the pandemic, but improved by Spring 2023—while also being even better than before the pandemic; and *having uninterrupted receipt of medication so it was taken on time*, deteriorated during the pandemic, but improved by Spring 2023—while also being even better than before the pandemic. These findings suggested evidence of resilience, but also learning lessons from the pandemic regarding

the importance of maintaining regular access to providers and having uninterrupted access to medication so that these behaviors were superior to what they were pre-pandemic.

For social support, the sample had relatively low social support, across all time periods of before the pandemic, during the pandemic, and currently in Spring 2023. For medication social support/help with medications, The sample had high medication social support (help with medications) 90.7% pre-pandemic, 86.3% during the pandemic, and 91.7% currently. This reflected a slight decline in medication social support during the pandemic, as they may have taken seriously advice to socially distance and avoid COVID-19 transmission, given their higher risk status as Black adults with hypertension

Participants rated their providers as having closest to a moderate level of cultural competence, while they encountered: (1) a moderate level of discrimination when being treated for their hypertension; (2) a moderately high level of *being discriminated against their personal demographics, identity, or appearance (e.g.* 85.3% for being Black, 80.6% for skin color, 66% for hair, 63.2% for appearance, and 51.5% for gender); and, (3) 64.5% self-classified "yes" for experiences of racism and/or discrimination impacting their engagement with providers in terms of their willingness to regularly go and get treated by a medical provider. Also, they experienced *a low-moderate frequency* of microaggressions during their interactions with medical providers that seemed related to their being Black—while these may be more subtle and harder to perceive than the discrimination measured in three ways, as discussed above.

Not surprisingly, the sample had a moderate level of medical mistrust—with 41.1% disagreeing or strongly disagreeing that "Black people are treated the same as people of other groups by doctors and health care workers."

Finally, the backward stepwise binomial logistic regression, while controlling for socially desirability, showed that significant predictors: (1) for *being medication adherent on the Morisky Medication Adherence Scale* were darker skin color, lower BMI, less provider discrimination for demographics/ identity/ appearance, and less frequent provider microaggressions for being Black; (2) for *self-classifying as medication adherent* were having a partner, younger age, being better at following instructions for taking medication—current time period, having higher general perceived social support–-current time period, higher rating of provider cultural competence, less provider discrimination for demographics/ identity/ appearance, and less frequent provider microaggressions for being Black; and, (3) for *self-classifying for racism/discrimination having impacted engagement with providers* were having had COVID-19, older age, more years diagnosed with hypertension, having more chronic medical conditions, higher BMI, lower medication social support—current time period, more provider discrimination for demographics/ identity/ appearance, higher medical mistrust, and less frequent provider microaggressions for being Black.

Two backward stepwise logistic regression models highlighted recurrent predictors for medication adherence as being 1-less provider discrimination for demographics/ identity/ appearance, and 2-less frequent provider microaggressions for being Black; and, one highlighted higher provider cultural competence. In a third model, greater provider discrimination was a predictor of self-classifying for racism/discrimination impacting engagement with providers.

Findings highlight less provider discrimination and less frequent microaggressions by providers as key experiences—such that lower levels of exposure to provider racism, discrimination and microaggressions emerge as powerful determinants of medication adherence.

The study has important implications for the urgency of addressing providers' racism, discrimination and racial microaggressions as factors playing a role in medication non-adherence and patients' unwillingness to return for medical appointments.

Training in cultural competence is vitally needed with specific attention in training to actually observing, addressing and changing providers' behavior of enacting racism, discrimination, and microaggressions with Black hypertensive patients.

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Appendix A

Letter of IRB Approval

Attachments:
- JULIE JACOB IRB INFORMED CONSENT FOR UPLOADING.pdf
- Exemption Notification - IRB ID: 23-130.pdf

TEACHERS COLLEGE
COLUMBIA UNIVERSITY

Teachers College IRB *Exempt Study Approval*

To: **Julie Jacob**
From: **Amanda O'Hara**
Subject: **IRB Approval: 23-130 Protocol**
Date: **01/20/2023**

Thank you for submitting your study entitled, "*An Online Investigation with Black Hypertensive Adults to Identify Predictors of Self-Ratings for Being Medication Non-Adherent and for Racism and Discrimination Impacting Engagement with Medical Providers;*" the IRB has determined that your study is **Exempt** from committee review (Category **2**) on 01/20/2023.

Please keep in mind that the IRB Committee must be contacted if there are any changes to your research protocol. The number assigned to your protocol is **23-130**. Feel free to contact the IRB Office by using the "Messages" option in the electronic Mentor IRB system if you have any questions about this protocol.

Please note that your Consent form bears an official IRB authorization stamp and is attached to this email. Copies of this form with the IRB stamp must be used for your research work. Further, all research recruitment materials must include the study's IRB-approved protocol number.

As the PI of record for this protocol, you are required to:

- Use current, up-to-date IRB approved documents
- Ensure all study staff and their CITI certifications are on record with the IRB
- Notify the IRB of any changes or modifications to your study procedures
- Alert the IRB of any adverse events

You are also required to respond if the IRB communicates with you directly about any aspect of your protocol. Failure to adhere to your responsibilities as a study PI can result in action by the IRB up to and including suspension of your approval and cessation of your research.

You can retrieve a PDF copy of this approval letter from Mentor IRB.

Best wishes for your research work.

Sincerely,
Amanda O'Hara

amanda.oharaa@gmail.com

Appendix B

The Study Email

BLACKS/AFRICAN ANERICANS ON MEDICATION FOR HYPERTENSION ARE INVITED TO VOLUNTEER 10-15 MINUTES ANSWERING SURVEY QUESTIONS

About Their Medication Adherence, Perceived Stress, Racism and Support Before, During the Pandemic and at present.

SHARE YOUR STORY!

FOR A 3 IN 250 CHANCE TO WIN A $100 AMAZON GIFT CARD

IRB Protocol Number 23-130

The Research Group on Disparities in Health (RGDH) within the Department of Health and Behavior Studies at Teachers College, Columbia University, in New York, New York is conducting a study. To qualify for the study, you must be a Black adult who has been diagnosed with high blood pressure, or hypertension for the past 5 years—or since 2018 and have been prescribed high blood pressure medication by a health care provider. The purpose is to identify factors related to taking one's medication as prescribed. To qualify for the study, you must answer "Yes" to the following questions: 1- Are you an adult age 23 or above? 2-Do you self-identify as Black or African American? 3-Have you been receiving treatment for high blood pressure or hypertension for a minimum of the past 5 years, or at least since the year 2018? 4-Have you been prescribed medication specifically for your high blood pressure, or hypertension? 5-Have you been primarily treated by a health care provider in the United States for your high blood pressure? If you answered "Yes" to the above questions, then you qualify to take a survey that is10-15 minutes long. Please note that if you are eligible for study participation and complete the survey that follows, then you will have a 3 in 250 chance of winning one of three $100 Amazon gift cards in a lottery drawing.

- Participation in this survey is limited to the first 250 volunteers
- Completing the online survey takes about 10-15 minutes.
- Those who complete the survey will have a 3 in 250 chance of winning a $100 Amazon gift card
- Please click on the link in the message below to view the informed consent, learn about your rights as a participant and proceed to the survey.
- We also invite you to forward this email to others who may be willing to volunteer, or send them a text message, or tweet using the message, below:

Inviting Black Adults taking medication for high blood pressure for a minimum of 5 years to click on **https://tinyurl.com/HighBloodPressureSurvey** and take a 10–15-minute survey about you & your experiences with medical providers for a 3 in 250 chance of winning 1 of 3 $100 Amazon gift cards

THANK YOU FOR YOUR PARTICIPATION!

If you have any questions or would like to have additional information about the study, please contact:

Julie Jacob, MPH, *Doctoral Candidate, Department of Health and Behavior Studies, Teachers College, Columbia University, Box 114, 525 W. 120th Street, New York, NY 10027; jvj2114@tc.columbia.edu*

BARBARA C. WALLACE, Ph.D., *Director, Research Group on Disparities in Health, Professor of Health Education, Clinical Psychologist, Department of Health and Behavior Studies, Teachers College, Columbia University, Box 114, 525 W. 120th Street, New York, NY 10027; bcw3@tc.columbia.edu; Study Contact Number: 267-269-7411*

Appendix C

The Study Text/Tweet

Inviting Black Adults taking medication for high blood pressure for a minimum of 5 years to click on **https://tinyurl.com/HighBloodPressureSurvey** and take a 10–15-minute survey about you & your experiences with medical providers for a 3 in 250 chance of winning 1 of 3 $100 Amazon gift cards

Appendix D

Informed Consent

Teachers College, Columbia University
525 West 120th Street
New York NY 10027
212-678-3000

INFORMED CONSENT

IRB Protocol Number 23-130

Protocol Title:
AN ONLINE INVESTIGATION WITH BLACK HYPERTENSIVE ADULTS TO IDENTIFY PREDICTORS OF SELF-RATINGS FOR BEING MEDICATION NON-ADHERENT AND FOR RACISM AND DISCRIMINATION IMPACTING ENGAGEMENT WITH MEDICAL PROVIDERS

Principal Researcher: Julie Jacob, MPH
Teachers College, Columbia University
718-576-9637; jvj2114@tc.columbia.edu

INTRODUCTION

You are asked to participate in a research study by The Research Group on Disparities in Health within the Department of Health and Behavior Studies at Teachers College, Columbia University, in New York. To qualify for the study, you have to be a Black adult who has been diagnosed with high blood pressure, or hypertension for the past 5 years—or since 2018 and have been prescribed high blood pressure medication by a health care provider. The purpose is to identify factors related to taking one's medication as prescribed. To qualify for the study, you must answer "Yes" to the following questions: 1- Are you an adult age 23 or above? 2-Do you self-identify as Black or African American? 3-Have you been receiving treatment for high blood pressure or hypertension for a minimum of the past 5 years, or at least since the year 2018? 4-Have you been prescribed medication specifically for your high blood pressure, or hypertension? 5-Have you been primarily treated by a health care provider in the United States for your high blood pressure? If you answered "Yes" to the above questions, then you qualify to take a survey that is10-15 minutes long. Please note that if you are eligible for study participation and complete the survey that follows, then you will have a 3 in 250 chance of winning one of three $100 Amazon gift cards in a lottery drawing.

WHY IS THIS STUDY BEING DONE? This study is being done to obtain information that can be used for future societal efforts to understand the reasons that contribute to medication non-

adherence among African Americans with hypertension to better address the problem and promote better management of blood pressure among the population through better medication adherence.

WHAT WILL I BE ASKED TO DO IF I AGREE TO TAKE PART IN THIS STUDY? If you decide to participate in the study, you will answer a series of questions that are part of an online survey. The questions will cover the following: your personal characteristics and background, medication adherence/nonadherence, your perceived level of stress, social support, and views on cultural competence from health care providers.

WHAT POSSIBLE RISKS OR DISCOMFORTS CAN I EXPECT FROM TAKING PART IN THIS STUDY? The risks of study participation include the possibility that you may feel some discomfort from taking the survey or feel stress due to certain questions. However, please note that participation in this study is completely voluntary, and you can stop at any time.

WHAT POSSIBLE BENEFITS CAN I EXPECT FROM TAKING PART IN THIS STUDY? There is no direct benefit to you for participating in this study. However, you do have a chance to be entered in a lottery for a 3 in 250 chance of winning an Amazon gift card worth $100.

WILL I BE PAID FOR BEING IN THIS STUDY? You will not be paid to be a participant. However, when you complete the survey, you will be invited to officially enter a drawing for a 3 in 250 chance to receive a prize of an Amazon gift card worth $100. Once 250 people have completed the entire survey, you will have a 3 in 250 chance of winning the gift card. The www.Amazon.com gift certificates will be sent to three randomly chosen e-mail accounts using a secure online program. The identity of the three winners will remain confidential to the researcher.

WHEN IS THE STUDY OVER? CAN I LEAVE THE STUDY BEFORE IT ENDS? The study is over when you have completed the online survey and any participant can leave the study at any time even if you have not finished.

PROTECTION OF YOUR CONFIDENTIALITY The study does not involve collecting any of your personal identifying information, such as your name or address, allowing you to remain anonymous. (NOTE: Recall, as per what is above, you can elect to enter your e-mail address to enter the drawing for a chance to receive a prize. However, this occurs without in any way linking your identity to your survey answers and each participant remain anonymous. Teachers College, Columbia University has determined that www.Qualtrics.com provides a secure platform for the online survey you will take. The survey data files will also be saved on the primary researcher's password protected computer. Regulations require that research data be kept for at least three years.

For quality assurance, the study team, and/or members of the Teachers College Institutional Review Board (IRB) may review the data collected from you as part of this study. Otherwise, all information obtained from your participation in this study will be held strictly confidential and will be disclosed only with your permission or as required by U.S. or State law.

HOW WILL THE RESULTS BE USED? The results of this study will be published in journals and presented at academic conferences. This study is being conducted as part of the doctoral dissertation of the principal investigator.

WHO CAN ANSWER MY QUESTIONS ABOUT THIS STUDY?
If you have any questions about taking part in this research study, you should contact the primary researcher, April Aviles at 718-576-9637or at Ada2165@tc.columbia.edu.
You can also contact the sponsor/supervisor of this research study, Dr. Barbara Wallace, at bcw3@tc.columbia.edu or 267-269-7411.

If you have questions or concerns about your rights as a research subject, you should contact the Institutional Review Board (IRB) (the human research ethics committee) at 212-678-4105 or email IRB@tc.edu. Or you can write to the IRB at Teachers College, Columbia University, 525 W. 120th Street, New York, NY 10027. Box 151. The IRB is the committee that oversees human research protection for Teachers College, Columbia University.

Appendix E

Participant Rights

PARTICIPANT'S RIGHTS

- I have read the Informed Consent Form and have been offered the opportunity to discuss the form with the researcher.
- I have had ample opportunity to ask questions about the purposes, procedures, risks and benefits regarding this research study.
- I understand that my participation is voluntary. I may refuse to participate or withdraw participation at any time without penalty.
- The researcher may withdraw me from the research at his or her professional discretion. I understand that if I take the survey more than once I will be eliminated from the study.
- The information for the study is for research purposes only and there is no harm to the participant participating.
- Any information derived from the research study that personally identifies me will not be voluntarily released or disclosed without my separate consent, except as specifically required by law.
- I should receive a copy of the Informed Consent Form document. (I understand that I can download it).

By signing electronically, you agree to be in the study and confirm that you are a Black or African American, age 23 or greater, have been receiving medication for hypertension for the past 5 years, and have been treated for hypertension by a health care provider in the Unites States of America.

Provide your electronic signature:

_____ **Date**: _____

Appendix F

The Study Survey

Screening Tool

Teachers College, Columbia University
IRB Protocol Number 23-130

The Research Group on Disparities in Health within the Department of Health and Behavior Studies at Teachers College, Columbia University, in New York, New York is conducting a study. We are seeking Black adults who have been diagnosed with high blood pressure, or hypertension for the past 5 years—or since 2018, and, have been prescribed high blood pressure medication by a medical provider. We are seeking to identify factors related to taking one's medication as prescribed. To participate in our research study, please answer the following questions to see if you qualify:

1- Are you an adult age 23 or above? Yes___ No____
2-Do you self-identify as Black or African American? Yes___ No____
3-Have you been receiving treatment for high blood pressure or hypertension for a *minimum of the past 5 years*, or *at least since the year 2018*? Yes___ No____
4-Have you been prescribed medication specifically for your high blood pressure, or hypertension? __No __Yes
5-Have you been primarily treated by a health care provider in the United States for your high blood pressure? Yes___ No____

If you answered "Yes" to the above questions, then you are invited to take a survey that will take approximately 10-15 minutes to complete. If you answered "No" to the above questions, then you are not eligible for this survey opportunity; however, you can send the link that took you to this survey opportunity to someone who you think will be eligible for study participation. THANK YOU.
Please note that if you are eligible for study participation and complete the survey that follows, then you will have a 3 in 250 chance of winning one of three $100 Amazon gift cards in a lottery drawing when the study is closed.
NOTE: If they answer No to any question, then they EXIT survey and arrive at a disqualification page. If they answer YES to all question, then they proceed to the study survey.

The Black Adults' High Blood Pressure Survey

STUDY SURVEY

Teachers College, Columbia University
IRB Protocol Number 23-130

INSTRUCTIONS: Please answer the following questions as honestly as possible by either selecting your desired answer or by providing an answer in the text box.

Part I: Basic Demographics (BD-12)

[This is a common tool used by the Research Group on Disparities in Health (RGDH)—with slight modifications depending on the population. For example, this is the version used in Laryea (2019). See: Laryea, E. (2019). *An online mixed-methods study assessing nurses' attitudes, knowledge, skill/ability, and perceived barriers with regard to adherence to the national pressure ulcer advisory panel's clinical practice guidelines*. Doctoral dissertation. Teachers College, Columbia University. Note: Items at the end of Laryea (2019) were excluded. Also, an item on number of children they have was also added.]

1-My gender is:

a. Female
b. Male
c. Transgender
d. Other _____

2-My age is: _____ [DROP DOWN MENU from 15 to 100—Exit any 17 & below)

3-I am currently:

a. Single
b. Married
c. Separated
d. Divorced
e. Widowed
f. In Domestic Partnership
g. Living with Significant Other

4-How many children do you have? _____ [DROP DOWN MENU 0-10]

5. My race/ethnicity is as follows: (Please check all that apply or specify as you like.)

a. **Black / African American→INCLUDE, EXCLUDE ALL OTHERS**
b. American Indian / Alaska Native
c. Asian (Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, or other Asian)
d. Hispanic / Latino (including Puerto Rican, Mexican, Mexican American, Chicano, Cuban, other Spanish)
e. Middle Eastern / North African
f. Native Hawaiian / Pacific Islander
g. White / Caucasian / European American

h. Other group(s) (specify) _____

6-My skin color is

7-___Very Dark 6- ___Dark 5- ____Medium to Dark
4- ___Medium to Light 3-___Light 2-____Very Light 1___ White

[NOTE: create a continuous scale from light=1 to very dark=7 education
NOTE: prior research found the darker the skin tone, the higher the ability to perceive racism]

7-Were you born in the United States?

a. Yes
b. No

If you answered "No," please indicate the country in which you were born

Country of_____ [DROP DOWN MENU for countries]

8-My yearly household income is:

1-Less than $10,000
2-$10,000 to $19,000
3-$20,000 to $39,000
4-$40,000 to $49,000
5-$50,000 to $99,999
6-$100,000 to $199,999
7-$200,000 to $299,000
8-$300,000 to $399,000
9-$400,000 to $499,000
10-$500,000 to $799,000
11-$800,000 or More
__I do not know
[NOTE: create a continuous scale from low=1 category to high=11 category; create a mean category]

9-My highest education level/degree obtained is:

1__Some high school, or less
2__High school graduate, or GED
3__Some college credit, no degree
4__Associate degree or technical degree/training (e.g.: AA, AS, Certificate, etc.)
5__Bachelor's degree (e.g. BA, BS)
6__Master's degree (e.g. MA, MS, MEd)
7__Doctorate or Professional degree (e.g. PhD, EdD, DrPH, MD, DDS, DMD, PharmD)
[NOTE: create a continuous scale from low=1 to high=7 education]

10-My employment status is:

a. Full Time
b. Part Time
c. Per Diem
d. Currently Unemployed (explain why_____)
e. Currently Retired (explain why___)

[NOTE: create a dichotomous variable, employed yes=1; no=0]

11-For how many years have you been diagnosed with high blood pressure or hypertension?
__1-for 0 years, I was not diagnosed with high blood pressure or hypertension [→ EXIT THEM FROM SURVEY
__2-for 1-4 years [→ EXIT THEM FROM SURVEY]
__3-for 5–7 years
__4-for 8-10 years
__5-for 11-14 years
__6-for 15-19 years
__7-for 20-24 years
__8-for 25-29 years
__9-for 30-34 years
__10-for 35-39 years
__11-for 40-44 years
__12-for 45 years or more

12-The state where I currently live is: [DROP DOWN MENU OF STATES]

Part II: Single Item Rating of Risk of Providing Socially Desirable Responses (SIR-RPSDR-1)

[Note: This is a new single item scale created for first time use by Dr. Barbara Wallace in studies in 2018 conducted by the Research Group on Disparities in Health [RGDH], and for ongoing use by the RGDH. For example, this tool was used by Laryea (2019). See: Laryea, E. (2019). *An online mixed-methods study assessing nurses' attitudes, knowledge, skill/ability, and perceived barriers with regard to adherence to the national pressure ulcer advisory panel's clinical practice guidelines*. Doctoral dissertation. Teachers College, Columbia University. Note: Laryea (2019) found that the new one item measure of social desirability was one of two significant predictors of nurses' higher personal skill/ability rating for managing patients' pressure ulcers. This was noteworthy, as the well-known 13-item measure of social desirability (i.e. Crowne, D., & Marlowe, D. (1960) A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology*, *24*(4), 349-354.] similarly was found to be the sole significant predictor of nurses' ratings for a higher personal skill/ability for managing patients' pressure ulcers. Hence, there is value in reducing the burden of time on study participants and using in this study the new one item measure of social desirability, especially, given the stress of the pandemic.]

1-I sometimes say things that I think will please people, or what I think they want to hear—versus the honest truth, which might be difficult or painful for other people to hear and accept, or might lead them to judge me harshly…

I rate myself on a scale of 0 to 10, as follows:

0	1	2	3	4	5	6	7	8	9	10
0-I am not like this at all										10-I am like this all the

---

Part III: Personal Health Background and Body Mass Index (PHB-BMI-5)

[This is a tool created for use by the Research Group on Disparities in Health, which is commonly used (e.g. Radcliffe, 2023). See Radcliffe, S. (2023). *Knowledge Of Physical Activity And Dietary Survey (KOPA-DIGS-40) As A Brief Online E-Health Intervention With Adult African Americans: Predictors Of High Knowledge Of And Self -Efficacy For Adherence To Guidelines.* Doctoral dissertation. Teachers College, Columbia University.]

1-Please check, below, what best describes you:

__I have now, or had COVID-19 at some point in the past two years **__Yes __No __Not Sure**
__I currently have, or had long-COVID-19 **__Yes __No __Not Sure**
__I think COVID-19 is a hoax; it does not exist. **__Yes __No __Not Sure**

2-I have also had, or currently have, the following (please check all that apply)
__hypertension, high blood pressure, heart disease
__prior stroke
__prior heart attack
__lung disease (e.g. asthma, COPD, etc.)
__diabetes
__obesity
__Cancer
__HIV/AIDS
__Not Applicable, none apply to me

3-My current height (feet) [DROP DOWN BOX, 4-9]

4-My current height (inches) [DROP DOWN BOX, 0-11]

5-My current weight (in pounds) [DROP DOWN BOX, 70-400]

[3, 4, 5 – for calculation of BMI)

Part IV: Morisky Medication Adherence Scale (MMAS-4)

[The Morisky Medication Adherence Scale (MMAS-4) has been described by Morksy et al (1986). See Morisky, D. E., Green, L. W., & Levine, D. M. (1986). Concurrent and predictive validity of a self-reported measure of medication adherence. *Medical care*, 67-74. As per Morisky et al (1986) the MMAS-4, as a 4-item scale had a Cronbach's Alpha of .61. The 4 items are scored YES= 0 and NO=1 with items summed to give a range of 0 to 4—with 4 being indicative of the highest level of medication adherence, and 0 indicating non-adherence. Further, as per Wan et al (2022), scores determine how those hypertension could be grouped into one of the following two groups: "poor adherence group (score ≤2) and good adherence group (score ≥3)" (p.1371). See Wan, J., Wu, Y., Ma, Y., Tao, X., & Wang, A. (2022). Predictors of poor medication adherence of older people with hypertension. *Nursing open*, *9*(2), 1370-1378

1-Do you ever forget to take your high blood pressure medicine?
0__YES 1__NO
2-Do you ever have problems remembering to take your high blood pressure medication?
0__YES 1__NO
3-When you feel better, do you sometimes stop taking your high blood pressure medicine?
0__YES 1__NO
4-Sometimes if you feel worse when you take your high blood pressure medicine, do you stop taking it?
0__YES 1__NO

Part V: Three Factors Impacting High Blood Pressure Medication Adherence—Before and During the Pandemic, and Currently (3FI-HBPMA-BDP-C-9)

[This is a new tool created by the Principal Investigator, Julie Jacobs, and Dr. Barbara Wallace, Director of the Research Group on Disparities in Health (RGDH) for first time use in this study—and for ongoing future use by the RGDH. The tool arises from a review of literature indicating some patients may have experiences disruptions in access to health care and pharmacy services during the pandemic, thereby disrupting routine care for chronic disease management. Hence, this survey was created by the RGDH. This new tool asks participants about three periods of time for 3 relevant medication and care related issues: before the pandemic, during the pandemic—especially in 2020 and 2021, and currently—especially the past three months. This will permit comparing group means for the three periods of time using multiple paired t-tests.] Items are scored on a 6-point Likert scale ranging from 1=very poor to 6=excellent.]

1-Please rate the extent to which you *followed the instructions given to you by your medical provider for taking your high blood pressure medication* **BEFORE the COVID-19 pandemic**:
I rate the **extent to which I followed their instructions for taking my medication as:**
__1-Very poor __2-Poor __3-Fair __4-Good __5-Very Good __6-Excellent

2- Please rate the extent to which you *followed the instructions given to you by your medical provider for taking your high blood pressure medication* **DURING the COVID-19 pandemic—especially in the years 2020 and 2021:**
I rate the **extent to which I followed their instructions for taking my medication as:**
__1-Very poor __2-Poor __3-Fair __4-Good __5-Very Good __6-Excellent

3- Please rate the extent to which you *follow the instructions given to you by your medical provider for taking your high blood pressure medication* **CURRENTLY—especially in the PAST THREE MONTHS:**
I rate the **extent to which I follow their instructions for taking my medication as:**
__1-Very poor __2-Poor __3-Fair __4-Good __5-Very Good __6-Excellent

[ONE WAY ANALYSIS OF VARIANCE COMPARING THE BEFORE, DURING, CURRENT MEAN SCORES]

4-Please rate to what extent *regular contact with your medical provider was maintained for the management of your high blood pressure* **BEFORE the COVID-19 pandemic**:
I rate the **extent to which regular contact was maintained** with my medical provider as:
__1-Very poor __2-Poor __3-Fair __4-Good __5-Very Good __6-Excellent

5- Please rate to what extent *regular contact with your medical provider was maintained for the management of your high blood pressure* **DURING the COVID-19 pandemic—especially in the years 2020 and 2021:**
I rate the **extent to which regular contact was maintained** with my medical provider as:
__1-Very poor __2-Poor __3-Fair __4-Good __5-Very Good __6-Excellent

6- Please rate to what extent *regular contact with your medical provider is being maintained for the management of your high blood pressure* **CURRENTLY—especially in the PAST THREE MONTHS:**
I rate the **extent to which regular contact is being maintained** with my medical provider as:
__1-Very poor __2-Poor __3-Fair __4-Good __5-Very Good __6-Excellent

[ONE WAY ANALYSIS OF VARIANCE COMPARING THE BEFORE, DURING, CURRENT MEAN SCORES]

7-Please rate to what extent *you received your high blood pressure medication prescriptions and actual medication so you could take your medication on time—without interruption* **BEFORE the COVID-19 pandemic**:
I rate the **extent to which I received my prescriptions and medication on time as:**
__1-Very poor __2-Poor __3-Fair __4-Good __5-Very Good __6-Excellent

8- Please rate to what extent *you received your high blood pressure medication prescriptions and actual medication so you could take your medication on time—without interruption* **DURING the COVID-19 pandemic—especially in the years 2020 and 2021:**
I rate the **extent to which I received my prescriptions and medication on time as:**
__1-Very poor __2-Poor __3-Fair __4-Good __5-Very Good __6-Excellent

9- Please rate to what extent *you receive your high blood pressure medication prescriptions and actual medication so you could take your medication on time—without interruption* **CURRENTLY—especially in the PAST THREE MONTHS:**
I rate the **extent to which I receive my prescriptions and medication on time as:**
__1-Very poor __2-Poor __3-Fair __4-Good __5-Very Good __6-Excellent

[Paired t- tests will compare the time periods for mean scores]

Part VI: Perceived General Social Support Scale (A) and Blood Pressure Management Social Support Scale (B)—For Before and During the Pandemic, and Currently (PGSSS[A]-BPMSSS[B]-BP-DP-C-6)

[The Principal Investigator, Julie Jacobs, and Dr. Barbara Wallace, Director of the RGDH, have created this new tool based on a review of the literature—while making substantial modifications to a common tool used by the Research Group on Disparities in Health (RGDH): i.e. a prior tool used by Lian (2017). See: Lian, Z. (2017). *Predictors of depression/anxiety, mental health service utilization, and help-seeking for Chinese international students: Role of acculturation, microaggressions, social support, coping self-efficacy, stigma, and college staff's cultural competence and cultural humility*. Doctoral Dissertation, Teachers College, Columbia University. In recent years, to reduce the burden of time during the stress of the ongoing pandemic, a new one item version of the scale was created by combining the essence of 5 questions used in Lian (2017) into one description of what having social support "means." Participants then indicated the number of people they have in their life, using the 5-option scale. However, as an innovation used for the first time in this study, there is a GENERAL SOCIAL SUPPORT SCALE A (GSSS-A-3) with 3 ODD numbered items, corresponding to three time periods for rating general social support: i.e., before the pandemic; during the pandemic—especially in the years 2020 and 2021; and currently, especially in the past three months. SCALE A has 3 items scored on a 5-point Likert scale ranging from 1 to 5. Also, as an additional innovation used for the first time in this study, there is a BLOOD PRESSURE MANAGEMENT SOCIAL SUPPORT SCALE B (BPMSSS-B-3) with even numbered items, corresponding to three time periods for rating blood pressure management social support: i.e., before the pandemic; during the pandemic—especially in the years 2020 and 2021; and currently, especially in the past three months. SCALE B has 3 items scored Yes=1 or No= 0. Both Scales A and B will permit comparing group means for the three periods of time using multiple paired t-tests.]

Having SOCIAL SUPPORT means having people in your life who provide the following kinds of support and assistance: you can ask them for advice, or receive words of encouragement; get money or get food in an emergency; or have a place to temporarily wait for help, or stay or live in an emergency.

1-Please indicate the extent to which *you experienced SOCIAL SUPPORT in your life* **BEFORE the COVID-19 pandemic:**

1. I had no one like this in my life then
2. I had at least 1 one person like this in my life then
3. I had at least 2 people like this in my life then

4. I had 3-5 people like this in my life then
5. I had 6 or more people like this in my life then

2-BEFORE the COVID-19 pandemic, did you have someone who helped to remind you about taking your high blood pressure medication, or gave you your medication, or helped by picking up your medication prescriptions, or helped you in some other way to manage your blood pressure?
0=__**No** 1=__**Yes**

3-Please indicate the extent to which *you experienced SOCIAL SUPPORT in your life* **DURING the COVID-19 pandemic—especially in the years 2020 and 2021:**

1. I had no one like this in my life then
2. I had at least 1 one person like this in my life then
3. I had at least 2 people like this in my life then
4. I had 3-5 people like this in my life then
5. I had 6 or more people like this in my life then

4-DURING the COVID-19 pandemic (especially in the years 2020 and 2021), did you have someone who helped to remind you about taking your high blood pressure medication, or gave you your medication, or helped by picking up your medication prescriptions, or helped you in some other way to manage your blood pressure?
0=__**No** 1=__**Yes**

5-Please indicate the extent to which *you experience SOCIAL SUPPORT in your life* **CURRENTLY—especially in the PAST THREE MONTHS:**

1. I have no one like this in my life right now
2. I have at least 1 one person like this in my life right now
3. I have at least 2 people like this in my life right now
4. I have 3-5 people like this in my life right now
5. I have 6 or more people like this in my life right now

6-CURRENTLY (especially in the past THREE MONTHS), do you have someone who helps to remind you about taking your high blood pressure medication, or gives you your medication, or helps by picking up your medication prescriptions, or helps you in some other way to manage your blood pressure?
0=__**No** 1=__**Yes**

Part VII: Perceived Stress Scale (PSS-4)

[The PSS-4 is a short version of the PSS-10 created by: Cohen, S., Kamarck, T., Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, 385-396. Also see Cohen, S (1994). For the shorter PSS-4 utilized for this study and scoring, please see: https://ohnurses.org/wp-content/uploads/2015/05/Perceived-Stress-Scale-4.pdf. According to Karam et al. (2012), (See: Karam, F., Bérard, A., Sheehy, O., Huneau, M. C., Briggs, G., Chambers, C., ... & Martin, B. (2012). Reliability and validity of the 4-item Perceived Stress Scale among pregnant women: Results from the OTIS antidepressants study. *Research in Nursing & Health*, *35*(4), 363-375. Retrieved from: https://onlinelibrary.wiley.com/doi/abs/10.1002/nur.21482.) in a study with pregnant women, while examining stress, depression,

and quality of life, they found acceptable internal consistency (Cronbach's alpha coefficient = .79), alternate forms stability reliability with the 10-item PSS (Pearson correlation coefficient $r = .63$; $p < .001$), concluding it was a valid and useful tool.] [**Perceived Stress Scale Scoring**: PSS-4 scores are obtained by reverse coding the positive items, e.g., 0=4, 1=3, 2=2, etc., and then summing across all 4 items. Items 2 and 3 are the positively stated items.]

Instructions: The questions in this scale ask you about your feelings and thoughts during the last month. In each case, please indicate with a check how often you felt or thought a certain way.

1. In the last month, how often have you felt that you were unable to control the important things in your life?
___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

2. In the last month, how often have you felt confident about your ability to handle your personal problems?
___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

3. In the last month, how often have you felt that things were going your way?
___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

4. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?
___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

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Part VIII: Rating Health Care Providers for Level of Cultural Competence and Discrimination (RHCP-CC-D-2)

[This is a new tool created by the Principal Investigator, Julie Jacobs, and Dr. Barbara Wallace, Director of the Research Group on Disparities in Health (RGDH) for first time use in this study—and for ongoing future use by the RGDH; however, prior versions of this tool have been used in many studies conducted by the RGHD (e.g. Hall, 2021). [See Hall, P. (2021). *Investigation of Quality of Life, Harmony, Healthy Behaviors for Aging, Perceived Stress, Disparities in Healthcare, Microaggressions, and Discrimination as Predictors of Satisfaction with Life for Older Black Lesbians*. Teachers College, Columbia University]. This version is novel is providing a definition or explanation of cultural competence, before asking for a rating—as an innovation and improvement upon prior versions. The tool arises from explanations of cultural competence and discrimination advanced in 2022 by Dr. Wallace for use in research measures by the RGDH. The tool has 2 items that offer, respectively explanations of cultural competence and discrimination, followed by ratings of providers for each explanation. For the main provider or providers' who have treated patients in the past year for their high blood pressure, patients provide a rating of their cultural competence on a 6-point Likert scale that ranges from 6=highest level of cultural competence (desired) to 1=none, no cultural competence at all (undesirable). For the main provider or providers' who have treated patients in the past year for their high blood pressure, patients provide a rating of their engagement in discrimination on a 6-poiny Likert scale for Reverse Scoring where 6=highest level of discrimination (undesirable) to 1=none, no discrimination (desirable).]

Please *think about the main health care provider or providers who have treated you in the past year for your high blood pressure or hypertension*, then read the explanation of the **bolded** term; and, then rate your provider(s).

Cultural competence is the ability to remain open to learning about the experiences, beliefs, preferences, and needs of individual members of varied racial, ethnic, and cultural groups by asking questions and carefully listening to an individual's answers with patience, empathy and compassion—while consciously refraining from making assumptions.

1 - I rate my provider(s) level of **cultural competence** when treating me for my high blood pressure me, as follows:

1-none, no cultural competence at all	2-very low level of cultural competence	3-low level of cultural competence	4-moderate level of cultural competence	5-high level of cultural competence	6-highest level of cultural competence

Note on Likert scale scoring: 6=highest (desired) to 1=none (undesirable)

Discrimination occurs when a provider's bias and/or stereotyping results in their deviating from (abandoning) the standard of care or standard care protocols (what they are supposed to do) when treating diverse patients; this discrimination involves diverse patients receiving a lower quality of care (worse care than that provided to someone White/Caucasian).

2 - I rate my provider(s) level of **discrimination** when treating me for my high blood pressure, as follows:

1-none, no discrimination at all	2-very low level of discrimination	3-low level of discrimination	4-moderate level of discrimination	5-high level of discrimination	6-highest level of discrimination

Note on Likert scale for Reverse Scoring: 6=highest (undesirable) to 1=none (desirable)

Part IX: Perceived Discrimination by Medical Providers in Response to Personal Demographics, Intersecting Identities, Appearance (PD-ID-A - II-9)

[Scale taken from Hall (2021) [See Hall, P. (2021). *Investigation of Quality of Life, Harmony, Healthy Behaviors for Aging, Perceived Stress, Disparities in Healthcare, Microaggressions, and Discrimination as Predictors of Satisfaction with Life for Older Black Lesbians*. Teachers College, Columbia University] and modified for the study (i.e. Thinking back and recalling the times that you have be seen by medical providers who provided treatment for your high blood pressure, do you think you experienced any discrimination (unfair treatment) for……) with options were expanded to include not just being Black, and not just being a woman, but also a man, being LGBTQ+; and appearance was separated out into 3 items: skin color/tone, hair, appearance. The original Hall (2021) version was intended for subsequent use by the Research Group on Disparities in Health, while designed for first time use in Hall (2021) with Dr. Barbara Wallace, Director of the RGDH. There are now 9 questions versus 5 in Hall (2021). *NOTE on Scoring: question answer range = 0 to 9, 0=no discrimination to 9=highest level experience of discrimination for multiple intersecting identities with providers.]*

Thinking back and recalling the times that you have be seen by medical providers, including those who provided treatment for your high blood pressure, do you think you **experienced any discrimination (unfair treatment) for the following:** (Please select all that apply):

1-being **Black or African American** ___Yes ___No
2-being a **woman** ___Yes ___No
3-being a **man** ___Yes ___No
4-being **LGBTQ+** ___Yes ___No ___
5-being **overweight or obese** ___Yes ___No __
6-my **skin color/ skin tone** ___Yes ___No
7-my **hair** ___Yes ___No
8-my **appearance (e.g. height, body features, clothing, etc.)** ___Yes ___No
9-being a **person with a disability** ___Yes ___No __

*(**NOTE on Scoring:** question answer range = 0 to 9, 0=no discrimination to 9=highest level experience of discrimination for multiple personal characteristics)*

Part X: Medical Mistrust Scale—Short Form (MMS-SF-4)

[This study follows Shelton et al (2010), given their 11-item version of their tool: **The Group Based Medical Mistrust Scale (GBMMS), which measures race-based medical mistrust.** The title was shortened for this study to the **Medical Mistrust Scale**. See: Shelton, R. C., Winkel, G., Davis, S. N., Roberts, N., Valdimarsdottir, H., Hall, S. J., & Thompson, H. S. (2010). Validation of the group-based medical mistrust scale among urban black men. *Journal of General Internal Medicine*, *25*(6), 549-555. The 11-item tool follows elimination of one item from their original 12 item tool, given the finding of three factors. However, for this study a shorter tool was needed. Hence, of the three factors/scales, this study will include just some items: **Suspicion Scale (Factor 1, 2 of 5 original items included); Discrimination Scale (Factor 2, 2 of 3 original items included for reverse scoring); and, not used in this study were any items from the Lack of Support Scale (Factor 3). The result is a scale for this study with 4 questions—as a short form.** The numbering in this scale reflects the removal of items (i.e. 1, 2, 3, 6, 7, 9, 11) to shorten the

scale; only original items 4, 5, 8, 10 are included. Shelton et al (2010, p. 552) reported that internal consistency "was high for the total GBMMS (α=0.87) and the three sub-scales: Suspicion (α=0.89); Discrimination (α=0.83); Lack of Support (α=0.65)" (p. 552). They also "calculated split-half reliability by examining the correlation between odd and even numbered items and found two halves to be highly correlated (r=0.78; p<0.0001)" (p. 552). NOTE: The present study will determine internal consistency for the 4-item short scale—eliminating separate consideration for Short Suspicion Scale and Short Discrimination Scale]

Please indicate your agreement or disagreement with the following statements:

[Short Suspicion Scale (Factor 1)]

1-Black people cannot trust doctors and health care workers (***item 5 on original scale)***

1-Strongly Disagree 2-Disagree 3-Neither Agree or Disagree 4-Agree 5-Strongly Agree

2- Black people should be suspicious of information from doctors and health care workers (***item 4 on original scale)***

1-Strongly Disagree 2-Disagree 3-Neither Agree or Disagree 4-Agree 5-Strongly Agree

[Short Discrimination Scale (Factor 2)—reverse score]

3-Black people receive the same medical care from doctors and health care workers as people from other groups (***item 8 on original scale)***

1-Strongly Disagree 2-Disagree 3-Neither Agree or Disagree 4-Agree 5-Strongly Agree

4-Black people are treated the same as people of other groups by doctors and health care workers (***item 10 on original scale)***

1-Strongly Disagree 2-Disagree 3-Neither Agree or Disagree 4-Agree 5-Strongly Agree

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Part XI: Ratings of Experiences of Microaggressions with Health Care Providers (REM-WHCP-5)

[The use of this scale for the RGDH began with the work of Liss (2015). See Liss, A. R. (2015). Microaggression experiences, stress, and coping for lesbian, bisexual, or queer-identified women seeking the goals of childbirth and/or co-parenting: An online survey of experiences with maternal health care. *A doctoral dissertation. Teachers College, Columbia University*. Since, then it has been modified for use with numerous specific groups, such as Asians (e.g. Lian, 2017), and Black older lesbians (e.g. Hall, 2021)—as well as Black adults (e.g. Williams-Gunpot). The modification for this study involves instructions asking if microaggressions were experienced, "WHILE YOU WERE BEING TREATED BY A HEALTH CARE PROVIDER in the United States—and it seemed related to your being Black, or African American." In some studies, a question on on intersectional experiences (double jeopardy) has appeared, but was not used in this study.]

For the following questions, please indicate to what extent you experienced any of the following **while you were being treated by a health care provider—**and **it seemed related to your being Black, or African American.**

1-Brief exchanges or brief interactions with a health care provider where you felt you were receiving messages that were a put down, denigrating, or conveyed something negative—**that seemed related to your being Black:**

__0-Never/Not At All __1-At Least Once __2-More Than Once __3-A Few Times __4-Many Times

2-A verbal attack from a health care provider that was hurtful and caused mental or emotional pain, whether this involved name-calling, or something said that was insulting—**that seemed related to your being Black**:

__0-Never/Not At All __1-At Least Once __2-More Than Once __3-A Few Times __4-Many Times

3-A nonverbal attack from a health care provider or some behavior that was hurtful and caused mental or emotional pain, whether this involved someone avoiding contact and interaction, or avoiding communication, or some act of discrimination—**that seemed related to your being Black**:

__0-Never/Not At All __1-At Least Once __2-More Than Once __3-A Few Times __4-Many Times

4-An insulting communication from a health care provider that conveyed rudeness and insensitivity or involved put downs or something demeaning being said—**that seemed related to your being Black**:

__0-Never/Not At All __1-At Least Once __2-More Than Once __3-A Few Times __4-Many Times

5-An excluding communication from a health care provider that excluded you, cancelled out your existence, made you invisible, or ignored the reality of your thoughts, feelings, and existence—**that seemed related to your being Black**:

__0-Never/Not At All __1-At Least Once __2-More Than Once __3-A Few Times __4-Many Times

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Part XII: Dichotomous Self-Classification for Consistency of Adherence to Medication for High Blood Pressure Treatment (DSC-CAM-HBPT-1)

[This is a new tool created by the Principal Investigator, Julie Jacobs, and Dr. Barbara Wallace, Director of the Research Group on Disparities in Health (RGDH) for first time use in this study—and for future use by the RGDH. As an ideal tool for pandemic-era research, while reducing the burden of time, this tool permits a self-rating of medication adherence using just one item, while requiring a "yes" (**for being medication non-adherent**) or "no" (**for not being medication non-adherent/or I am medication adherent**) response. The responses permit logistic regression analysis being used to identify predictors of answering **"yes" for being medication non-adherent**, or **"no" for not being medication non-adherent/or I am medication adherent**.]

1-If I only had two choices, overall, I would place myself in the following group:

(Group A self-classification =YES, I am medication non-adherent)

___ A group **THAT DOES NOT CONSISTENTY OR ALWAYS TAKE** their prescribed high blood pressure medication as they have been advised to for the treatment of high blood pressure

(Group B self-classification =NO, I am not medication non-adherent/ or, I am medication adherent)

___ A group **THAT DOES CONSISTENTLY OR ALWAYS TAKES** their prescribed high blood pressure medication as they have been advised to for the treatment of high blood pressure

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Part XIII: Dichotomous Self-Classification for Experiences of Racism or Discrimination Impacting Engagement with Medical Providers (DSC-ERD-IEMP-1)

[This is a new tool created by the Principal Investigator, Julie Jacobs, and Dr. Barbara Wallace, Director of the Research Group on Disparities in Health (RGDH) for first time use in this study—and for future use by the RGDH. Being ideal for pandemic-era research, this single item tool has just one item that permits self-classification into one of two groups: i.e. a "yes" group (scored 1) for having experienced racism/discrimination as impacting their engagement with providers; or, in a "no" group (scored 0) for not having experienced racism/discrimination as impacting their engagement with providers. This classification into a "yes" or "no" group permits a logistic regression analysis.]

1-If I only had two choices, overall, I would place myself in the following group:

(Group A self-classification =YES, racism/discrimination has impacted my engagement with providers)
(A)___A group **THAT <u>HAS</u>** experienced racism and/or discrimination **SO THAT IT IMPACTED** *my willingness* to regularly go and get treated by medical providers

(Group B self-classification =NO, racism/discrimination has not impacted my engagement with providers)
(B)__ A group **THAT <u>HAS NOT</u>** experienced racism and/or discrimination **SO THAT IT IMPACTED** *my willingness* to regularly go and get treated by medical providers

----------END OF SURVEY----------
THANK YOU!

SHARE WITH OTHERS THE LINK THAT LED YOU TO THIS STUDY!

<u>COUNSELING RESOURCES</u>

If you need immediate assistance, please refer to the following contact information.

You can download this page with contact information for counseling resources, OR SKIP TO THE LINK, BELOW, FOR ENTERING YOUR EMAIL INTO THE LOTTERY DRAWING FOR A CHANCE TO RECEIVE A PRIZE (i.e., 1 of 3 bar coded Amazon gift certificates for $100).

1-For Free Texting Crisis Help:

- **You text 741741** when in crisis as a service available 24 hours a day, 7 days a week. You will reach a live trained Crisis Counselor who will respond quickly. The Crisis Counselor helps to move you from a hot moment to a cool calm and safe state, using effective active listening and suggested referrals—all using the Crisis Text Live's secure platform.
- If you have a phone plan with AT&T, T-Mobile, Sprint, or Verizon, texting to 741741 is free of charge.

2-Contact a Crisis Intervention Hotline for Immediate Help and Referrals:

<u>https://www.allaboutcounseling.com/crisis_hotlines.htm</u>

Examples of Crisis Intervention Hotlines:

- If you are in immediate danger, call 911
- The Lifeline and 988: ***988*** has been designated as the new three-digit dialing code that will route callers to the National Suicide Prevention Lifeline
- Grief Recovery Helpline: 800-445-4808

3-Seek Out Top Rated, Low-Cost Online Counseling Services:

<u>https://www.e-counseling.com/tlp/therapy-1/?imt=1</u>

- Please see a list of the top-rated online counseling services—for a "low flat fee"
- **4-Seek Out Affordable Online Counseling:**
  <u>https://www.betterhelp.com/about/</u>

- Access affordable and convenient online counseling with professionals.

5-Seek Help from the Study Sponsor by E-Mail or Phone: bcw3@tc.columbia.edu or 267-269-7411 (i.e. the study contact number)

- You may contact the study sponsor, Dr. Barbara Wallace, receiving help with referrals. Dr. Wallace is a licensed psychologist with experience working with the study population.