Exploring the Impact of Telehealth on Black Women Controlling Hypertension

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Abstract

Black women are struggling to properly control their hypertension. Black women continue to be disproportionately affected by hypertension due to historically systemic and structural barriers. The Social Determinants of Health related to race, gender, and access are major contributing factors. The Black woman's plight is explained through the concepts of Intersectionality Theory and the Superwoman Schema. With interventions varying on controlling hypertension, research agrees that adherence to preventative and follow-up care is essential to improving blood pressure results. During COVID-19, there was a resurgence in the use of telehealth to improve health outcomes without the need of in-person visits. Through the evaluation of literature and content analysis, this author utilized this information to encourage the use of telehealth as a workable intervention to provide Black women with additional resources to improve efforts to properly control their hypertension.

Keywords: *hypertension, blood pressure control, telehealth, Black women, Superwoman Schema, Intersectionality Theory, healthcare disparities, telemedicine, mHealth applications*

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Introduction

Black women are currently part of a public health issue that has magnified the healthcare disparities they face in managing their health. Hypertension disproportionately affects African American women at a rate not experienced by any other race or gender. African Americans are 30 percent more likely to have high blood pressure and are less likely to have their blood pressure under control (U.S. Department of Health and Human Services Office of Minority Health, 2021). Even more significant is the mortality rates for Black females from hypertension, is 352 percent higher than white females (Center for Disease Control, 2021). Uncontrolled hypertension puts Black women at greater risk for other illnesses such as strokes and heart attacks along with pregnancy-related complications, eclampsia, and preeclampsia, all of which can be fatal (Ghosh et al, 2014). Uncontrolled blood pressure could lead to end-stage renal disease requiring dialysis (Virani et al, 2021). As of 2021, Black women have seen the largest increase in occurrences of kidney disease with high blood pressure as the second most common risk factor.

The identified barriers to Black women managing their hypertension reviewed also fall under the Social Determinants of Health (SDOH). We considered race (Chelak & Chakole, 2023; Maccias-Konstantopoulos et al, 2023; Ramsoondar et al, 2023), gender (Braveman & Gottlieb, 2014; Miani, 2021), and access to care (Pullen et al, 2014; Williams & Mohammed, 2009). Theoretically, Intersectionality Theory and the Superwoman Schema explain how systemically, African American women experience healthcare disparities at such an alarming rate. The Black woman's experience includes those psychosocial stressors that are specific to their unique struggles being part of two marginalized groups: African Americans (race) and women (gender).

Despite the recognition and interest in the health-related consequences of institutional discrimination and policy practices, there is not a consensus on how to measure or analyze institutional racism (Needham et al, 2022). While it is important to address these barriers, a more attainable measure would be finding ways to lessen these barriers to Black women and compliance to a prescribed regimen. The research will focus on Black women with hypertension and utilizing telehealth to increase their adherence by expanding their access to care options. There is extensive literature available to discuss the efficacy of utilizing telehealth to address hypertension however, due to the longstanding history of medical mistrust among African Americans and the medical community, often there is limited data within research studies (James et a, 2016).

It is important to note that Black and African American is used interchangeably based on the term used in research. African American is a person whose origins are part of the Black racial groups of Africa. Black is a broader and more inclusive term (National Institute of Health, 2024).

The Effects of Hypertension on African American Women's Health

Hypertension is a chronic condition that is the primary illness or a symptom of other medical conditions (Mikulski et al, 2021; Sivakumaran & Earle, 2014). Hypertension occurs when the blood pressure is too high (The World Health Organization, 2021) which is greater than 130 mmHg (millimeters of mercury) systolic (the phase of the heartbeat when the heart muscle contracts and pumps blood from the chambers into the arteries) and greater than 80 mmHg diastolic (measures the force the heart exerts on the walls of the arteries between beats)(Centers for Disease Control and Prevention, 2021). Hypertension is the largest contributor to cardiovascular disease, mortality (Margolis et al, 2015; Mikulski et al, 2021; Ombani, & Ferrari,

2015) and preventable deaths (Bennett et al, 2009). According to the CDC, half of the adults in the United States (47%, or 116 million) have hypertension or are taking medication for hypertension (2024). Within that same report, only about one in four adults (24%) with hypertension have their condition under control. African Americans were thirty percent more likely to have high blood pressure and are less likely than non-Hispanic whites to have their blood pressure under control (U.S. Department of Health and Human Services Office of Minority Health, 2021).

Black women currently make up 7% of the U.S. population and 13.6% of all U.S. women yet hypertension cases exist in 55% of Black women (Jones et al, 2023). Despite Black women being younger than most women overall, they have a higher prevalence of heart disease, stroke, and other health conditions (Chinn et al, 2021). Black women are alarmingly affected by cardiovascular disease, which is the leading cause of death of women in the United States (Ogunniyi et al, 2021). Black women are two to three times more likely to experience premature death from cardiovascular disease (with uncontrolled hypertension as a major contributor) than White women (Ogunniyi et al, 2021). Black (along with Hispanic and Asian) women face a higher risk for pregnancy-related complications and strokes. Black women who develop pregnancy-induced hypertension are six times more likely to die than White women (Ghosh et al, 2014; Meyerovitz et al, 2023). Poorly managed blood pressure could lead to end-stage renal disease (Virani et al, 2021) requiring dialysis. According to the National Kidney Foundation (2021), African Americans make up more than 35% of dialysis patients but are only 13.5% of the population. African American women have seen the largest increase in occurrences of kidney disease with high blood pressure as the second most common risk factor.

Black women in Alabama. African American women account for 23.3% of the female population in Alabama yet they have the highest rates of heart disease. Nine out of fourteen counties in Alabama have an increased risk for cardiovascular disease (CVD) with hypertension as the major contributing factor (Ford et al, 2009). Among 2,125,084 women of reproductive age, 8.8% of those being black, have a higher prevalence of hypertension but lower instances of control than White women (Weng et al, 2024). A little of 47% of Alabama women have been told by a doctor that they had hypertension versus the national average of 34% (KFF, 2024). The perception amongst Black women in Alabama is that hypertension is a common and typical occurrence within the Black community (Ford et al, 2009).

The Social Determinants of Health Affecting Black Women

Studies continue to provide evidence that Black women are at a greater risk of hypertension due to the psychosocial factors and stigma associated with hypertension, which often deters adherence to high blood pressure treatment (Abel et al, 2021; Kalinowski et al, 2021; Pirtle & Wright, 2021). Gender and race based systemic discrimination, access, and the absence of culturally sensitive hypertension education (Abel & Efird, 2013; Fongwa et al, 2008) continue to make compliance difficult. To promote health equity among Black Women, priority must be to the Social Determinants of Health. These determinants and unique genetic, social, economic, and cultural diversity for Black women continue to contribute to ongoing hypertension (blood pressure) management inequalities (Abrahamowicz et al, 2023).

The Social Determinants of Health influence the health aspects of people, employment, education, socioeconomic status, social support networks, health policies, and healthcare access (Chelak & Chakole, 2023; Hahn, 2021). Although federal and state governments have recognized that structural discrimination limits less privileged groups' ability to be healthy, the measures

adopted to eliminate health disparities do not address that structural discrimination (Yearby, 2022). Social determinants of health are systemic, population-based, cyclical, and intergenerational, requiring extension beyond health care solutions to multi-sector and multi-policy approaches to achieve future population improvement (Hill-Briggs et al, 2022). At the population level, conditions in which African Americans are born, grow, live, work, and age differ from those of White Americans. The inequality in these social determinants of health conditions have been shaped through historical inequities. The health inequities experienced by Black women are not merely a cross section of time or the result of a singular incident (Chinn et al, 2021). No discussion of health equity is complete unless it considers the impacts level of racism and discrimination play and understanding of the intersectionality of gender and race; the historical contexts that have accumulated to influence Black women's health in the United States (Chinn et al, 2021; Crenshaw, 1989).

Race. There is an overwhelming body of evidence that points to the inextricable link between race and health disparities. Race as a social construct influences economic disparities which places Black and Indigenous People of Color [BIPOC] within zones marked by substandard health promotion and excessive health risks (Chelak & Chakole, 2023; Maccias-Konstantopoulos et al, 2023). Race does not determine someone's health, but the experience of racism has a profound effect (Ramsoondar et al, 2023). These socioeconomic disadvantages endured under the moniker of structural racism. In addition to implicit bias, be it unconscious attitude, positive or negative towards a person, group, or idea often leads to differential treatment based on perceived race (Maccias-Konstantopoulos et al, 2023). Racist structures and systems assign human value, privileges, and opportunities based on race. This structural system exists due to the false belief that different races are superior or inferior (Ramsoondar et al, 2023)

The continued impacts of systematic oppression, bias, and unequal treatment of Black women are results of segregation, discrimination, and historical laws purposed to oppress both Black women and Black people in the United States (Chinn et al, 2021). Race as a determinant of health could be used mistakenly to explain health and health care disparities. This concept of race rather than racism, as a determinant of health puts the emphasis on the person belonging to a particular race as defined by society, while shifting the onus away from the perpetrators of racism (Ramsoondar et al, 2023)

Gender[1]. The relevance of gender as a social determinant of health and its role in the production of health inequalities has increased in its recognition (Braveman and Gottlieb, 2014; Miani et al, 2021). Gender shapes health outcomes through the differential exposure to intermediary determinants of health, i.e., material, psychosocial, or behavioral and biological factors (Miani et al, 2021). Gender often cannot be separated from other social identifiers such as ethnicity, age, or socioeconomic status because they play a pivotal role within these social identifiers (Lagro-Janssen, 2008). The impact of gender as a social determinant of health is a composite of the effects of relative power, autonomy, poverty, and marginalization, within and across, societies and culture (Phillips, 2005). Women continue to be defined in terms of men, through biology, with health care being provided in a patriarchal health care delivery (Phillips, 2005).

Women historically have been excluded as subjects of research. Much of the data informing prevention and interventions has been incomplete (Government of Canada, 2000). Women's health has been mistakenly equated to encompass mostly maternal and reproductive health which is only

[1] Gender is a social, rather than a biological construct, and varies with the roles, norms and values of a given society or era. Sociologists describe sex as the relatively unchanging biology of being male or female, while gender refers to the roles and expectations attributed to men and women in a given society (Phillips, 2005).

a fraction of women's health and a time-limited life stage (Kosny, 1999). The relation between gender and the other social determinants of health is closely related with the concept of intersectionality (Veas et al, 2021) with resounding evidence of gender inequalities and health outcomes.

Access to care. The role of medical care as a determinant of health is limited. Medical care (especially preventive care, early interventions, and appropriate management of chronic disease) plays an important role in health (Williams & Rucker, 2000). Utilization of health services is only one factor but underutilization correlates to poor health outcomes. Preventative care, such as yearly comprehensive exams, are essential to maintaining good health through early disease identification and management of chronic conditions like hypertension and diabetes which are prevalent among African Americans (Pullen et al, 2014; Williams & Mohammed, 2009). According to Pew Research (Funk, 2022) less access to quality medical care is the top reason Black Americans have worse health outcomes.

African Americans continue to suffer (in terms of health and access) because most households live in poverty or areas with limited access to doctor's offices and other health facilities. They also have a lack of insurance (U.S. Department of Health and Human Services, 2023). In minority communities, health care facilities are more likely to close, pharmacies are less like to be adequately stocked, and residents are more likely to be treated by lower-quality physicians who are less likely to refer to specialty care (Pullen et al, 2014). Over 20% of African American women have no health insurance and are less likely to have employment-based insurance compared to white women (Pullen et al, 2014).

Research denotes that those persons that live in advantaged communities are more likely to utilize health services. Adversely, those in disadvantaged communities are less likely to seek

health care services (preventative care) due to those same factors (Pullen et al, 2014). Socioeconomically, many African American women work jobs that pay less than most and are the primary providers out of necessity due to several factors that prevent African American men from being active participants in the black community (disproportionately high incarceration rates, etc.)(Erving et al, 2024; Woods-Giscombe, 2010).

Theoretical Frameworks: Social Implications Leading to the Health Care Disparities of Black Women

We have identified factors that attribute to why African American women are at a greater risk for hypertension and hypertension-related diseases. Black women divulge issues that they face in the form of racism and discrimination due to their race and gender (Gary et al, 2021). Black women deal with racial discrimination, gender discrimination, financial and caregiver stress (Kalinowski et al, 2021). These issues alone can contribute to increases in hypertension and cardiovascular disease (CVD) outcomes. Although African Americans report higher exposure to stressful life events compared to whites, African American women also face gender and race-related stressors associated with gendered racism (Kalinowski et al, 2021). Recently gendered racism has been described as "the totality of interconnectedness between structural racism and structural sexism in shaping race and gender inequities, as a root cause of health problems among Black women and other women of color" (Pirtle & Wright, 2021).

Intersectionality Theory allows us to gain a better understanding of how African American women are affected by gender and race in terms of healthcare disparities. Intersectionality Theory posits the "point is that Black women can experience discrimination in any number of ways and that the contradiction arises from our assumptions that their claims of exclusion must be unidirectional" (Crenshaw, 1989). Black women have been fundamentally erased. Intersectionality

reconceptualizes classic feminist theory to include the experiences and concerns of Black women (Tribble et al, 2019). Opposition to Black feminist thought is the tendency to treat race and gender mutually exclusive however there must be focus on the multidimensionality of the Black women's experience (Crenshaw, 1989).

The disparities that exist among Black women can best be explained by examining these barriers through the lens of the Superwoman Schema or Strong Black Woman Syndrome. The "Superwoman Schema" rationalizes that Black women feel obligated to be strong, to suppress emotions and vulnerability, and to help others before themselves despite awareness of the detrimental effects on their health (Kalinowski et al, 2021). The sociopolitical context of African American women's lives, specifically the climate of racism, race, and gender-based oppression, disenfranchisement, and limited resources (Woods-Giscombe et al, 2010; 2016) clarifies the connections between stress and health disparities. In 2012, there was an introduction of dimensionality to help describe influences that are specific to the historical and life experiences that manifest themselves in an inequitable social environment, along with cultural factors that public health continues to ignore (Hogan et al, 2018). This legacy of strength in the face of stress continues to perpetuate the lack of attention paid to the health of African American women (Woods-Giscombé, 2010).

Telehealth as an Intervention to Managing Hypertension

The traditional method of treatment for hypertension is usually pharmacological interventions (Abrahamowicz et al, 2023). The efficacy of these regimens in African Americans are still being determined as there is little data available due to low participation in research studies (Wright et al, 2005; Holt et al, 2022; Williams et al, 2016). These interventions focus on the biological and medical symptoms of hypertension and its ability to lower blood pressure

consistently but not over extended periods of time. Other interventions focus on the psychosocial factors that prevent compliance to a prescribed regimen like self-management programs (Abel et al, 2023), stress interventions (Kalinowski et al, 2021; Collins & Hines, 2021) and creating a support system amongst peers (Brown et al, 2017; Wright et al, 2022). Both approaches to treatment put the burden of compliance on either the provider to create a manageable medication regimen or those who suffer from poor hypertension control; but do not provide ways to combat structured discrimination.

Creating a system where African American women can successfully manage their hypertension, collaboration between the provider and patient must be fostered. To regain the trust between African American women and the medical community, a patient-centered care approach to healthcare delivery may help reduce negative healthcare experiences and improve trust among African American patients (Cuevas & O'Brien, 2017). With the advancements made in the world of technology, it could allow an opportunity for engagement in ways that would decrease the burden of routine visits and promote better monitoring of chronic symptoms related to hypertension

Defining Telehealth. The recent pandemic (COVID-19) brought with it challenges for healthcare delivery. The issues for practitioners were the difficulty in assisting patients with continuing preventative care for chronic illness. The lack of appointment availability, inability to see patients in person, and lack of access, telehealth was reintroduced to ensure patients continue with preventative care measures. Though not a new concept, it was highly underutilized prior to the pandemic.

Telehealth was first introduced in the late 1950s and early 1960s when a closed-circuit television link was established (Nesbitt, 2009). Telehealth according to law is:

> Telehealth means delivering health care services by means of information and communications technologies consisting of telephones, remote patient monitoring devices or other electronic means which facilitate the assessment, diagnosis, consultation, treatment, education, care management and self-management of a patient's health care while such patient is at the originating site and the health care provider is at a distant site. (Pratt, 2015, page 498).

Telehealth positively affects all branches of medicine offering healthcare professionals and patients a tool for improving disease management. For this reason, increasingly telemedicine has become synonymous of telehealth: a definition encompassing a wide range of remote health services (Ombani & Ferrari, 2015). There are differences between telehealth and telemedicine. Telemedicine refers to remote clinical services and telehealth includes both clinical and non-clinical healthcare services (Shaver, 2022). Hamadi et al (2021) discovered that half (58%) of primary care providers provide telehealth services. In conjunction with these studies, telehealth has been documented to provide significant blood pressure reduction with regular home blood pressure telemonitoring compared to traditional care (Omboni & Ferrari, 2015). Continuing to assess the effectiveness of telehealth to address hypertension is an important step in encouraging compliance and adherence.

Search Methods

To ascertain information pertaining to telehealth as a viable option to help manage hypertension among Black Women, a scoping review was used to shape and inform future research or practice activities. The primary search engine database was EBSCOHost. As a result of the t search, potential studies were identified through CINAHL Ultimate, APA PsycInfo, Cochrane Central Register of Controlled Trials, and Academic Search Premiere. These databases

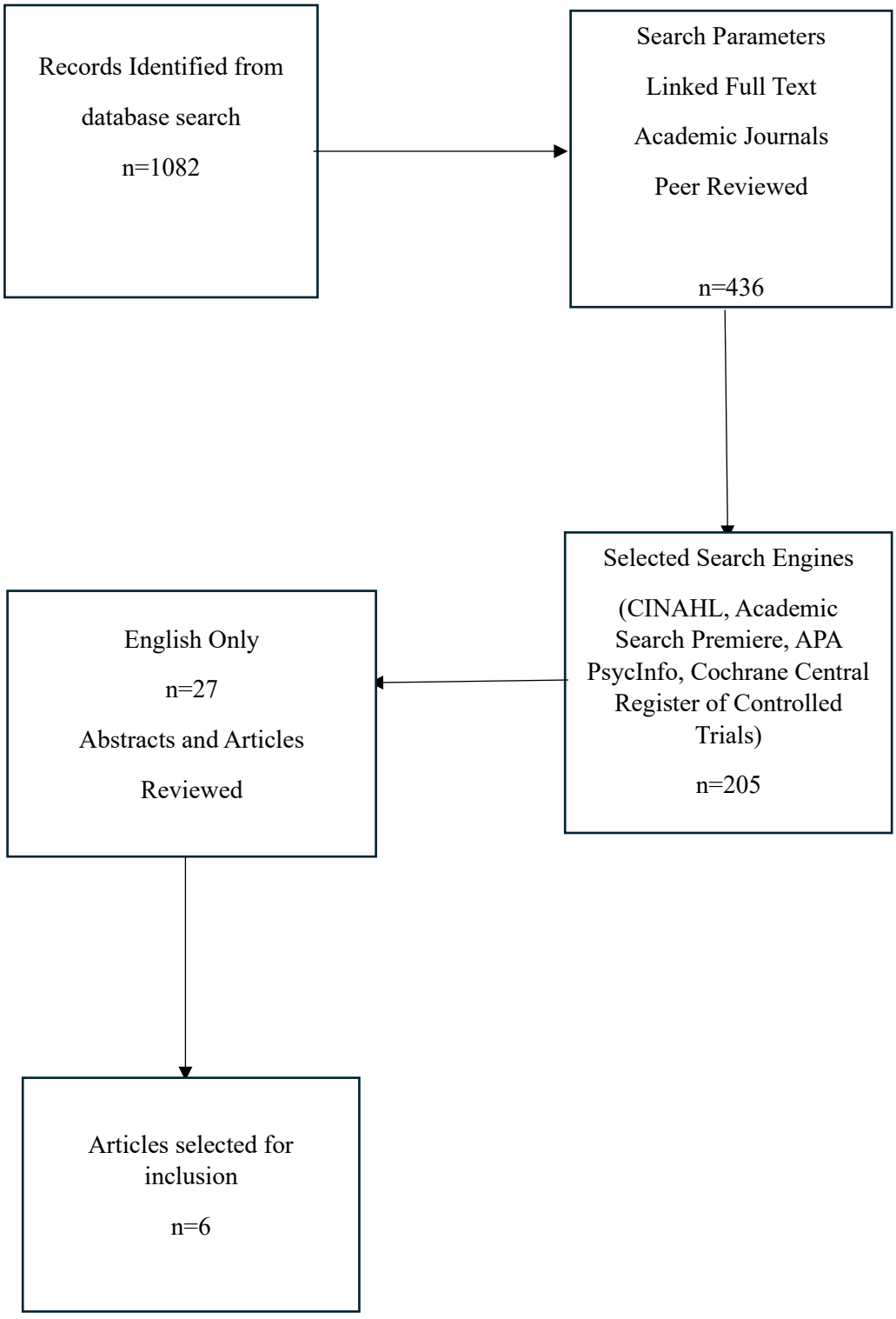
provided relevant academic journals and peer reviewed articles related to increase compliance in hypertensive patients with telehealth/telemedicine as a determining factor. GoogleScholar was used in a subsequent search to seek out additional articles using the same search terms however, many were duplicates. EBSCOHost provided the most relevant articles.

Potential studies were identified by using the following search terms through EBSCOHost: “telehealth” , “telemedicine”, “hypertension”, “high blood pressure”, “compliance” and “adherence” The Boolean operator “AND” was used between search terms, “telehealth or telemedicine”, “hypertension or high blood pressure”, and “compliance or adherence”. The initial search yielded 1,082 results. The search parameters of Scholarly (Peer Reviewed) Journals and English Language were added. The search revealed 203 results. The final parameter Linked Full Text was added and reduced the search results to 28. Of those 28, 22 discussed hypertension management where compliance and adherence were studied however it was not specific on whether telehealth monitoring was the primary factor or a large contributor. The populations studied were specialized and limited. A review of the remaining articles was completed and 6 articles were selected for inclusion. These database searches were completed between July 19, 2024 and September 3, 2024.

Table 1. Chart of Search Criteria for EBSCOHost

Primary Search Terms	“telehealth” “telemedicine”
AND	“hypertension” “high blood pressure”
AND	“compliance” “adherence”

Figure 1: Flow Chart of Database Search (Inclusion and Exclusion Criteria)



Discussion

There were six studies included to review: Bennett et al (2009), Sivakumaran & Earle (2014), Bray et al (2015), Omboni, S. & Ferrari, R. (2015), Margolis et al (2015), and Mikulski et al (2021). The collective theme throughout this collection of articles is telehealth monitoring can be effective in monitoring blood pressure and compliance; however, it cannot stand alone without other interventions. These interventions include medication adherence and dosage modifications. The other concern is that it is more costly than routine care. Most of the articles used were systematic reviews and meta-analysis of studies previously completed.

Table 2. Overview of Reviewed Sources

Author(s)	Year	Overview
Bennett et al	2009	Sought to evaluate an intervention consisting of health coaching, home blood pressure monitoring, and home medication titration to address 3 causes of poor hypertension control.
Bray et al	2015	Evaluated the TASMINH2 (telemonitoring and self-management in the control of hypertension) trial. Explored the effectiveness of patients managing hypertension through home monitoring and self-titration of medication.
Margolis et al	2015	Compared usual clinical care versus home BP monitoring with pharmacist management and intervention.
Mikulski et al	2021	Studied the impact of health application on medication adherence utilizing mHealth to help monitor medication adherence.
Omboni & Ferrari	2015	Assessed the role of telemedicine in home blood pressure monitoring.
Sivakumaran & Earle	2014	Evaluated the cost effectiveness of home blood pressure monitoring versus traditional in-office methods.

These studies establish the effectiveness of home blood pressure monitoring (Bennett et al, 2009; Bray et al, 2015; Sivakumaran & Earle, 2014; Omboni, S. & Ferrari, R. ,2015; Margolis et al, 2015; Mikulski et al, 2021). Home blood pressure monitoring can be useful in multiple situations. It has been a factor as an adjunct to team-based care for hypertension (Margolis et al, 2015) and medication adjustments with pharmacological intervention (Bennett et al, 2009; Sivakumaran & Earle, 2014; Margolis et al, 2015;). For home blood pressure monitoring to be successful, medical staff would benefit from having access to information in real time to make the necessary adjustments. Telehealth provides information on blood pressure to make immediate care changes.

Telehealth was administered in three primary ways: through mobile apps (Sivakumaran & Earle, 2014; Omboni, S. & Ferrari, R., 2015; Mikulsi et al, 2021), phone visits and coaching (Bennett et al, 2009; Margolis et al, 2015). These methods allowed patients to communicate with medical professionals between appointments. From this collection of articles, telemonitoring with pharmacist intervention was the most prevalent combination (Bennett et al, 2009; Sivakumaran & Earle, 2014; Margolis et al, 2015) with self-monitoring being the most common.

Theoretical Frameworks Supporting Telehealth as an Intervention

There were several theoretical frameworks that could be used to explain the implementation of eHealth (digital health interventions including telehealth). Theories most used in the literature tend to emphasize individual factors such as motivation, attitudes, and behavior rather than the broader social and environmental factors impacting implementation (Heinsch et al, 2021). There is a combination of theories that together, best explains the efficacy of using telehealth to address the variables that prevent persons from fully receiving care for their

healthcare needs: Identity Theory, Social Cognitive Theory, and Andersen's Behavioral Model of Health Service Utilization.

Identity Theory explains that identity is associated with a particular role and is likely to drive individual decision making about eHealth interventions (Heinsch et al, 2021; Mishra et al, 2012). Social Cognitive Theory posits that new knowledge and perceived self-efficacy in using interventions are influenced by observing others in the context of social interactions and experiences (Heinsch et al, 2021; Weegar and Gewald, 2015).

The most utilized theory is Andersen's Behavior Model of Health Service Utilization. Andersen's Behavior Model of Health Service Utilization was developed to examine the concepts of "access" and "accessibility". This theory provides a theoretical structure to understand access and utilization of health service. It recognizes the factors that impact a person's decision to use or note use existing health services (Andersen & Newman, 1973; Alkhawaldeh et al, 2023). This model constitutes that predisposing factors are social and demographic structures. Using this model helps to determine conditions that assist or impede health care utilization by people (Aday & Anderson, 1974; Anderson, 2008; Alkhawaldeh et al, 2023).

Telehealth Participation Among African American Women

With increasing advancement in technology and Artificial Intelligence (AI) introduction into healthcare, technology has seen a resurgence in its usage (Bajwa et al, 2021). Due to the high rates of technology adoption, African American women are well positioned to benefit from e-health/mobile health (m-health), telehealth interventions but there is limited data available on their willingness to participate in usage or m-health research (James et al, 2016). This is mainly

due to institutional discrimination and medical mistrust (Abel & Efird, 2013; Scharff et al, 2010). Equity remains a prime concern in digital health's promise to make medical care more efficient and effective (Raza et al, 2023). African Americans are also underreporting their use of telehealth services in healthcare (Iasiello et al, 2023). To overcome this digital divide, it will require mobilization of resources, financial incentives, and cooperation among hospital systems, insurance companies, and government officials (Haynes et al, 2021). There is limited data available on participation of African American women participating in telehealth studies. Alternately there is also information available that has provided promising results on telehealth as an appropriate intervention to managing hypertension (Abel et al, 2022; Haynes et al, 2021; Iasiello et al, 2023).

Future Considerations and Implications

There is promising evidence that utilizing telehealth to improve access to care for Black women managing hypertension exists. Barriers continue to be the participation of Black women in research studies and trials (Holt et al, 2022; Williams et al, 2016; Wright et al, 2005). Their participation is pivotal for both pharmacological interventions (Abrahamowicz et al, 2023) and telehealth (James et al, 2016). Telehealth creates an opportunity for collaboration between the provider and patient. This allows for trust to be re-established between Black women and the medical community through a patient-centered care approach to healthcare delivery (Cuevas & O'Brien, 2017).

Just as concerning, telehealth puts a large burden on the user (Black women) as they are usually self-managed and self-reported. No longer requiring in-person visits, time off from work, or arranging childcare could be a benefit (Haleem et al, 2021). If we consider the Superwoman Schema, it could have an adverse effect and further reinforce the idea that Black women must

prioritize their responsibilities versus their health (Knighton et al, 2022). Educating the relevant stake holders both the healthcare system and providers on these unique factors could help advance health care options in Black women.

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