

BLACK-WHITE DISPARITIES IN HEALTHCARE UTILIZATION FOR WOMEN
TRANSITIONING THROUGH MENOPAUSE

by

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I. INTRODUCTION AND RATIONALE

The scope of healthcare encompasses the health management for people of all ages with the care and treatment of a person's physical and mental well-being. The unfortunate truth about healthcare in America is that it does not always reach all the people who need assistance in managing their health. There has been a great effort in promoting health practices amongst all people and increasing healthcare utilization in women (Spector and Overholser 2019). Researchers have identified non-communicable diseases as major health risk factors amongst women (Peters et al. 2016). Most of these conditions can be prevented or alleviated with preventative medicine and early detection measures provided in regular visits with a primary care physician (Budreviciute et al. 2020). Peters et al. (2016) stated that by addressing women's sexual and reproductive health issues, the rates of non-communicable diseases would decrease.

For middle-aged and older women, menopause is an important life stage, which accompanies a decrease in estrogen production due to the natural aging process. Peacock, Ketvertis, and Doerr (2022) estimate 1.3 million women transition into menopause each year in the US and by the year 2030, there will be 1.2 billion women that have experienced or are experiencing the menopause transition globally (Sussman et al. 2015). Menopause occurs in all women; and due to the temporary imbalance of sex hormones, some women may experience higher risks of cardiovascular diseases, cancers, and musculoskeletal disorders (Marino, Galluzzo, and Ascenzi 2006; Rosano et al. 2007; Shuster et al. 2010; Collins, Laakkonen, and Lowe 2019).

While all women may experience some discomfort during menopause, the experiences can be vastly different for African American and white women (Walter 2000;

Sampsel et al. 2002). Importantly, there are racial disparities in women's sexual health, health-seeking behaviors, and the inability to afford health care during the menopause transition (Chinn, Martin, and Redmond 2021). Obstacles for African American women to access healthcare include affordability, insurance status, education, socioeconomic status, and racial bias (Bhatt and Bathija 2018; Chinn et al. 2021; Patterson, Robinson, and Roberts 2022). Abdou and Fingerhut (2014) observed that African American patients are less likely to seek out and adhere to medical treatments regardless of socioeconomic class when compared to white women of the same socioeconomic class.

An important gap in research on menopause is the focus on non-Hispanic white women. It is not only the medical communities' omission of African American women in medical research but also the unwillingness of African American women to participate in research due to the historical abuse of African Americans in medical research. African American communities' strong distrust towards the healthcare system furthers the gaps in healthcare disparities (Bailey, Erwin, and Belin 2000; Lannin et al. 2002). The African American community often places greater trust in family and friends than the medical community, and this could adversely affect their health and quality of life (Pichert and Briscoe 1997; Keating et al. 1999; Agee 2000; Rust 2004; Gullatte et al. 2010; Lopes Ibanez-Gonzalez, Mendenhall, and Norris 2014).

My research seeks to find whether there is a disparity in healthcare utilization between African American and white women across the US for the population of women experiencing the menopausal transition. Findings from this research could create opportunities for the creation and dissemination of educational resources for patients and health care providers. By encouraging more access to health resources and implementing

services, women have a greater likelihood of overcoming the obstacles faced when seeking medical services as they experience the menopause transition.

II. REVIEW OF THE LITERATURE

Racial Disparities in Women's Healthcare Utilization

When investigating racial differences in health outcomes, Rai et al. (2022) says the differences observed are not solely due to a person's race, but the social differences African Americans or Black Americans experience when compared to white Americans. Noonan, Velasco-Mondragon, and Wagner (2016) claim the African American population is the least healthy in the United States. Stating the differences in health outcomes are due to the social differences between African American and white populations. Social determinants of health include the quality of care, access to health education, community involvement in promoting health, a person's environment being conducive to health-seeking behaviors (i.e., public transportation and exercise), and financial stability of an individual (Centers for Disease Control and Prevention 2021).

Social determinants of health may directly or indirectly influence differences in the medical services rendered by African American women and white women (Chinn et al. 2021). The African American population is more likely to live in areas of poverty with little access to transportation, food deserts or areas with greater air pollution, communities with higher violence/crime rates. As the social determinants of health become increasingly negative it would be expected that overall health would decrease and lead to the poor health outcomes for the African American population as described by Noonan et al. (2016).

The Census Bureau (2022) collected race data according to U.S. Office of Management and Budget guidelines and combines the categories of racial/ethnic data, African Americans and Black American, as one category to use to implement and oversee

the budget for federal agencies. Race and ethnicity are used to demonstrate the interactions of the social construction and biological effects of being Black or African American in the United States (Williams and Sternthall 2010). Due to the social aspect of this research, African American will be used to refer to both Black and African American individuals.

Many researchers have discussed the experiences of African American women in healthcare. Prather (2018) recounts the history of African American women's health care from slavery that still influences contemporary African American women. Enslaved women in the United States were forced to obey their "Masters" regarding childbirth and taking part in medical research. During the civil rights movement, medical professionals coerced African American women into abortions because of their socioeconomic statuses (Prather et al. 2018).

These interaction African American women experienced with the American healthcare system have translated and morphed into stereotype threat, a term coined by Claude Steele and Joshua Aronson in 1995, an alternative theory about behaviors and interactions. Stereotype threat is defined as the "socially premised psychological threat that arises when one is in a situation or doing something for which a negative stereotype about one's group applies" and may be one of the reasons for accumulation of inequalities and disadvantages throughout African American women's lives (Steele and Aronson 1995; Abdou and Fingerhut 2014). Where in trying to avoid stereotypes, African American women make different decisions than they would otherwise.

Consequently, African American women receive fewer healthcare services when compared to white women (Williams and Rucker 2000; Travis, Howerton and Szymanski

2012). African American women are also more likely to have higher morbidity and mortality rates when compared to white women (Williams and Rucker 2000). In terms of reproductive health, African American women are more likely to receive hysterectomies when compared to white women, receive a diagnosis at a later stage of breast cancer, have higher rates of sexually transmitted diseases, and are less likely to obtain early HIV treatments or diagnoses (Powell et al. 2005; Taylor et al. 2007; Tucker et al. 2007; Bower et al. 2009; Gullatte et al. 2010; Prather et al. 2016; Almirol et al. 2018; Aziz and Smith, 2011).

One reason for these differences in health services received by African American and white women may be due to insurance status. Having insurance and the type of insurance a woman has influence medical decisions (Sung, Alema-Mensah, and Blumenthal 2002; Wiltshire et al. 2009). In 2019, 8% of the US population did not have health insurance. Of the 8% of total uninsured people in the US, 9.6% were African American compared to the 5.2% non-Hispanic white Americans (US Census, 2019). In many cases, African American women delay seeking healthcare services due to mistrust in the medical system (Lopes et al. 2014). The lack of healthcare usage affects women's experience in transitioning through menopause. Women who receive regular checkups with physicians gain access to preventative care, minimizing the health risks associated with the menopause transition.

Anderlini (2018) explains that the healthcare system in the United States is not capable of serving a diverse population. One of the symptoms of a sick healthcare system is inconsistencies between care provided for white women and African American women (Benkert et al. 2006; Burgess 2010; Cuevas, O'Brien, and Saha 2016). Current

sociological research on the medical care received by African Americans focuses on the communication between medical professionals and African American patients.

Stereotype threat framework postulates that prejudice and stereotypes construct and reinforce self-fulfilling prophecies for African American patients and healthcare providers. The effects of stereotype threat on African American women includes the possibility of them making medical decisions to avoid negative stereotypes. In turn, African American women trying to avoid a stereotype may reinforce ideas held by medical professional, influencing decisions on how they provide care in the future. Stereotype threat is observable in menopausal African American women's management of medical services and the differences in prescription and adherence to medical advice (Van Ryn and Burke 2000; Benkert et al. 2006; Facione and Facione 2007; Travis et al. 2012).

Rust (2004) used the Andersen and Aday Behavioral Model to find modifiable determinants of health care use in African Americans. The Andersen and Aday Behavioral model (1978) (Figure 1) uses individual and contextual determinants to demonstrate what factors encourage healthcare utilization. There are three categories of factors that predict the behavior to seek out medical services.

The first category is predisposing factors which include individual determinants and contextual determinants. Individual determinants are a person's demographics, social factors such as race, ethnicity, and health beliefs regarding the value a person places on knowledge related to health and health services. The contextual determinants are community values, cultural norms, and political perspectives that would encourage health-seeking behaviors. Circumstances that would empower a person to receive health

care, such as geographical location and insurance status. The second category is enabling factors and includes financial ability, transportation, and insurance status. The third category of determinants affecting healthcare use include need factors such as a person's perception of their need for medical advice (Babitsch et al. 2012). These three factors: predisposition, enabling, and need influence a person's overall health.

Menopause education including stress management, lifestyle factors, and treatment options regarding the increased health risk associated with the menopause transition, encourages better health behaviors. There is a need for regular doctor visits and readily available education programs for women starting or preparing for the menopause transition to empower them to make decisions regarding their health and menopausal experience (Cutson and Meuleman 2000; Gollschewski et al. 2008). Regular doctor's visits also enable individualized care and education plans addressing women's specific needs (Nevin and Pharr 2002; Pace 2017).

Menopause

Menopause is a spontaneous and natural cycle that begins with the loss of menstruation, typically between the ages of 50 and 52 (Nabulsi et al. 1993; Bromberger et al. 1997; Cheung et al. 2004; George and Kamath 2010; Malek et al. 2019). The stages of menopause transitions are not clearly defined and have been loosely labeled based on hormonal fluctuations experienced (Santoro 2016). As graphically depicted in Figure 2, progesterone, estrogen, testosterone, follicle-stimulating hormone (FSH), dehydroepiandrosterone (DHEA), and luteinizing hormone (LH) fluctuate and decrease over time. The first stage of the menopause transition is perimenopause, recognized as two parts. In early perimenopause, amenorrhea, time without menstruation, is short. In

late perimenopause, amenorrhea is prolonged, FSH levels become high, and estrogen is low (Sherman, West, and Korenman 1976). After 12 months with no menstruation, women are considered menopausal and are no longer fertile, producing low levels of estrogen and high levels of FSH.

Researchers concluded that African American women are more likely on average to have menopause onset up to 5 years earlier on average when compared to white women (Bromberger et al. 1997; Reid et al. 2021). Menopause will continue to have an effect on women's health as they age. Women should have the resources and be comfortable receiving attention for their menopause symptoms, including health outcomes influenced by the decrease in estrogen. Thirty-one percent of all women will seek out medical services while transitioning through menopause and women who experience vasomotor symptoms (e.g., hot flashes) are more likely to seek out regular visits with their physicians (Guthrie et al. 2003).

Although not all menopausal women need medical attention, women not receiving regular healthcare may encounter adverse health afflicted by the loss of estrogen, such as cardiovascular diseases, diagnosis at later stages of cancer, or osteoporosis (Williams et al. 2007). Symptoms related to menopause, if not addressed, may persist without medicinal or alternative interventions (Borrelli 2010; Portman and Gass 2014; Santoro 2016). Potential chronic conditions affected by a decrease in estrogen or estrogen receptors include cardiovascular diseases, cancers, and musculoskeletal disorders (Marino et al. 2006; Rosano et al. 2007; Shuster et al. 2010; Collins et al. 2019). Menopause affects cardiovascular health because estrogen plays a role in mediating many signaling pathways within women's bodies. Estrogen Receptor α

and β , a class of ligand-gated receptors that regulate gene expression affect the development, reproduction, and homeostasis of women's bodies (Marino et al. 2006).

The change in signaling of Estrogen Receptors makes women more susceptible to osteoporosis, cardiovascular health, nervous system issues, and immune system issues (Marino et al. 2006). Menopausal women also have trouble sleeping, sexual dysfunction, and other vaginal symptoms such as dysuria, mood instability, changes in metabolism, weight fluctuations, temperature dysregulation, disturbances in the circadian rhythm, cognitive functions, and changes in gene reproduction which cause physiological and psychological changes in women (Dennerstein et al. 2007; Weiss 2007; Baker et al. 2018).

Menopause was medicalized in the 1930s and 40s and has changed the way women experience the menopause transition. Research expanded the understanding of estrogen and the menopause transition, setting in motion a cultural and scientific mentality that menopause was a medical problem (Bell 1987). The "cure" for menopause treated the symptoms associated with menopause (Stotland 2002). The purpose of encouraging women who are transitioning through menopause to seek health services is not to promote the medicalization of menopause. The medicalization of menopause has created negative outlook towards the natural cycle of women's lives. Increased health risks correlated to the menopause transition are not only related to menopause but can also be found in people who will never experience menopause or are not near the age of starting the menopause transition; even the fluctuation of hormones is not unique to menopause (Rostosky and Travis 2000; Derry 2002; Ciolfi, Søndergaard, and Baalm 2021).

The purpose of regular visits with medical professionals is not to intervene in the menopause transition but to offer preventative medicine to women. Ensuring diseases or illnesses correlated with hormonal changes are prevented or diagnosed in early stages with the use of a wide range of medical practices (Meyer 2001; Mehedintu et al. 2021). Creating accessible and equitable healthcare for women transitioning through menopause starts with routine care to promote overall health.

Racial Differences in Accessibility to Healthcare

African American women who may be uninsured, living in poverty, or living in areas with fewer medical professionals may be less likely to receive regular physical exams or encounters with medical professionals (Bhatt and Bathija 2018). Women who are not seen by a medical professional regularly are less likely to seek preventative medicine (Pullen, Perry, and Oser 2014). The hormonal changes in menopause may cause physiological changes that a medical professional should monitor for patients to make the most informed decisions in the early stages of health changes (Dennerstein et al. 2007; Weiss 2007). Researchers have discovered that a patient's regional location, insurance status, cultural expectations, and distrust of the medical field may influence the decision to adhere to physicians' medical recommendations and treatments (Keating et al. 1999; Agee 2000).

Geographical Location

Accessibility affects women who are in rural and urban locations differently. Where women in urban settings may have access to more providers and less of a distance to travel for services (Syed, Gerber, and Sharp 2013; Oluyede et al. 2022). The services a

provider can provide will not extend across all health needs therefore creating disparities for women who have fewer medical professionals they are able to see in their area. Patients' health care cost increases and early diagnosis or the likelihood of receiving treatment decreases when the necessary health resources are not accessible due to their location (Johnson et al. 2006). Researcher Van Dis (2002) stated healthcare inequalities in rural and urban areas are caused by structural, economic, and cultural differences. For example, in a study observing the difference in rural and urban women deciding on treatments for their breast cancer, Van Dis (2002) discovered that travel burden played a role when patients were choosing their treatment plan. Differences in urban and rural women may affect their decisions to follow through with procedures that encourage one health care treatment over alternative treatments such as surgeries with long downtimes or treatments that require travel (Blumenthal 2002).

Baicker et al. (2004) found regional differences in healthcare utilization which differ greatly by gender and race. Due to regional differences, the racial healthcare disparities will vary based on the service and providers available. Baicker et al. (2004) argue that resources should target geographical locations that have fewer healthcare resources so that all people would benefit, but specifically to improve the health service available to racial minorities of that area.

Insurance Status

Being uninsured negatively affects patients' ability to regularly use health care services and decreases the use of non-emergency health services (Spillman 1992). Uninsured individuals are less likely to have a primary care physician, regularly seek medical advice, seek further care when recommended, and use emergency rooms for

‘true’ emergencies (Parast et al. 2021). In 2021, African Americans are 12% more likely to visit the ER for an ongoing health condition than white Americans, 7% more likely to use an emergency room in any given 3-month period, and 8% more likely to report not having regular care (Parast et al. 2021).

Sung et al. (2002) found that the type of insurance greatly affected cancer screening in inner-city African American women. When controlling for marital status, educational level, income, and age, African American women with private insurance were more likely to screen for breast cancer after an intervention on the importance of mammograms and the dangers of breast cancer than women who had public insurance or no insurance. African American women are more likely than white women to have lower socioeconomic status, be uninsured, and report being in poor health due to unmet healthcare needs (Wiltshire et al. 2009).

Culture

African American women are more likely to show mistrust in healthcare and rely on family, friends, and religious leaders to help make health-related decisions when compared to white women. (Agee 2000; Bailey et al. 2000; Lannin et al. 2002). In a study conducted by Dessio et al. (2003), 43% of African American women reported using religion or spirituality to guide their medical decision-making. The reliance on family and friends for medical advice and distrust in the healthcare system stem from the historical subordination of African American women as slaves (Agee 2000; Prather et al. 2018). These actions against African American women have provided a cultural expectation for African American women to be “strong” and self-reliant (Baker et al. 2015). The prejudice and bias African Americans experience while seeking medical

attention reinforce these cultural ideologies and expectations that further increase health risk (Copeland 2005). If a patient perceives discrimination, they are less likely to listen to medical advice which then further reinforces bias and prejudice (Stead et al. 2003; Facione and Facione 2007; Burgess et al. 2010; Cuevas et al. 2016).

Dillaway (2006) states that there is a need for more research on the menopause experience for women from varying backgrounds. The menopause experience is different for women of diverse races, cultures, and socioeconomic statuses because healthcare services, treatments, recommendations vary based on these same factors. In sum, African American women's avoidance of the healthcare system comes from the historical negligence, abuse, and mistreatment of the African American community. This distrust in the medical field leads to late diagnosis, avoidable pain or discomfort, and the missed opportunity for preventative medicine. The lack of confidence in the medical field to provide care to marginalized patients leaves African American women postponing medical services or receiving subpar medical care (Rowland and Isaac-Savage 2014).

The Consequences of Racial Disparities in Menopausal Care

Although menopause does not *cause* chronic conditions in later life, lack of healthcare during menopause may *exacerbate* existing health problems. Harlow et al. (2022) establishes the existing health disparities between African American women and white women who participated in SWAN. Where African American women reported more discrimination, had an earlier onset of the menopause transition, more episodes of vasomotor symptoms, and reported poorer overall health. The researchers emphasize the disadvantages experienced by African American women. The consequences of not

receiving care during the menopause transition may worsen the existing disparities between African American and white women in life beyond the menopause transition. It is due to the existing disparities within the population that preventative care and regular checks with medical professionals become so important in the quality of life later.

Osteoporosis causes bones to become weak and brittle because a decrease in estrogen during menopause can hasten the loss of bone density. African American women encounter fewer bone fractures due to osteoporosis when compared to white women (Woodson 2004). African American women have a lower awareness of osteoporosis, with only 25% of African American women knowing about osteoporosis compared to the 41% of white women (Wright et al. 2019). Thus, when fractures do occur, African American women have higher mortality and morbidity rates than white women (Woodson 2004). Researchers have hypothesized that some of the reasons African American women experience fewer bone fractures could be due to having higher bone density and losing bone mass at a slower rate than white women (Sadler and Huff 2007). These claims of structural differences in African American and white women's bones are not scientifically supported and there may be secondary cultural and lifestyle factors (i.e., health beliefs, exercise routine, diets etc.) that impact bone fractures in African American women (Kessenich 2000; Sadler and Huff 2007).

African American women have higher incidences of late-stage breast cancer when compared to white women (Taylor et al. 2007; Tucker et al. 2007; Bower et al. 2009; Gullatte et al. 2010). In a study by Taylor et al. (2007) the data suggest African American women's perceived racism is associated with the increase in the incidence of late-stage breast cancer due to distrust of the healthcare system or providers among

African American women have which may cause a delay in health seeking behaviors when compared to white women (Cui et al. 2002; Gullatte et al. 2010; Black et al. 2015). Racial disparities in healthcare utilization affect the quality and amount of healthcare services received by African Americans (Williams and Rucker 2000). Regular visits with physicians and preventative care improve health outcomes and may lessen the gap in healthcare disparities (Pullen et al. 2014).

Theoretical Framework

Critical race theory states that race influences many experiences a person has as they go through life. In this research critical race theory would seek to observe healthcare experience of African American women and white women to see the role race plays in the healthcare experience. Researchers believe that in eliminating racism, health care equity is achievable (Ford and Airhihenbuwa 2010). Critical race theory outlines that racism and racially driven outcomes are systemic and can result from complex social and institutional dynamics rather than intentional prejudices by individuals (Gillborn and Ladson-Billings 2019). Ford and Airhihenbuwa (2010) say that critical race theory can be used to alleviate health disparities by encouraging race equity in healthcare. Ford and Airhihenbuwa (2010) proposed using the Andersen and Aday Behavioral model as a method of creating race equity by encouraging health-seeking behaviors or encouraging others to remove experiences that would discourage health-seeking behaviors.

The intersectionality theory observes that race, class, and gender can impact the healthcare obtained by a person. Belonging to disadvantaged social groups such as marginalized racial and gender minorities intersect and influence an African American women's overall health. By understanding the influence of intersecting disadvantages

African American women face such as racism, sexism, and stereotype threat health professionals can better serve a diverse population (Corus and Saatcioglu 2015). Some researchers found that when observing intersectionality within health resources, African American women had persistent health disadvantages compared to white women of similar income, education, and age (Etherington 2015; Homan, Brown, and King 2021).

Through his observations on inequality and social equity, theorist Merton (1968) introduced the Matthew effect. The Matthew effect observed that inequalities in a social system formed over time and were beneficial to the system, even if they were not beneficial to individuals. When further explored, the Matthew effect helped develop the cumulative inequality theory. Cumulative inequality theory states that people encounter advantages and disadvantages early in life that affect their later life (Dannefer 1987). The chances of accumulating disadvantage increase for a person from a family with low income, low education, or minimal access to resources compared to a person who has better finances, higher education, and access to resources they need, increasing the cumulative inequality for a person (Farmer and Ferraro 2005; Williams, Priest, and Anderson 2016).

Cumulative inequality theory was further explored by Ferraro and Shippee (2009) and showed early life disadvantages can be overcome later in life with resources such as education. Accumulated disadvantages that an African American woman may encounter include coming from a poor financial background, receiving lower education, and not having access to additional resources in adulthood. Cumulative inequality theory can provide additional information on prejudice and bias throughout African American women's lives affecting their healthcare utilization later in life.

African American women from disadvantaged socioeconomic backgrounds have their distrust in the healthcare system reinforced because of accumulated inequality and encounters with stereotype threats. Stereotype threat also reinforces medical professionals' misconceptions, biases, and prejudice against African American women. The cumulative inequality for these women increases until the neglected health issues are no longer preventable, only manageable. These social theories contribute to explaining the patterns of African American women seeking medical care. Critical race theory, intersectionality theory, and stereotype threat attempt to explain why African American women are less likely to seek professional medical advice for their medical needs.

Hypothesis

I will study the differences in healthcare utilization in women that are in the menopause transition. I hypothesize that race affects healthcare use and African American women are less likely to use healthcare when compared to white women, holding education, income, marital status, and chronic illness constant. For this project, healthcare use is measured as regular health checks with a healthcare professional. This study will contribute to the conceptual knowledge and practical application of critical race theory, intersectional theory, stereotype threat theory, and cumulative inequality in the context of health-seeking behaviors of African American women during menopause. If aging women do not receive preventative care and education to make informed decisions, their overall health risk increases, healthcare use decreases, and black-white disparities in healthcare increase.

III. METHODOLOGY

The data collection for the Study of Women's Health Across the Nation (SWAN) began in 1994 and observes the physical, biological, psychological, and social changes that occur during menopause. The data for the SWAN study was collected from 7 research centers in Detroit, MI; Boston, MA; Chicago, IL; Oakland and Los Angeles, CA; Newark, NJ; and Pittsburgh, PA. In 1994 the SWAN data sample started with five races/ethnicities African American, White, Chinese, Japanese, and Hispanic women. By the end of the data collection, 2006-2008, there were only four races/ethnicities, African American, White, Chinese, and Japanese women, participating in SWAN, due to data for Hispanic women being only from one data collecting location. The sample in this study will be derived from the last SWAN data set from 2006-2008 and only includes the respondents who identified as being white or African American to observe the black-white racial disparities between these groups. Of the 2,245 women in the sample, I used data from 633 African American respondents and 1,114 white respondents who are menopausal. The women who participated in SWAN answered questions regarding their age and status within the menopause transition. The respondents were between the ages of 51 and 63 which were within the ages of the average onset of the menopause transition (50 - 52 years old) and provided their self-identified stage in the menopause transition from being premenopausal to postmenopausal.

The SWAN data used for this study is a secondary data source and is publicly available and does not need an IRB approval (Appendix A). In this study, the variables would measure and reflect the intersectionality of healthcare utilization, comparing the experiences of white women and African American women in menopause

Dependent Variable

The dependent variable used for this study is coded in the SWAN data set as the total number of visits with a physician since the previous interview. The original respondents' answers ranged from not having visited a medical professional to have seen a medical professional more than 60 times since their last interview. This variable was then recoded into a dichotomous variable asking if the respondents received healthcare services in the previous two years.

Independent Variables

The independent variable, race, in this study is used to see if there are differences in healthcare use based on women being African American. The race variable used in the analysis was recoded to only include African Americans (coded as 1) and white (coded as 0) from the original race variable, which included African American, White, Chinese, Japanese, and Hispanic women to observe potential black-white racial disparities.

Covariates include total family income, education, marital status, and a chronic illness index. The total family income per household represents the socioeconomic status of respondents the categories for total family income were less than \$19,000 (reference), between 20,000 - \$49,000, \$50,000 - \$99,999, and more than \$100,000. Education of respondents included less than high school education, high school education (reference), some college/technical certificate, college education, and post-graduate education. The marital status of respondents was recoded into dummy variables being married (reference), separated, widowed, single/never married, and divorced. If the respondent had any chronic illnesses such as osteoporosis, history of heart attacks, history of stroke,

or cancer, it is indicated by the chronic health index created from the recoded health histories taken from the researchers. Each chronic health condition was coded 0 for no and 1 for yes, and the total number of chronic illnesses ranged from 0, having no chronic conditions, to 4, having a history of stroke, heart attacks, cancer, and osteoporosis.

Analytical Plan

Descriptive statistical analysis was used to describe the characteristics of the covariates for white and African American women. The descriptive analysis provided basic characteristics regarding the data as well as began the analysis by showing potential relationships between African American and white respondents.

A binary logistic regression, with a level of significance at alpha .05, was performed on the data to examine the relationship between race (IV) and healthcare use (DV). The results would provide support for my hypothesis that race affects healthcare utilization in women who are transitioning through menopause and African American women are less likely to use healthcare services when compared to white women during this transitional period. The covariates include income, marital status, chronic illnesses index, and education.

Supplemental ordinal logistic regression was performed to test the robustness of the main analysis. I conducted an ordinal logistic regression predicting the frequency of healthcare utilization. The number of times a person had seen a medical professional was recoded into four dichotomous categories as follows: as having not seen a healthcare provider (0 times), having seen a provider an ‘average’ amount of times (1 - 14 times), ‘above-average’ number of times (15 - 25 times), having a ‘high’ number of visits to healthcare providers (25 - more than 60 times).

These categories were formed under the assumption of universal healthcare and the average number of times a person would seek health services using the highest two averages of healthcare utilization in the world for universal health care in Japan (13.5 visits) and Korea (17.2 visits) (Michas 2022). A category for above-average was made as well but a range of 15 to more than 60 times of seeing a doctor encompassed so much of the data that trends in healthcare utilization would not be seen therefore the rest of the data were divided into categories of above-average and high number of times seeing a healthcare professional.

IV. RESULTS

Descriptive Analysis

The descriptive table (Table 1) shows the statistics for respondents' race and respondents' total family income, education, chronic illnesses, and marital status based on their self-reported racial/ethnic categorization. The analysis included a total of 1,777 respondents, 663 were African American women and 1,114 were white women.

For healthcare utilization 6.9 % of total respondents had not seen a healthcare provider in the last 2 years (African American: 7.1%; white: 8%). Total family income for the respondents was as follows 10.8% of total respondents had a total family income of less than \$19,999 a year (African American: 20.1%; white: 5.7%). 26.9% of total respondents had a total family income between \$20,000 and \$49,999 a year (African American: 29.5%; white: 25.5%). 21.8% of total respondents had a total family income between \$50,000 and \$99,999 a year (African American: 23.6%; white: 20.9%). 40.5% of total respondents had a total family income of more than \$100,000 a year (African American: 26.8%; white: 48%).

In terms of education, 10.1% of total respondents have less than high school education. 26.4% of total respondents have a high school education. 31.2% of total respondents have some college/technical certificate. 16% of total respondents have a college education. 15.8% of total respondents have post-graduate education. There were minimal racial differences in education.

Marital status for the respondents included 12.4% of total respondents were single/never married (African American: 16.9%; white: 9.7%). 61.5% of total respondents were married (African American: 44.1%; white: 71.8%). 3.7% of total

respondents were separated (African American: 6.2%; white: 2.3%). 5.2% of total respondents were widowed (African American: 8.5%; white: 3.2%). 17.2% of total respondents were divorced (African American: 24.3%; white: 13%).

Frequencies for the chronic illness index showed that 90% of total respondents had no chronic illnesses (African American: 90.7%; white: 89.6%). 9.7% of total respondents had one chronic illness (African American: 8.9%; white: 10.1%). 0.3% of total respondents had two chronic illnesses (African American: 0.3%; white: 0.3%).

Binary Logistic Regression

A binary logistic regression (Table 2) was performed to ascertain the effects of race, chronic illnesses, income, education, and marital status on the likelihood that respondents use healthcare. A respondent's race was not a significant factor in healthcare utilization. Among covariates, respondents with chronic illnesses are almost 2.7 times more likely to utilize healthcare (OR=2.67, $p < .05$) than those who did not have chronic illnesses.

Supplemental Analysis

The ordinal logistic regression for healthcare utilization (Appendix 2) used the total number of times a respondent had seen a medical professional and recoded the data into 4 categories. Consistent with the main analysis, race was not a significant predictor of healthcare use, but the number of chronic illnesses was a significant predictor.

V. DISCUSSION AND CONCLUSION

The present study investigated the relationship between race (African American vs. non-Hispanic white) and healthcare use among menopausal women. Contrary to the hypothesis, race was not a significant predictor of healthcare use. Among covariates, chronic illness was the only significant factor of healthcare use. This counterintuitive finding may be due to intersectionality of race, income, education, and the healthcare system.

Intersectionality of the covariates, race, and healthcare use may be the reason no differences were seen in the healthcare use for African American and White women despite the previously established health disparities. It may be that education, income, or increased chronic illnesses are affecting African American women in a way that encourages healthcare use. Cumulative theory also works in a positive way whereas a person having access to more resources, education, and income become more likely to be put in situations that are advantageous or less likely to negatively impact their overall health. (National Academies of Sciences, Engineering, and Medicine 2018; Ross-Hellauer et al. 2022).

Critical race theory states that institutionalized racism would cause differences in the experiences of African American and white women during their transition. One of these differences is the effects of stereotype impacting the medical decision African American women make. Lack of significant racial differences in healthcare use, when it is established within the literature, suggests that there may be underlying mechanisms working towards creating racial disparities in health outcomes.

Harlow et al. (2022) states that health disparities are affected by structural racism. Structural racism includes the increased likelihood of African American women who participated in SWAN living in poverty, having poor housing, and lack of opportunity to gain resources. These obstacles in accessing healthcare may be overcome later in life but are not decreasing health disparities even when African American and white women are receiving the same amount of care as seen in this study.

Among covariates, chronic illnesses were found to have a strong positive relationship with healthcare utilization. As the number of chronic illnesses increased so did the respondent's likelihood of healthcare utilization. The chronic health index was created using chronic illnesses relevant to the menopause transition such as stroke, heart attacks, cancer, and osteoporosis. All the chosen illnesses for the chronic illness index can be detected in early stages to minimize risks (i.e., preventable), or can be managed with non-hormonal medications or alternative medical treatments (Benjamin 2010; Gupta and March 2016; Ozemek et al. 2018; American Cancer Society 2021). There are increased health risks that can lead to chronic health conditions as women age that correlate to the menopause transition. Therefore, I interpreted the higher likelihood of healthcare utilization could be due to the increased health risks.

Financial status influences healthcare utilization by influencing insurance status, available transportation, food/housing stability, and even the ability to take time off work to seek health services (Kushel et al. 2006; Syed et al. 2013; National Academies of Sciences, Engineering, and Medicine 2018; Chinn et al. 2021). Dubay and Lebrun (2012) found that women of all ethnic racial backgrounds are more likely to report poor health outcomes if they have lower income, compared to those within the same

ethnic/racial group with more income. This would be a potential mechanism for health disparities to persist while there are no significant differences in healthcare use for African American and white respondents. Lack of financial resources can lead to people engaging in behaviors related to adverse health effects (i.e., smoking) and not participating in preventative health care (i.e., breast cancer screenings) (Dubay and Lebrun 2012). These negative health behaviors are not considered when observing the number of times a woman has seen a medical professional but would contribute to observed health disparities between African American and white women.

Though race is not a significant variable in healthcare utilization, there is a racial difference in income. 20.1% of African American women make less than \$19,000 a year compared to 5.7% of the white respondents. This presents the possibility that socioeconomic status such as income or wealth is not equally distributed between racial groups, which may create inequality in access to healthcare services. Future research should address the role of income and disparities in healthcare use for African American and white women.

Limitations

Possible limitations of this research include the data being collected in places associated with healthcare services and could therefore overestimate healthcare utilization. This study focused on whether or not women saw a medical professional and did not analyze respondents' satisfaction with or adherence to medical services. For this study, SWAN also did not address how respondents were to keep track of the number of times they received health services or how the number of services were reported (e.g., directly from insurance claims or from memory). Race/ethnicity was also utilized as one

category, due to the collection methods of the SWAN study. In future adaptation or expansions on this study, researchers could consider observing the SWAN data longitudinally comparing health disparities with race and healthcare utilization as the respondents are transitioning through menopause.

Despite the limitations, this research adds to the knowledge and sets a foundation for future research on healthcare utilization of African American women transitioning through menopause.

Table 1. Descriptive Frequencies

	Total	Total (n=1,777)	African American (n=663)	White (n=1,114)
	Frequency	%	%	%
Healthcare				
Yes	1483	83.5	92.9	92
No	123	6.9	7.1	8
Income				
Less than \$19,000	166	10.8	20.1	5.7
\$20,000-\$49,999	415	26.9	29.5	25.5
\$50,000-\$99,999	337	21.8	23.6	20.9
More than \$100,000	625	40.5	26.8	48
Education				
Less than high school	180	10.1	10	10.3
High school graduate	469	26.4	27.1	26.1
Some college/technical school	555	31.2	31.4	31.4
College graduate	285	16	15.3	16.6
Post graduate education	281	15.8	16.2	15.7
Marital Status				
Single/never married	219	12.4	16.9	9.7
Currently married/living as married	1086	61.5	44.1	71.8
Separated	66	3.7	6.2	2.3
Widowed	92	5.2	8.5	3.2
Divorced	304	17.2	24.3	13
Chronic Illness Index				
No Chronic illnesses	1482	90	90.7	89.6
One chronic illness	159	9.7	8.9	10.1
Two Chronic illnesses	5	0.3	0.3	0.3

Note: Descriptive frequencies of the variables for the total respondents, African American respondents, and white respondents.

Table 2. Binary Logistic Regression of Nominalized Variables (n=1,777)

	Sig.	Exp(B)	95% C.I. for EXP(B)	
			Lower Bound	Upper Bound
African American (ref. white)	0.264	1.273	0.83	1.94
<u>Income (ref. <\$20,000)</u>				
\$20,000-\$49,999	0.502	1.243	0.66	2.35
\$50,000-\$99,999	0.365	1.366	0.70	2.68
More than \$100,000	0.067	1.863	0.96	3.62
<u>Education (ref. high school)</u>				
Less than high school	0.221	1.645	0.74	3.65
Some college/technical school	0.674	1.111	0.68	1.82
College graduate	0.92	0.971	0.55	1.72
Post graduate education	0.911	1.034	0.58	1.85
<u>Marital Status (ref. married)</u>				
Single	0.295	0.741	0.42	1.30
Separated	0.696	0.823	0.31	2.18
Widowed	0.782	0.887	0.38	2.07
Divorced	0.815	0.939	0.55	1.59
Chronic illness Index	0.034*	2.674	1.08	6.63

Note: *p<.05

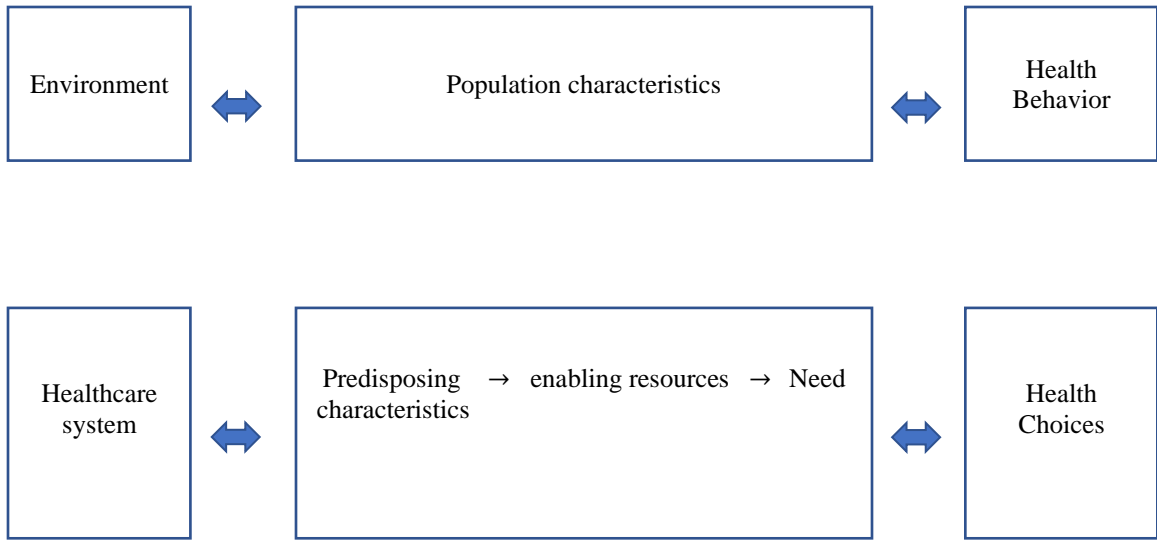


Figure 1. Anderson and Aday Behavioral Model shows how the Anderson and Aday Behavioral Model shows the interactions between the healthcare system, a populations characteristic, and the populations available resources/needs affecting health choices for that population.

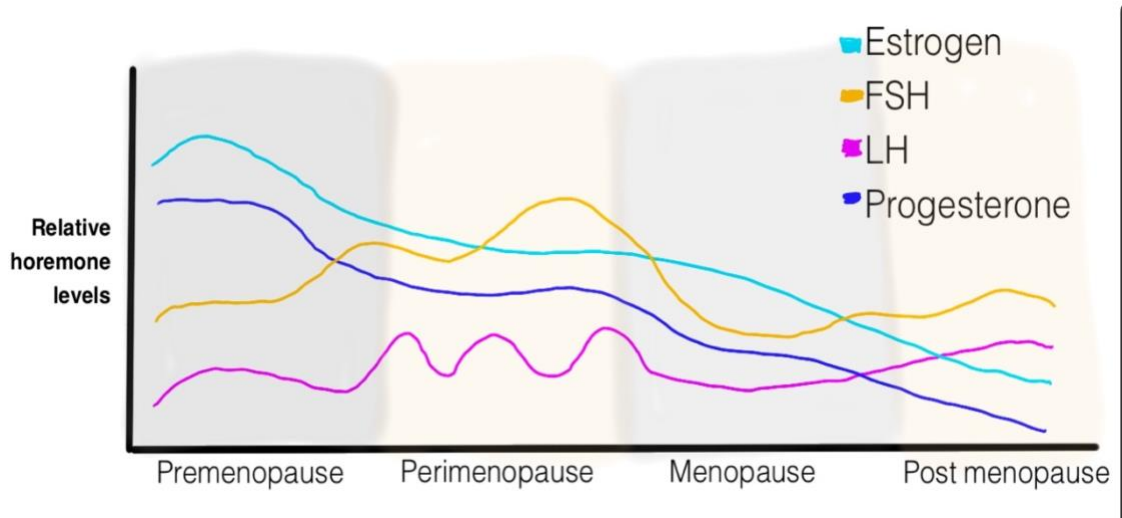


Figure 2. The Menopause Transition illustration shows the fluctuations of sex hormones Estrogen, FSH, LH, and Progesterone as they transition from being premenopausal through menopause and post-menopause. Premenopausal women have high estrogen and progesterone and low LH and FSH as women transition through menopause these hormones fluctuate and post-menopause women have low levels of estrogen and progesterone and higher levels of FSH and LH.

APPENDIX SECTION

Appendix 1.



September 28, 2021

Selina Sandoval
c/o Dr. Seoyoun Kim
Department of Sociology
Texas State University
San Marcos, TX 78666

Dear Selina,

Your recently submitted IRB Determination Request Form was reviewed by Research Integrity and Compliance (RIC).

According to the provisions in 28 CFR § 46.102 "human subject" is defined as "a living individual about whom an investigator conducting research obtains (1) Data through intervention or interaction with the individual, or (2) Identifiable private information."

It is understood your research project exclusively involves the examination of secondary data originally collect for the study of Women's Health Across the Nation (SWAN). It is understood the dataset is anonymous and publicly available. Furthermore, RIC is under the assumption the study does not involve interaction with living individuals or access to identifiable information. Therefore, RIC concluded your research does not use human subjects and is not regulated by the provisions in 28 CFR § 46.102.

If the subject pool or intent of your project changes in the future, please contact RIC to initiate an IRB assessment.

Feel free to contact me if you have any questions.

Regards,

Cristina A. Mendoza
Cristina A. Mendoza
Compliance Specialist
Research Integrity and Compliance
Texas State University
(512) 245-2314

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Appendix 2. Ordinal Logistic Regression Predicting Frequency of Healthcare Use			
	Sig.	95% Confidence Interval	
		Lower Bound	Upper Bound
African American	0.883	-0.87	0.33
Income	0.845	-0.13	0.16
Education	0.814	-0.10	0.13
Marital Status			
Single	0.474	-0.29	0.61
Separated	0.912	-0.80	0.72
Widowed	0.724	-0.55	0.78
Divorced	0.879	-0.42	0.36
Chronic Illness Index	0.000*	0.42	1.28

Note: Healthcare utilization is coded into ordinal data (0; 1; 2; 3); *p<.05

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