ABSTRACT

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SOCIAL ENVIRONMENT, PHYSICAL ENVIRONMENT, AND LIFE EXPECTANCY OF BLACK WOMEN

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This paper examines the role of the social environment and physical environment, specifically injustices within the environment as possible intervening variables influencing disparities in health and life expectancy of African-American women. Per the Centers for Disease Control (CDC), in 2014, Black women in the United States (USA) had a life expectancy three years lower than the national average life expectancy for women overall and endured the lowest average life expectancy compared to other races of women (CDC, 2016a). The researcher references the Afrocentric Perspective, identifies Critical Race Theory as a conceptual framework, and proposes causal factors as biopsychosocial and epigenetic theories (Ford & Airhihenbuwa, 2010). This paper seeks to introduce theories as factors that should be considered in research when asking the question: What causes the difference (health disparity) between Black women's life expectancy in the USA and the overall life expectancy for all women in the USA?

SOCIAL ENVIRONMENT, PHYSICAL ENVIRONMENT, AND LIFE EXPECTANCY OF BLACK WOMEN

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CHAPTER I

INTRODUCTION

In 2008, the United States Department of Health and Human Services (USDHHS) reported that African-American women are impacted by prominent health disparities in life expectancy, health status, and overall well-being (USDHHS, 2008). Per reports from the Centers for Disease Control and Prevention (CDC), in 2014, Black women in the United States (USA) could expect to live until they were 78 years old, which was three years less than the national average life expectancy of women overall and had the lowest average life expectancy compared to other races of women (CDC, 2016a). For Black mothers, 41 of every 100,000 births end in mortality, which is more than double the average for maternal mortality and highest of other ethnic groups (CDC, 2016b). Although the United States has an expensive and technologically advanced medical system, Americans, compared to other wealthy nations and even some poorer nations, have lower than average life expectancies (Avendano & Kawachi, 2014; Organisation for Economic Co-operation and Development [OECD], 2015b; Rosero-Bixby & Dow, 2016; Woolf & Aron, 2013). In some cases, these differences in life expectancy and health are seen even when individual health behaviors and socioeconomic status (SES) are accounted for (Kramer & Hogue, 2009).

Statement of the Problem

This conceptual paper discusses the social problem of health disparities in life expectancy among Black women in America. The specific issues proposed for the conceptual paper's examination of health disparities in the life expectancy of Black women are (a) social injustice and (b) environmental injustice. Human rights issues of social justice and environmental justice are relevant to research of health disparities by addressing societal contexts that influence health in (a) the social environment (i.e., stratification, inequality, discrimination oppression, racism, sexism, classism) and (b) physical environment (i.e., unequal exposure to poor food, air, water, housing and medical quality, access to material resources, and environment barriers) (USDHHS, 2008; Woolf & Aron, 2013). For original development of the conceptual paper, the researcher identified the social environment and physical environment as independent and intervening variables and selected critical race, biopsychosocial, epigenetic theoretical theories, as well as ethnographic methods and Afrocentric Perspectives, for theoretical guidance.

The National Association of Social Workers (NASW) and the Department of Health and Human Services (USDHHS) define "health disparities" as preventable differences in incidence and prevalence of death (mortality), disease burdens (morbidity), or health outcomes (USDHHS, 2008; NASW, 2005). Per sources, disparities in health often indicate human rights issues and disproportionately impact groups who currently or historically encounter social, economic, or environmental disadvantages, oppression, disenfranchisement or vulnerability such as women, minorities, the

impoverished/working class, the elderly, and children (NASW, 2005; USDHHS, 2008). The USDHHS describes health disparities as an issue of equality and that promotion of equal social and physical environments, which the report conceptualizes as "societal determinants" are crucial to the elimination of these disparities (USDHHS, 2008). This more holistic, upstream, multidimensional approach is in alignment with positions of biopsychosocial, epigenetic, Critical Race, Afrocentric theories and ethnographic methods (Avendano & Kawachi, 2014; Clark, 2005; Clark et al., 1999; Combs-Orme, 2013; Creswell, 2013; Douglas, 2013; Ford & Airhihenbuwa, 2010; Goosby & Heidbrink, 2013; Krieger, 2008; Moore, Madison-Colmore, & Moore, 2003; USDHHS, 2008).

The leading causes of death in the United States are from preventable and non-infectious diseases such as cancer, heart disease, and stroke (Olshansky et al., 2012). According to reports from 2014, Black women in the United States could expect to live until 78 years old, while Caucasian women are expected to live until 81 and Hispanic women until 84 (CDC, 2016a). In 2014, Black women's life expectancy neither increased nor decreased, while Hispanic women, Hispanic men, and Black men saw increases (CDC, 2016a). The life expectancy of Black women and men combined is only 75 years old, which is three years lower than the average (CDC, 2016a). Some research even suggests that trends in life expectancy are lower than would be predicted for the per capita income of Americans, especially when compared to other similar high income nations (OECD, 2015b; Woolf & Aron, 2013).

In 2013, the U.S. national average life expectancy for all ethnicities and gender groups was 79 years old, which is 4 years lower than Spain and Japan, whose citizens could expect to live until 83 years old (OECD, 2015b). Maternal mortality data from 2012 revealed that for every 100,000 childbirths, 41 Black women would experience death, and on average, 15 per every 100,000 births for women in the USA would be fatal (CDC, 2016b). Infant mortality data in 2010 revealed that per every 1,000 births, 11 Black infants would not survive their first year (CDC, 2014). For White and Hispanic infants, 5 out of every 1,000 would survive to their first year, which is also the national infant mortality rate average (CDC, 2014). Internationally, the survival of American infants overall is below that of other nations, Japan, Spain, Britain, and Greece have infant mortality rates between only 1 and 4 per 1,000 births (OECD, 2015a).

Prominent health paradoxes that have led researchers to examine distal, upstream, societal causes of health disparities in life expectancy are found in close inspection of national and international statistics (Krieger, 2008; USDHHS, 2008). For example, in middle class Black families, Black women are still more likely to have complications during childbirth compared to middle class White women (Geronimus & Snow, 2013). Although "unhealthy" behaviors may be seen overwhelmingly among certain groups, Black individuals are more likely to spend more per capita income on "healthier" food options (Neff, Palmer, McKenzie, & Lawrence, 2009). Furthermore, poor and working class individuals in America have lower life expectancies than poor and working class of other nations (Avendano & Kawachi, 2014; Walters et al., 2016). Additionally, as observed in the "immigrant health paradox," foreign-born Black American and Hispanic

American immigrant communities have indicated higher life expectancies and infant survival rates than American-born Black communities, even at similar incomes (Adler & Rehkopf, 2008). It was also found that the longer immigrated families live in America, the worse their health becomes. Grandchildren of immigrated families who were born in America can expect to experience worse health status than their grandparents (Adler & Rehkopf, 2008; Olshansky et al., 2012).

Previous approaches to explaining the occurrence of health disparities primarily relied on biomedical models of health and illness. The biomedical approach has been criticized for explaining very little as to why some groups have overwhelmingly shorter life expectancies and poorer health (Avendano & Kawachi, 2014; Clark, 2005; Krieger, 2008). Biomedical approaches focus on individual level, lifestyle, behavior, and proximal risk factors of illness such as smoking, drinking, diet, and health care utilization (Avendano & Kawachi, 2014; Clark, 2005; Krieger, 2008). This health model is largely informed by neoliberal, Western and Eurocentric views (Clark, 2005; Douglas, 2013). Currently, researchers have found individual health risk factors and behaviors to be less a result of individual will and more so a by-product of psychosocial and material/physical stressors and a result of education, awareness, availability/affordability, and access (Douglas, 2013).

To address health disparities, researchers are relying increasingly on models and theories from both social sciences and biological sciences (Krieger, 2008). Critical Race Theory (CRT) explains power and hierarchical relationships and the intersections of different social statuses (Ford & Airhihenbuwa, 2010). Ethnographic methods help to

understand and describe the contexts of the individual's social and physical environment (Longhofer & Jacob, 2014). Biopsychosocial and epigenetic theories explain ways in which social environments and physical environments lead to biological reactions that impact the body and subsequently health and longevity (Adler & Stewart, 2010; Geronimus et al.,2010; Goosby & Heidbrink, 2013; McEwen, 2008; Sapolsky, 2008).

Purpose of the Conceptual Paper

The central focus of the paper was societal factors that potentially influence the life expectancy of Black women and occurrences of health disparities. The paper covers factors in the (a) social environment and (b) physical environment. Thus the researcher reviewed the issues of (a) social injustice and (b) environmental injustice. The researcher sought to understand possible causes to health disparities in Black women's life expectancy from a review of selected literature and framework of Afrocentricity, critical race, biopsychosocial theories, epigenetic theories, and ethnographic methods. This paper focused ethnographically on Black-American women in the United States on a national level.

Significance of the Conceptual Paper

This conceptual paper provided insight as to why Black American women have shorter life expectancies than national averages, namely White American, Hispanic American, and foreign-born American women. The findings could assist in providing insight into appearances of health disparities among other groups and populations, namely the difference between American and other high income nations' life expectancy (USDHHS, 2008). Additionally, the findings could assist in eliminating these health

disparities and promote health and longevity, especially for Black women. Finally, findings may also provide insight into experiences of Black women and precipitate follow-up ethnographic research (Douglas, 2013). This concept paper hopes to add to the interdisciplinary body of literature regarding health disparities, Black women's narratives, and Black women's wellness.

CHAPTER II

REVIEW OF LITERATURE

This review of literature provided a historical perspective for research on health disparities and systematic review of literature regarding two social issues identified as (a) social injustice and (b) environmental injustice. The researcher also reviewed literature on the Afrocentric Perspective and theoretical frameworks used (Biopsychosocial Theory, Epigenetics Theory, Critical Race Theory, ethnographic methods) and apply perspectives, theories, and methods to the social problem of health disparities in life expectancy.

Historical Perspective

In the 1950s, the United States had one of the best global health statuses. Yet since then and especially after the 1980s, life expectancy and health outcomes in the USA decreased in some aspects and disparities in health have increased nationally and internationally (Avendano & Kawachi, 2014; Bezruchka, 2012; Geronimus, 2013; OECDb, 2015). Although during this time the general population fared well, the United States also had a history of inequality and oppression. This stratification impacted medical and social service practices. One of the most prominent cases of injustice and rights violation in medicine was from the United States' Tuskegee Institute (Harley, 2006; Turner 2012). It was revealed to the public in 1972 that the institute conducted a 30 year-long unethical experiment of the long-term effects of syphilis on a group of 600

Black men in Tuskegee, Alabama (Harley, 2006). This experimentation became known as the Tuskegee Syphilis experiment. Researchers used the men as unknowing participants and left them untreated for the disease throughout the duration of the study (Harley, 2006). The Tuskegee Institute in 1952 was also the site of the HeLa cell factory, connecting them to another noteworthy case of human rights violations (Turner, 2012). The HeLa factory was the first "factory" dedicated to the mass production of human cells and the main distributor of HeLa cells, cells responsible for scientific breakthroughs in the development of vaccinations and stem-cell research (Turner, 2012). The HeLa cells were extracted without permission from the body of Henrietta Lacks, a Black woman who went to John Hopkins hospital in Maryland for treatment. The cells were extracted from Lacks' body without her consent and without compensation or recognition of her and her family (Turner, 2012).

After the 1950s and World War II, American and international culture experienced advancements in industrialization, modernization, and medicalization, which came to be known as the Industrial Revolution (Borrell-Carrió, Suchman, & Epstein, 2004; Cook, 2011; Crews, Gillette, Miller-Crews, Gore, & Skinner, 2014; Genuis, 2011; Zellmer, 2009). These advances also included increased use and production of synthetic chemicals for everyday industrial, workplace, household, cosmetic, and personal use due to modernity, effectiveness, convenience, and comfort, which became known as the Chemical Revolution (Crews et al., 2014; Genuis, 2011; Zellmer, 2009). Researcher George Engels hypothesized in 1977 that the "biopsychosocial" model influenced health, which provided a framework for other holistic models that have sought to explain human

biology and health outcomes, such as epigenetic theory, stress physiology, and other perspectives (Adler & Rehkopf, 2008; Garland, 2009; Geronimus, 2013; Goosby & Heidbrink, 2013). Yet, indigenous African and other non-Western philosophies and societies had awareness for thousands of years of the connection between physical, mental, emotional, and spiritual domains (Harley, 2006).

In 1980, one of the first public articles to include the term "health disparity" was published as "Working Group on Health Disparity," which identified a correlation between the widening gap in social class status and gap in health status (Adler & Rehkopf, 2008). In 1981, President Ronald Reagan enacted neoliberal minded policies that cut funding to public services such as low-cost housing and mental health services, leaving many in the population with little social support, and changing overall societal conditions in America (Avendano & Kawachi, 2014; Bezruchka, 2012; Eckersley, 2001). It was suggested that not only did the political-economic context of America change, but also societal attitudes and values were further altered during this period as well (Avendano & Kawachi, 2014; Bezruchka, 2012; Eckersley, 2001). During the 1980s race, gender, and class studies such as Critical Race Theory (CRT) began growing in academia (Ford & Airhihenbuwa, 2010). In 1986, the Environmental Protection Agency (EPA) began focusing attention on the long-term effects of pollutant exposure and contamination (Bellinger, Matthews-Bellinger, & Kordas, 2016). In 2000, the Healthy People 2010 report established elimination of health disparities as one of its goals (Healthy People, 2010).

Issue One: Social Injustice/Social Environment

Disparities in life expectancy and health are suggested to be strongly influenced by the social environment (Clark, 2005; USDHHS, 2008; Resnik & Roman, 2007; Walters et al., 2016; Williams, 1998). The social environment is defined as social and cultural settings, relationships, norms, beliefs, patterns and institutions that influence life of individual or community including social safety, social support, social capital, and other factors such as race, gender, education, culture, religion, values, and morals (USDHHS, 2008; Resnik & Roman, 2007; Woolf & Aron, 2013). Social justice addresses issues in the social environment, specifically experiences of vulnerable, oppressed and marginalized individuals, and concepts of identity, power, discrimination, inequality, hierarchy, and stratification (Beltran, Hacker, & Begun, 2016; NASW 2008). Individuals exposed to high amounts of stress in the social environment from social injustices such as discrimination, oppression, and inequality are at higher risk for decreased life expectancy and wellbeing (USDHHS, 2008).

Black individuals as a group are more likely to be exposed to psychosocially stressful events during their life that have the potential to influence their health throughout adulthood; even after the stressors have been removed, these influences may also be inherited or passed down to offspring (Goosby & Heidbrink, 2013). The major mechanisms of this occurrence are biopsychosocial and epigenetic processes, specifically of the stress-response system and other biological processes related to psychosocial stress (Geronimus 2013; Goosby & Heidbrink, 2013). Psychosocial stress is indicated by biological responses in the body that can lead to physical inflammation, oxidative stress

and damage to bodily functions. Chronic exposure to stress or stress experienced early in life can cause stress-response systems in the body to be hyper-reactive and sensitive, thus amplifying effects of stress later in life (Goosby & Heidbrink, 2013; McEwen, 2008).

Studies by researcher Bruce McEwen (2008) on psychosocial stress in the early environment revealed a link between childhood psychosocial stress and the likelihood of developing disease later in life. Studies indicated that individuals exposed to childhood maltreatment and social isolation had higher levels of bodily inflammation and signs of higher reactivity or stress (McEwen, 2008). Similar studies also indicated that increased allostatic load scores were found in individuals who were exposed to psychosocial stress in childhood, such as family strain and lack of family support (Adler & Rehkopf, 2008; Montez & Hayward, 2011; Goosby & Heidbrink, 2013). The concept of allostatic load has been directly linked to life expectancy, as individuals with lower allostatic load scores tend to live longer. High allostatic load scores have been observed as signs of chronic exposure to inflammation from stress related bodily processes (Geronimus, 2013; McEwen, 2008).

Public health researcher Arline Geronimus, also known for contributions to ideas of stress physiology, in 2010 found psychosocial stress to be a main contributor in Black women experiencing physical and biological signs of aging 7 years sooner than White women, also known as "biological aging" (Geronimus et al., 2010). Results from the Study of Women's Health Across the Nation (SWAN) found Black women had higher allostatic load scores and shorter telomere lengths, which are signs of stress-related damage to the body. Telomeres cells get shorter with age and from exposure to

inflammation and stress responses (Geronimus, 2013). Lower SES individuals have also been found to have higher levels of allostatic loads and evidence of biological aging (Adler & Stewart, 2010). A study of 1500 adult females in the United Kingdom found shortened telomere length in women of lower occupation jobs even when controlling for health behavior of smoking (Adler & Stewart, 2010).

Per Critical Race Theories, Black female identity is at multiple intersections of race and gender (Douglas, 2013; Lewis et al., 2013; Perry, Harp, & Oser, 2013; Geronimus & Snow, 2013; Williams, 2002; Williams et al., 2010). Racism and sexism are biopsychosocial stressors that impact health even when other factors and needs are accounted for (Clark et al., 1999; Goosby & Heidbrink, 2013; Geronimus, 2013; Perry, Harp, & Oser, 2013). Black women and culture historically have been subjected to negative racist and sexist stereotypes—images and representations that marginalize, generalize, oversimplify, devalue, and objectify their identities (Douglas, 2013; Lewis et al., 2013; West, 1995; Williams, 1998). Since the civil rights movement, women's suffrage and other human rights advancements, oppression and discrimination such as racism and sexism in modern America may now be more in the form of systemic macrolevel, subtle, covert, microaggressions, rather than explicit, overt, macroaggressions (Berger et al., 2006; Donovan et al., 2013, Lewis et al., 2013).

While income can buffer the effects of racism and sexism, middle class Black families on average still live six years less than similarly income families in other racial groups (Olshansky et al., 2012; Williams, 1998). Studies have revealed that middle class Black women had higher allostatic loads scores (signals of stress) in comparison to

middle class White women (Jackson & Cummings, 2011). Middle class Black women are also more likely to have birth complications than White women and foreign-born Black women of similar incomes (Adler & Rehkopf, 2008). Sources also revealed that non-poor Black Americans had higher allostatic load scores than poor White Americans and Black women had higher allostatic load scores than Black men (Williams et al., 2010). Authors hypothesized that these differences were related to exposure to psychosocial stressors associated with race and gender discrimination that occurs regardless of income level (Williams et al., 2010).

Images and depictions of Black women are often overwhelmingly negative and rooted from racist and sexist bases (Lewis et al., 2013; West, 1995). These stereotypes often portray Black women as aggressive/argumentative, sexually promiscuous, and/or subordinate. Dr. Carolyn West (1995) grouped these stereotypes into three images "mammy," "jezebel," and "sapphire," and discussed their psychological implications. West suggested that these negative representations of Black females can become internalized by the individual and cause psychological stress. Additionally, these negative representations can also give justification for social injustices done against them (Lewis et al., 2013; West, 1995; Williams, 1998). Women in American culture have multiple social demands and expectations on which society judges their value and success. Women are expected to excel at financial success, physical appearance, and personal relationships, while male success is gauged mainly and exclusively on meeting individual needs (Bezruchka, 2012). These expectations for women may cause internal psychosocial stress and anxiety by feeling a need to over perform in personal, work and academic

settings. A 2006 Spanish Health Interview Survey found associations between psychosocial stress from sexism and development of poor mental health (Borrell-Carrió et al., 2004). Studies also found relationships between individuals who reported experiencing sexism and increased levels of cortisol, a stress hormone-related inflammation (Townsend, Major, Gangi & Mendes, 2011).

Income and education can make conditions better or worse; however, racism and sexism affects minority women and men of color at all income and education levels. Black women with higher SES and occupational status may experience psychosocially stressful barriers, such as lack of access to mentorship, fellowship, and social networking (Perry, Harp, & Oser, 2013). Middle class Black individuals, for example, are usually employed in predominantly white institutions and may encounter racial microaggressions (Goosby & Heidbrink, 2013). A study of the prevalence and influence of racial micro and macro-aggressions among 186 Black undergraduate students in the Southeastern part of the United States found that 63% of respondents experienced racial macroaggression such as violence (i.e. police brutality) (Donovan et al., 2013). Data of 2793 adolescents analyzed from EAT 2010 (Eating and Activity in Teens), found that 35% reported race-based discrimination, 25% reported gender-based discrimination, and 16% reported class-based discrimination (Bucchianeri, 2013).

Black women, in addition to intersecting race and gender oppression, are also exposed to class, economic, and structural inequalities (Perry, Harp, & Oser, 2013). Social capital, trust, and support are protective factors to psychosocial and physical wellbeing in the social environment (Sapolsky, 2005). Social inequalities, stratifications,

and hierarchies take away from social capital and cohesion, which increases psychosocial stress and underlies health disparities in life expectancy (Bezruchka, 2012; OECD, 2015a; Rosero-Bixby & Dow, 2016; Sapolsky, 2005). Societies that have policies and services that promote social responsibility and social welfare tend to have higher life expectancy rates while countries with high levels of inequality usually have poor health status (Bezruchka, 2012). Policies and services that promote social welfare include "upstream" practices that address issues of inequality such as quality family care, medical care, education and financial or employment protection (Adler & Newman, 2002; Avendano & Kawachi, 2014; Bezruchka, 2012; USDHHS, 2008). Psychosocial stress from inequality is thought to be the determinant in understanding why the general American population has lower than anticipated life expectancy compared to other wealthy and industrious nations (Adler & Stewart, 2010; Eckersley, 2001; Rosero-Bixby & Dow, 2016; Sapolsky, 2005; Woolf & Aron, 2013).

America has one of the highest levels of income inequality and difference between the wealthy and poor and this difference in wealth is also increasing (Adler & Stewart, 2010). Women and Black families, even in middle class, are more likely to become impoverished from an economic crisis or downturn and are more likely to live in areas or be exposed to SES disadvantaged neighborhoods, high unemployment, and violence or crime (Geronimus et al., 2010; Goosby & Heidbrink, 2013; Williams, 1998). Although women make the majority of workforce, they are more likely to be underpaid and work without family leave (Bezruchka, 2012). Low wage jobs and paying certain workers lower wages is beneficial for capitalistic interest because it cuts costs and

increases corporate earnings (Bezruchka, 2012). A source using data analyzed from National Longitudinal Mortality Studies (NLMS) comparing health status in Costa Rica (lower income nation) to health status of America (higher income nation) revealed that American women had 10% higher mortality rates than Costa Rican women (Rosero-Bixby & Dow, 2016). NLMS also revealed that more American women had shorter telomere lengths than Costa Rican women (Rosero-Bixby & Dow, 2016). Authors hypothesized that Costa Ricans may live under less stressful conditions that protect their health (Rosero-Bixby & Dow, 2016). In addition to low cost health coverage, Costa Ricans report higher signs of family social support; 70% of older adults live in households of three or more people versus only 25% of older adults in the USA (Rosero-Bixby & Dow, 2016).

Compared to other societal beliefs, America has one of the highest proportions of citizens who believe the government does not have a responsibility to take care of the poor and that lack of success is a deficit in the individual (Bezruchka, 2012). Neoliberal ideology that is the foundation of American political-economy and social values encourages concepts of individuality/self-centeredness, materialism, capitalism, and low regard for human value (Eckersley, 2001). Neoliberal ideologies promote class and social inequality and underlie America's political-economic system that also influence societal values (Eckersley, 2001). American laws, policies, and values protect powerful and wealthy segments of the population and show little promotion of public assistance, social safety, welfare, collectivism or support for poor, working class, and vulnerable

populations. Citizens may feel psychosocial stress from lack of social support and resources (Adler & Stewart, 2010; Avendano & Kawachi, 2014).

Working class groups in America may become socially isolated by having long working hours, few vacation hours, and demanding workloads (Adler & Newman, 2002; Adler & Rehkopf, 2008; Adler & Stewart, 2010). Employees may be subjected to verbal and emotional abuse, creating feelings of low control, helplessness/hopelessness, uncertainty, and anxiety (Adler & Newman, 2002; Adler & Rehkopf, 2008; Adler & Stewart, 2010). This may explain why socially disadvantaged groups often experience anxiety and excess stress from feeling responsible for their conditions (Avendano & Kawachi, 2014; Eckersley, 2001; Sapolsky; 2005). Additionally, Black women and other vulnerable social groups may potentially hold multiple caregiving roles and responsibilities that also add stress. These community relationships can, however, also be a source of resiliency; for example, Black mothers are shown to have better pregnancy outcomes when their own mothers are present in the household (Jackson & Cummings, 2011). Unlike in France, Americans are not by law required to receive parental leave, although parental leave has been associated with 2.5% decrease in infant mortality (Avendano & Kawachi, 2014). Bangladesh, considered a poor nation in comparison to the United States, has seen a reduction in mortality and burden of disease, which researchers hypothesize may be due to implementation of community health workers, vitamin supplementation programs, and woman-centered, equality-based policies (Chowdhury et al, 2013).

Issue Two: Environmental Injustice/Physical Environment

Health disparities in life expectancy are suggested to also be influenced by the physical environment (Adler & Stewart, 2010; Resnik & Roman, 2007; USDHHS, 2008). The physical environment refers to the infrastructure of an individual's environment and consists of natural and built environment such as; geography, sanitation, diet, housing, workplace, and access to health resources (Resnik & Roman, 2007; USDHHS, 2008; Woolf & Aron, 2013). Environmental justice addresses issues of inequality in the physical environment, specifically, disparities in exposure to biological hazards and toxins, and access to quality food, water, air, housing and medical care (Beltran et al, 2016; Combs-Orme, 2013; NASW, 2008; USDHHS, 2008; Walters et al., 2016).

Since the onset of the industrial and chemical revolutions, it is estimated that at least 6 billion pounds of chemicals are emitted from the United States each year (Crews et al., 2014; Zellmer, 2009). Black families and low income families are more likely to be exposed to hazardous physical environmental settings (Clark, 2005; Williams, 1998). Children in low income environments have almost six times the amount of lead in their blood than children of higher status (Adler & Stewart, 2010). Toxicants can be found in everyday household products, i.e. soaps, makeup, air fresheners, perfume, cleaning products, and machinery (Genuis, 2009). Additionally, through contamination, toxicants can accumulate as dust and fine particle mater effecting air quality (Mitro et al., 2016). Endocrine disruptors are a subset of synthetic chemicals that mimic natural hormones that have been found to contribute to various illnesses and have long-term effects on health (Crews & Gore, 2011). The effects of toxicants have been found in some cases evident up

to three generations even when stressor is removed (Crews et al., 2014). Lead exposure has been found to lead to long-term neurological damage (Clark, 2005). Childhood asthma has been linked to indoor and outdoor pollution; additionally some studies indicate that evidence of exposure to air pollution can be found in male sperm cells, even after being removed from the polluted environment (Thayer & Kuzawa, 2011).

Exposure to air pollution can lead to inflammation, oxidative stress, and changes in genes (Coogan et al., 2012; Thayer & Kuzawa, 2011). Individuals with chronic exposure to nitrogen dioxide from car emissions can significantly increase risk of developing heart disease, hypertension and diabetes (Coogan et al., 2012). High levels of nitrogen dioxide can be found in the air of heavily trafficked areas or neighborhood. Traffic pollution can also cause changes in the gene ACSL3, which is involved in the occurrence of asthma (Thayer & Kuzawa, 2011).

Low income, inner city, and rural areas are less likely to have access to healthy food and adequate nutrition. Studies reveal that areas of low income charge more for same products (Neff et al., 2009). Prominent physical environmental factors affecting quality of nutrition included fast food restaurants in low income areas, schools serving low nutrient food, workplaces without cafeterias, education, marketing unhealthy foods during African American programming (Neff et al., 2009). Interventions could include putting farmers' markets in low-SES areas and technology to allow farmers to receive benefits from the Supplemental Nutrition Assistance Program (SNAP) (Neff et al., 2009). A study based in Britain found evidence of DNA methylation of the Retinoid X Receptor Alpha (RXRA) gene that is associated with metabolic problems such as diabetes in the

umbilical cords of infants born to undernourished women (Thayer & Kuzawa, 2011). Additionally, anxiety from food scarcity can cause psychosocial stress (Neff et al., 2009).

Lastly, Black communities are more likely to be segregated into low income neighborhoods (Williams, 1998). Low income neighborhoods are disproportionately located near highways and industrial areas because land is cheaper and subsequently houses are poorer quality (Adler & Newman, 2002). Moreover, low-SES family homes may also have high residential crowding (a lot of people living together) and high levels of noise exposure, which is said to correlate with long-term memory loss, reading deficits, and hypertension (Adler & Newman, 2002). Poor neighborhoods tend not to have the "architectural" or institutional features of wealthier communities such as, plazas, recreational centers, health clubs, etc. (Adler & Newman, 2002). Wealthier neighborhoods are often structured to promote social activity and greater cohesion which increases community social capital (Adler & Newman, 2002). Such features have attributed to the lower rates of homicide and overall mortality (Adler & Newman, 2002; Sapolsky, 2005).

Afrocentric Perspective

The Afrocentric Perspective is a social theory using African-centered philosophy and centralized on the self-definition, worldview, experiences and values of African descended people (Moore, 2003; NASW, 2001). Afrocentricity was developed to explain and support the experiences and wellbeing of people of African descent using their diverse history and psychosocial, material, environmental, and cultural dynamics. The Afrocentric model in Social Work practice is culturally relevant, strengths-based, person-

in-environment approach (Gilbert, 2009; Moore, 2003; NASW, 2001). Afrocentricity in research explains the occurrence of illnesses and social problems due to psychosocial and material oppression of racism, sexism, classism, and disconnect from culturally relevant means of coping (Gilbert, 2009; Harley, 2006; Moore, 2003; NASW, 2001).

Though mostly applicable to Black people, the Afrocentric model and values can be applied to other ethnic, minority, and or oppressed groups. The Afrocentric Perspective posits that traditionally African-centered and culturally relevant principles and values is a source of protection and resilience for Black people in America. Interventions informed by the Afrocentric Perspective should be empowering and reflect values and principles associated with Black and Afrocentric culture such as collectivism and spirituality (Davis, 2009; Gilbert, 2009; Harley, 2006; Moore, 2003). Examples of protective factors of Black culture are high achievement, kinship, spiritual/religious inclination, and a desire for connectedness and harmony (Gilbert, 2009; Harley, 2006).

Afrocentric theory encourages cultural competency by providing knowledge of experiences, concerns, strengths, and values of diverse social groups. Sadler et al. (1998) found promising results from using an Afrocentric-based health educational intervention for breast cancer awareness among Black women. The intervention aligned with Afrocentric principles of community, mutual aid, and self-empowerment for implementation of the health intervention (Sadler et al., 1998). Researchers trained community members and professionals, such as cosmetologists, in breast cancer information and counseling to facilitate "peer-education" of health behaviors such as self-checkups, mammograms, and other health-related information to pass along to their

clients, friends, or family (Sadler et al., 1998). Participants, both cosmetologist and their clients, reported positive feelings from the experience (Sadler et al., 1998). Interventions for women and families affected by trauma, such as The Grady NIA project based in Atlanta, Georgia, is modeled on Afrocentric principles of empowerment, spiritual healing, and resilience (Davis, 2009). Strategies include support groups where women share experiences of resilience (story-telling), use of African proverbs, visualizations of positive Black female figures, and positive affirmations (Davis, 2009).

Lastly, there has also been promise in the integration of alternative, traditional, and indigenous healing to the standard medical care (Harley, 2006). Harley explored the use of indigenous healing practices such as plant-based herbal use, and found that Black elderly continue to use and endorse aspects of traditional healing practices (Harley, 2006). It has been reported that Black elderly women who regularly take herbal plant-based supplements perceive their health to be higher than those who do not (Harley, 2006). This may also be reflected in Afrocentric values of self-awareness, self-healing and health promotion (Harley, 2006; Sadler et al., 1998).

Theoretical Framework

Components of biopsychosocial, epigenetic, critical race theories, ethnographic methods, and Afrocentric Perspectives were selected to best explain the relationship between dependent variables of life expectancy and intervening variables; social environment and physical environment (Combs-Orme, 2013; Creswell, 2013; Engel, 1989; Ford & Airhihenbuwa, 2010). Biopsychosocial theory and other biopsychosocial models such as epigenetic theory and stress physiology, identify the biological

mechanisms in which the social environment and physical environment impact health (Combs-Orme, 2013; Goosby & Heidbrink, 2013; Geronimus, 2013; Sapolsky, 2005). Critical Race Theory framework addresses the concepts of stratification/hierarchy, oppression, inequality, and injustice that underlies the findings about health disparities in certain populations (Adler & Stewart, 2010; Ford & Airhihenbuwa, 2010; USDHHS,2008). Critical theories highlight relationships of power within society and attempt to understand and change oppression in society (Johnson, 2006; Ortiz & Jani, 2010). Ethnography, a form of public or applied anthropology, focuses on developing a complex, complete description of culture of group and studies social interactions, behaviors and perceptions within groups and seeks to understand situations in context was used to understand the context of the social problem, social issues, and population (Creswell, 2013; Longhofer & Jacob, 2014).

Biopsychosocial and epigenetic approaches explain health disparities as being caused by biological reactions to the social environment and physical environment (Adler & Stewart, 2010; Geronimus et al., 2010; Goosby & Heidbrink, 2013; McEwen, 2008; Sapolsky, 2008). Biopsychosocial and epigenetic theories demonstrate that psychosocial and physical stressors lead to activation of the stress-response system, causing inflammation in the body, which has been associated with impairment of the immune system and other body systems, susceptibility to illness, and shorter longevity (Adler & Stewart, 2010; Geronimus et al.,2010; Goosby & Heidbrink, 2013; McEwen, 2008; Sapolsky, 2008). Biopsychosocial stress physiology concepts use telomere length and allostatic load scores as measures of life expectancy and longevity and signs of stress-

response activation (Adler & Stewart, 2010; Geronimus et al.,2010; Goosby & Heidbrink, 2013; McEwen, 2008; Sapolsky, 2008). Telomere length and allostatic load is altered by body inflammation, which is caused by activity of the stress-response system (Adler & Stewart, 2010; Geronimus et al., 2010; Goosby & Heidbrink, 2013; McEwen, 2008; Sapolsky, 2008). Epigenetic methods specifically look for signals of DNA or gene modification (methylation) and pays closer attention to the role of the early environment (Combs-Orme, 2013).

Biopsychosocial theory was introduced in 1977 as is a holistic theory of human development that attempts to explain ways the biological, psychological, sociological (and spiritual) domains interact (Engel, 1989; Garthwait, 2012). The biopsychosocial model was proposed as an alternative to the biomedical model and skewed distribution of power between health experts and clients (i.e. medicalization) (Borrell-Carrió et al., 2004; Cook, 2011). The biomedical model has been the dominant Western paradigm in treating and viewing illness (Clark, 2005; Douglas, 2013). Using the biomedical model, illness is treated independently of the person and does not account as much for multiple factors (Engel, 1989). The biopsychosocial model offers a holistic perspective and accounts for multiple factors of illness and health, specifically the influences of biological, psychological and sociological factors (Engel, 1989). Engel's biopsychosocial model informed the Racism as a Stressor Biopsychosocial Model introduced by Clark et al. (1999). Clark et al. used the biopsychosocial model to review the psychological and physiological impact of racism on Black Americans as a group (1999). Black Americans as a group deal with inter and intra racism (i.e. colorism), as well as disproportionate

exposure to acute and chronic stressors from the social and physical environments (Clark et al., 1999). Psychological responses to perceived racism are anger, anxiety, fear, hopelessness; physiological responses are decline in immune, cardiovascular, neuroendocrine function (Clark et al., 1999)

Epigenetic theory has been applied to psychosocial and biological disciplines. In 1942, C. H. Waddington used the term "epigenetics" to describe how genes interact with the environment; the term was also used by Erik Erikson as a psychosocial developmental model (Tyagi & Raghvendra, 2010). Epigenetic theory currently is defined as heritable changes in phenotype, chromosome, gene traits, and gene expressions that occur without altering DNA (Berger et al., 2009; Combs-Orme, 2013; Speybroeck, 2002; Tyagi & Raghvendra, 2010). Epigenetic theory accounts for the multi-dynamic influences on life development and connection between biophysical, psychosocial, and environmental domains (Combs-Orme, 2013). Epigenetic theory posits that early life experiences, psychosocial and physical/material environments influence long-term, transgenerational, biological processes. Unlike traditional models of genetics, such as biological determinism, epigenetics views biology and genes as actively changing and interacting with the environment, focusing more on gene expression, biological traits, and phenotype, versus simply "a" specific gene (Combs-Orme, 2013). Epigenetics in research explains causes of epidemiological problems as affected by complex psychosocial, environmental, and biological factors.

Epigenetic theory hypothesizes that health disparities, especially of disenfranchised groups, are related to long-term psychosocial and physical environmental

stressors of poverty, trauma, and oppression and genetic factors (Combs-Orme, 2013; Kuzawa & Sweet, 2009). For example, Black American mothers, especially those who reported racial discrimination, are more likely to have pre-term births (Kramer & Hogue, 2009). Additionally, birthing complications and poor maternal service, resulting in lack of nutrition and further stress, have been correlated with appearance of behavioral and emotional issues in children (Liu, 2004). Adding to information about variances in biological symptoms, a medical study showed that cancerous tumors in Black women had higher amounts of methylation or gene changing, than White women, which was also associated with greater mortality risk (Mohammed, Springfield, & Das, 2012).

CHAPTER III

METHODOLOGY

The researcher's method of study for this paper depended largely on the review of literature that explores the theory of selected concepts. The researcher explored selected literature that led to the following methodological theories for the construction of the paper. First, the theoretical framework has been operationalized through tenets of ethnography and critical race theory with grounding in a comprehensive review of literature through conducting of systematic review. A conceptual framework was formed which guided research by providing a visual representation of theoretical constructs and variables of interest (National Center for Postsecondary Improvement, 2003). Although the study is a conceptual paper that does not test the theory, the literature review and data collection informed the model.

Methods of the Conceptual Paper

After selecting a topic for examination, two social issues were derived: (a) social environment/social injustice and (b) physical environment/environmental injustice. Theoretical frameworks biopsychosocial and epigenetic theory explain the relationship between social and physical environmental exposures and biology (Berger et al., 2009; Combs-Orme, 2013; Engel, 1989; Garthwait, 2012; Tyagi & Raghvendra, 2010; Speybroeck, 2002). Terms and issues will be operationalized, conceptualized, and defined.

Moreover, an analysis of descriptive statistical findings for the targeted social group population was conducted by the researcher. The use of descriptive statistics collected on the population was identified after comprehensive review of selected literature and utilized to construct an analysis for this methodological design. To conduct the analysis of health disparities in life expectancy, the researcher used the tenets found in the selected theories to construct and deconstruct the findings.

This conceptual model provides the following dimensions to support the theory of the variables identified for this concept paper (see Figure 1). As shown on the conceptual model, at the top is critical race theory which the researcher uses as overarching factor and critique of the dependent variable, life expectancy of all women in the USA with an emphasis on Black women in the USA. Following the variables, the researcher is guided by the qualitative approach to research methods found in ethnography with an emphasis on Black women. Between the critical race theory and ethnography are the independent variables (biopsychosocial model and epigenetics theory) and the intervening variables (social environment and physical environment) which are perceived to influence the dependent variable for this conceptual paper.

Approximately 84 articles were reviewed for this conceptual paper and 14 core key words were used: *social environment, physical environment, health disparities, life expectancy, Black women, racism, sexism, poverty, inequality, stratification, stress, physiology, epigenetic, and biopsychosocial.*

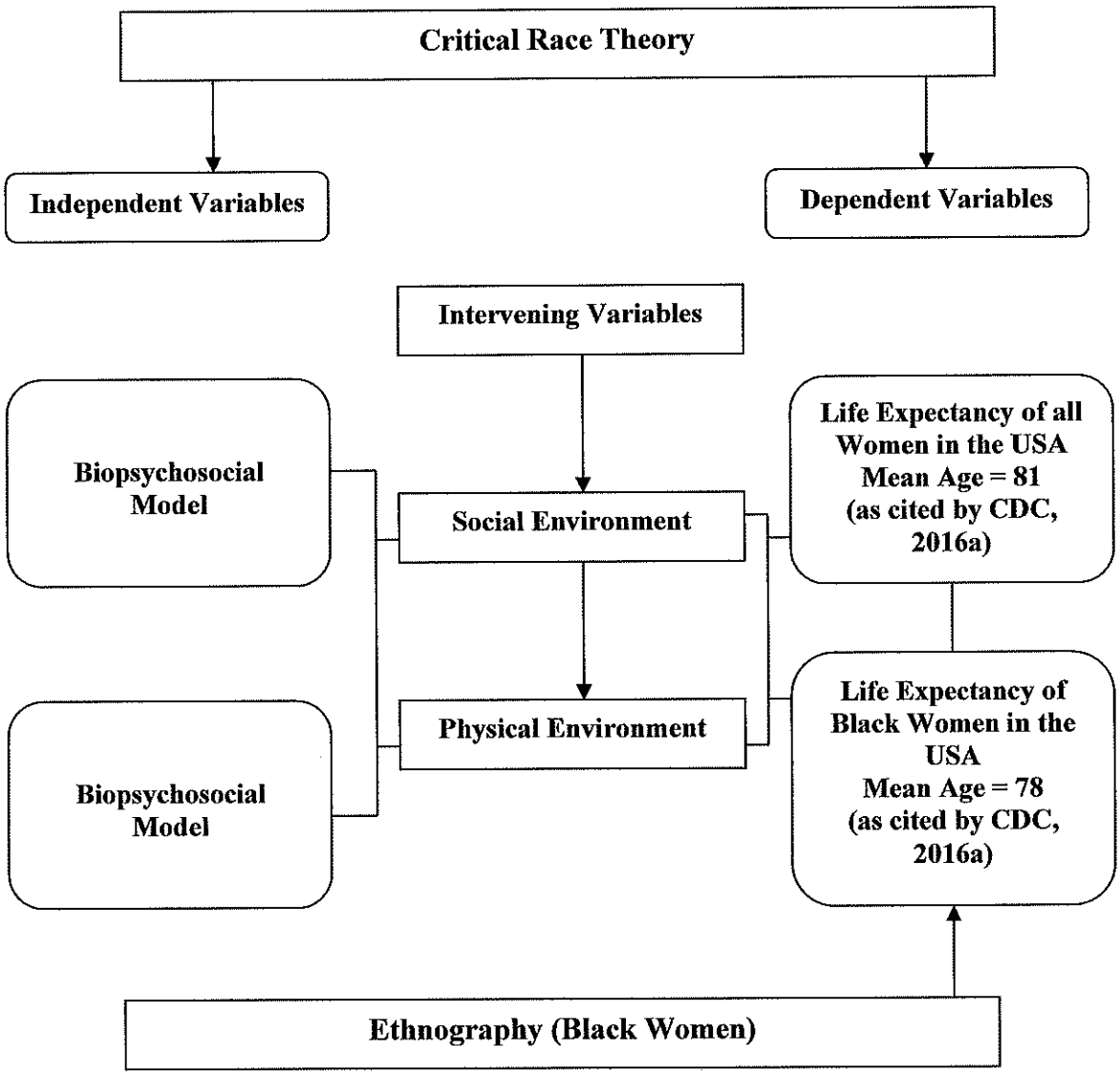

Figure 1. A conceptual model for Black women's life expectancy in America. (Designed from a review of research concepts developed by Nurah Moffett and shared for the development of a Concept Model.)

Limitations of the Conceptual Paper

Limitations included time, resources, and gaps in literature. The selected literature on the theoretical framework proposed that variables can be measurable; however, the researcher was unable to measure life expectancy for this concept paper using the literature provided in this research methodology. It would be a potential extension of the research for future studies to quantify the selected independent variables.

CHAPTER IV

PRESENTATION OF FINDINGS

Chapter IV presents the findings of the literature review regarding the two studied social issues. The focus of this paper was to determine the factors that influence the life expectancy of Black women. The following narrative presents those findings.

Findings of Issue One: Social Injustice/Social Environment

Selected literature reviewed regarding the first conceptual paper issue of injustices in the social environment and disparities in life expectancy revealed an association. Black women in the USA are subjected to multiple forms of social injustice throughout lifetime, specifically, racism, sexism, and classism (Ford & Airhihenbuwa, 2010). Injustices in the social environment cause oppressed groups to be exposed to social environmental factors that harm health (Adler & Stewart, 2010; Geronimus et al.,2010; Goosby & Heidbrink, 2013; Geronimus & Snow, 2013). Research found that social environmental factors related to injustice such as oppression, inequality, and stratification can contribute to psychosocially and physically unhealthy social environments by increasing social environmental stress and decreasing social environmental resources such as social capital and social support (Adler & Stewart, 2010; Avendano & Kawachi, 2014; USDHHS, 2008). The major theme of reviewed literature links social environmental factors to physical changes in the body that adversely impacts health and life expectancy.

This is first represented in literature of other low and high income nations with longer life expectancies and better overall health, suggested to be correlated to public welfare practices that strengthen and improve social environments and equality (Avendano & Kawachi, 2014; Rosero-Bixby & Dow, 2016). The quality of health in the United States has decreased since national reduction of public welfare services and public funding cuts related to influx of neoliberalism and capitalism in the 1980s (Avendano & Kawachi, 2014). Increased public services and equality-based policies are suggested to have assisted Bangladesh, a poorer nation compared to the United States, in reducing mortality and disease (Chowdhury, 2013). Parental leave and other social policies in France, a nation of similar income, have also been associated with a 2.5% decrease in infant mortality (Avendano & Kawachi, 2014). Sources also revealed that individual level social environmental resources such as family support, have been associated with improved outcomes during pregnancy and childbirth, while family distress has been associated with declined health (Jackson & Cummings, 2011; McEwen, 2008).

Sources indicated that Black women have signs of biopsychosocial and epigenetic changes, such as decreased telomere lengths, increased allostatic load, and evidence of biological and genetic methylation (change) (Adler & Stewart, 2010; Combs-Orme, 2013; Geronimus, 2013; Goosby & Heidbrink, 2013; Kuzawa & Sweet, 2009; McEwen, 2008). Studies indicated that decreases in telomere length and increases in allostatic load scores are prominent physical markers of psychosocial stress in the body that are also directly related to individual longevity (Adler & Stewart, 2010; Geronimus et al.,2010; Goosby & Heidbrink, 2013; McEwen, 2008). Results from Study of Women's Health

Across the Nation (SWAN) indicated that psychosocial stress strongly influenced Black women experiencing physical signs of aging 7 years sooner than White women (Geronimus, 2010). Though lower income individuals were found to have shorter telomere lengths and higher allostatic load scores, Black Americans with higher incomes were found to have higher allostatic loads than White Americans with lower incomes (Adler & Stewart, 2010; Williams et al., 2010). In addition, Black women were found to have higher allostatic loads than Black men (Williams et al., 2010).

Findings of Issue Two: Environmental Injustice/Physical Environment

The selected literature reviewed regarding the second study issue of injustices in the physical environment and life expectancy revealed an association. Black women in the USA are more likely to live in physical environments that are harmful to health and life expectancy (Williams, 1998). Injustices in the physical environment cause oppressed communities in the USA to be disproportionately exposed to physical environmental factors that harm health (Adler & Newman; 2002; Clark, 2005; USDHHS, 2008; Williams, 1998). Physical environmental factors such as poor nutrition, water, air, and housing quality are linked to poorer health and shortened life expectancy (Clark, 2005; Crews & Gore, 2011; USDHHS, 2008). Research finds that physical environmental factors related to injustice can limit material resources and have been linked to inflammation and oxidative stress in the body that can contribute to poor health and decrease longevity (Adler & Newman, 2002; Thayer & Kuzawa, 2011). The major theme of reviewed literature links physical environmental factors with long-term physical changes in the body that adversely impacts health and life expectancy.

This is first represented in literature findings that Americans and the population overall is exposed to high amounts of toxins and pollutants in the physical environment since the onset of the chemical revolution (Crews et al., 2014; Genuis, 2011; Zellmer, 2009). At least 6 billion pounds of chemicals are emitted from the United States each year (Crews et al., 2014; Howard & Buchanan, 2008; Zellmer, 2009). Air pollution can cause changes in the ACSL3 gene, which is involved in the occurrence of asthma and evidence of exposure to pollution can be found in individual reproductive cells, even after the individual is removed from the polluted environment (Thayer & Kuzawa, 2011). Studies of individuals located near heavily trafficked areas with chronic exposure to car fumes revealed that inhabitants had higher incidents of heart disease (Coogan et al., 2012).

Chemicals such as lead have been found to cause long-term neurological damage and endocrine disrupting chemicals have been linked to various illnesses and long-term effects on health (Clark, 2005; Crews & Gore, 2011). Children in low income housing for example have almost six times the amount of lead in their blood than children of higher income (Adler & Stewart, 2010). Poor access to nutrition has been associated with occurrence of premature births and changes in the RXRA gene that is associated with metabolic problems such as diabetes in the umbilical cords of infants born to undernourished women (Thayer & Kuzawa, 2011).

CHAPTER V

CONCLUSION

Summary of the Conceptual Paper

Chapter V summarizes and discusses the key points of the conceptual paper and provides implications for social work course of action. Overall findings in the literature review related to injustices in the environment and health disparities in life expectancy revealed a correlation. Social injustices increase exposure to psychosocial stress and decreases resources in the social environment available for coping. Environmental injustices increase exposure to harmful physical factors that impact health.

Discussion

The literature and findings of this concept paper presented findings on the correlation between social injustice and environmental injustice and Black women's life expectancy in the United States. Black women live shorter lives than other groups of women and have higher rates of illness and of infant and maternal death. This health disparity indicates social injustices and environmental injustices in the social and physical environment that causes psychosocial and physical stress, which results in changes in body functions. Inequality in society causes different social groups and populations to be exposed to inordinate amounts of stress in the social environment and physical environment. This pertains to Black women in America because they have a

distinctive social location at the intersection of race, gender, class, and other social identities. Biopsychosocial, epigenetic, critical race theories, with support of ethnographic and Afrocentric methods, may explain and support these findings.

Implications for Social Work

Social Workers are activists, social scientists, and promoters of equality and justice. On a macro-level, Social Workers can work to influence policies and laws oriented towards public welfare, justice, and equality of the social environment and physical environment, especially for vulnerable populations. On a micro-level and meso-level, Social Workers can collaborate with different schools of study, especially medicine, to help communities meet optimal health and wellness, such as psycho-social therapy and complementary medicine. The researcher suggests that future studies using the theories should be conducted to test the relationships between the proposed theories and life expectancy for significance. Also, ethnographic research, interviews, and observations of this group of women may offer insight to support the concepts introduced in the literature and from the report of health related societal factors as contributing to differences in life expectancy and health outcomes for Black women compared to other groups in the USA. Social workers incorporating principles of critical race, biopsychosocial, epigenetic, Afrocentric theories, and ethnographic methods can provide a holistic and multidimensional approach for researching and advancing the physical, mental, and social well-being of Black women which could thus help understand and eliminate health disparities in their life expectancy and wellbeing, and that of others.

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OPERATIONAL DEFINITIONS OF KEY TERMS

Biopsychosocial Theory: Holistic theory of human development that attempts to explain ways the biological, psychological, sociological (and spiritual) domains interact (Engel, 1989; Garthwait, 2012).

Critical Race Theory/Critical Theories: Critical theories highlight relationships of power within society and attempt to understand and change oppression in society (Johnson, 2006; Ortiz & Jani, 2010).

Dependent Variable: The dependent variable is defined as the change or difference in a behavior or characteristic that occurs because of the independent variable; effect; outcome (Gay, Mills, & Airasian, 2012).

Descriptive Statistics: Descriptive statistics refers to statistics that focus on describing, summarizing, or explaining data (Johnson & Christensen, 2008).

Epigenetic Theory: Theory of interaction between genes and environment, describes the heritable changes in in phenotype, chromosome, gene traits, and gene expressions without altering DNA (Berger et al, 2009; Combs-Orme, 2013; Tyagi & Raghvendra, 2010; Speybroeck, 2002).

Ethnography: A form of public or applied anthropology, which focuses on developing a complex, complete description of culture of group and studies social interactions, behaviors and perceptions within groups and seeks to understand situations in context (Creswell, 2013; Longhofer & Jacob, 2014; Reeves et al, 2008).

Health Disparity: Preventable differences in incidence and prevalence of mortality and disease burden (morbidity) or unequal, unfair, inequalities in health status or outcome (NASW, 2005; USDHHS, 2008). Disparities in health often indicate human rights issues and disproportionately affect groups who currently or historically encountered social, economic, or environmental disadvantage, oppression, or vulnerability; such as; women, minorities, impoverished/working class, elderly, children, etc. (NASW, 2005; USDHHS, 2008).

Intervening Variable: The intervening variable is defined as the variable that intervenes between or alters the relation between an independent variable and a dependent variable but that cannot be directly observed or controlled (Gay, Mills, & Airasian, 2012).

Independent Variable: The independent variable refers to the behavior or characteristic under the control of the researcher and believed to influence some other behavior or characteristic; manipulated variable, cause, or treatment" (Gay, Mills, & Airasian, 2012).

Physical Environment: Term describes infrastructure of individual's environment, consists of natural and built environment such as; geography, sanitation, diet, housing, workplace, and access to health resources (Resnik & Roman, 2007; USDHHS, 2008; Woolf & Aron, 2013).

Social Environment: Social and cultural settings, relationships, norms, patterns, beliefs and institutions that influence life of individual or community; including social safety, cohesion, capita, and other factors such as race, gender, education, culture,

religion, values, and morals (Resnik & Roman, 2007; USDHHS, 2008; Woolf & Aron, 2013).

Variable: Anything that has a quantity or quality that varies. The dependent variable is the variable a researcher is interested in. An independent variable is a variable believed to affect the dependent variable (Gay, Mills, & Airasian, 2012).