

Psychological Factors that Predict Gender and Racial Disparities in Major Health Outcomes

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Abstract

This work investigates the psychological determinants associated with gender and racial disparities in mortality and morbidity in major health outcomes in the United States, through an examination of four major health outcomes: hypertensive heart disease (defined in this work as hypertension and coronary artery disease), skin cancer, low birth weight, and homicide. Persistent gender and racial disparities can be explained through two major psychological models: the health behaviors and beliefs model (HBBM) and the psychosocial model. The results of the literature review show that when taken apart the factors in these models do not conclusively explain gender and racial disparities. However, this work creates a comprehensive model that highlights the most important factors and serves as a framework for designing interventions and policies to reduce health disparities. In addition, a pragmatic model for health care settings is created. Finally, the policy recommendations made based on research of the models show that health disparities are avoidable.

Keywords: health disparities, health inequalities, health inequities

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It comes without surprise that the United Nations *Universal Declaration of Human Rights* (UNDHR) states that everyone has the right to health and well-being since health is an essential part of being an active global citizen (1948). However, while the right to health has been declared, this right to health does not assert that individuals will be equally healthy. In fact, within the United States, all citizens are not equally healthy. While the United States' Declaration of Independence declares that "all men are created equal, and that they are endowed...with certain unalienable Rights ...Life, Liberty and the pursuit of Happiness", health statistics show that there is inequality in individual's quality of life and health (National Archives, 1776, p.1). Ensuring equal health of American citizens has proven to be a difficult endeavor. It is largely accepted that for certain health outcomes, there are major gender and racial disparities (Center for Disease Control and Prevention (CDC), 2011). While data has shown health disparities, much research has not been done to gain a comprehensive understanding of the psychological factors that lead to health disparities.

The need for understanding the psychological factors that cause different health outcomes for different genders and races is important because an individual's health and well-being allows them to be productive members of society. A life enveloped in sickness and disease does not allow an individual to attain many of the other human rights set out by the United Nations. If an individual is constantly struggling with illness, they are unable to fully perform socially or economically in life's daily tasks (Straub, 2012). Whether it be missing out on leisure activities to rest and heal or missing work or school because one is too sick to concentrate, sickness has widespread debilitating effects on an individual. Understanding psychological factors is important because it aims to reduce these debilitating effects for all Americans. As America

becomes more ethnically diverse, it will be important to reduce present disparities to create a healthier, more socially active nation (CDC, 2011).

The Centers for Disease Control and Prevention (CDC) is the leading public health institute in the United States and has compiled data that identify different disparities in major health outcomes in order to promote the health of all citizens (CDC, 2011). The CDC identifies three major distinctions in health in the American populations: health disparities, health inequalities, and health inequities. *Health disparities* are the health differences between populations and their social, demographic, geographical, and economic determinants (CDC, 2011). *Health inequalities* – often used synonymously with health disparities – refers to the “summary measures of population health associated with individual- or group-specific attributes (e.g. income, education, or race/ethnicity)” (CDC, 2011, p. 3). Finally, *health inequities* refer to a subset of health inequalities that are changeable because they are connected to unethical social issues (CDC, 2011). While now highlighting the differences of health disparities and inequalities, this text will use these terms synonymously. In addition, it is important to understand health inequities as their avoidable nature shows how some health disparities can be prevented when proper research is applied to policy.

The CDC and other annual reviews on public health have found health disparities and inequalities because of several different factors such as race, age, gender, and socioeconomic status (SES). While all of these determinants are important, gender and race have a wide scale health impact on an individual’s life as they are physically and psychologically mapped onto an individual’s body (Dressler, Oths, & Gravlee, 2005). While socially constructed, both the gender and race of an individual are present in every aspect of an individual’s life (Dressler et al., 2005). Race and gender still affect which lives society values more than others, and unlike age and SES

which change over time, the majority of people remain the same gender and race throughout their lives (Andersen & Collins, 2013). If an individual is in a devalued race or gender throughout their life, they are unable to escape the systems of power that disadvantage them (Andersen & Collins, 2013). Traditionally, to describe gender, the CDC uses the constructs “men” and “women” which are used interchangeably with male and female, respectively. Just as two genders have been persistently recognized, two races – “blacks” and “whites”, also used interchangeably with African-Americans and Caucasians, – are often discussed in relation to one another. Specifically, blacks and whites are often talked about when discussing health disparities since these disparities have been most studied and have remained persistent.

Extensive research has revealed that comparisons between a) men and women; b) blacks and whites; and c) white men, black men, white women, and black women demonstrate several trends that point to health disparities. In general, women have a higher life expectancy at birth than men. At birth, in the United States, women are predicted to live to 81.0 years in contrast to men who are expected to live to 76.2 years. When stratified by race, white women (81.3 years) and black women (78.0 years) still have a higher life expectancy than white men (76.5 years) and black men (71.8 years). The pattern in which white women have had the highest life expectancy followed by black women, white men, and black men has persisted throughout the last four decades, suggesting that without an intervention these trends will continue.

Identifying and acknowledging disparities is the first step to reducing them, however identifying disparities is not enough to reduce them because a more complex approach must be used to understand the root causes of persistent disparities before targeted action can be taken. Research helps to inform policy decisions by identifying the problem and potential factors that can be manipulated to solve the problem (Clancy, Glied, & Lurie, 2012). Understanding the

psychological causes of disparities can help prevent subsequent disparities by allowing institutions, doctors, and patients to know how to prevent illness and disease. The purpose of this work is to investigate the psychological determinants associated with gender and racial disparities in mortality and morbidity in major health outcomes in the United States. Specifically, this paper will reveal how psychological models of health behaviors and beliefs and psychosocial factors can be integrated into a comprehensive model that serves as a framework for designing interventions that reduce health disparities and promotes the health of all Americans.

Gender and Racial Disparities in Major Health Outcomes

An individual's overall health and well-being is comprised of the physical, psychological, and social aspects of their life (World Health Organization (WHO), 1948). These aspects are affected by gender, race, and performance on different health outcomes. Researching gender and racial disparities in major health outcomes is a strong way to begin understanding disparities because large populations are affected by these health outcomes. In 2013, in America, the top two leading causes of death were diseases of the heart and malignant neoplasms (cancer; CDC, 2015e). Combined, in 2013, these two categories killed approximately 1.2 million people. Within the category of diseases of the heart (cardiovascular diseases), about 26.6 million American adults (11.3%) are diagnosed with coronary heart disease (CHD, heart disease; CDC, 2014a). In addition, 32.5% of Americans have been diagnosed as living with hypertension (high blood pressure; CDC, 2013d). While hypertension is a subcategory of cardiovascular diseases, it is also a major risk factor for heart disease (U.S. National Library of Medicine, 2015). The relationship between heart disease and hypertension leads to a subcategory of cardiovascular diseases called hypertensive heart disease – heart disease that arises because of high blood pressure (U.S. NLM,

2015). The problems that arise from hypertensive heart disease, which this work will focus on, are coronary artery disease and hypertension.

Diseases of the heart and hypertension demonstrate gender and racial disparities with regards to prevalence rates. In general, men are more likely to be diagnosed with disease and hypertension than women (Blackwell, Lucas, & Clark, 2014). Across all ages, men have a higher prevalence of heart disease than women. In 2012, 12.1% of all adult males (aged over 18 years) had heart disease while 9.7% of all adult females (aged over 18 years) had heart disease. The racial disparity for heart disease also favors white individuals over black individuals, as 22% of adult white women have heart disease while 35% of adult black women have heart disease. Similarly, 25% of adult white men over 18 have heart disease while 30% of adult black men over 18 have heart disease (Blackwell et al., 2014).

In addition to disparities in the prevalence of heart disease, there are also disparities in mortality rates such that men have a higher mortality rate from heart disease than women. In 2013, the age-adjusted rate for heart disease for males was 214.5 per 100,000 people, while the age-adjusted rate for heart disease for females was 134.3 per 100,000 (CDC, 2014f). Black men and women have higher mortality rates of heart disease than white men and women. In 2013, the age-adjusted rate for heart disease for black males was 262.8 per 100,000 while the age-adjusted rate for white, non-Hispanic males was 217.9 per 100,000. For black women, the age-adjusted mortality rate for heart disease in 2013 was 172.1 per 100,000, while the rate for white women was 134.6 per 100,000 (CDC, 2014f).

Hypertension, which is linked to heart disease, is also very prevalent in the United States, with nearly one in every three Americans (about 29% of the population) having hypertension (CDC, 2015d). High blood pressure continues to be a severe public health problem because only

52% of those who have high blood pressure have it under control. Uncontrolled blood pressure increases an individual's risk of having a heart attack, stroke, chronic heart failure, and kidney failure because of restricted blood flow to the heart, brain, and kidneys (CDC, 2015d). The gender disparities for hypertension parallel those for heart disease, in that the overall trend shows that there is a larger percentage of men (34.1%) than women (32.7%) who have hypertension (CDC, 2015d). However, the gender disparities for hypertension differ as hypertension rates are very age-dependent. Over the course of a lifetime, women are more likely to have hypertension than males. Before age 45 men have higher rates than women, but hypertension begins to affect more women than men at 65 years of age and older. The racial disparities for hypertension also parallel those for heart disease. In general blacks are more likely to have higher percentages of hypertension and have an earlier onset than their white counterparts. When stratified by race and gender black males (43.0%) and females (45.7%) have a higher prevalence than white males (33.9%) and females (31.3%) (CDC, 2015d).

In addition to the disparities in the prevalence of hypertension, there are also disparities in the mortality rates from hypertension. The disparities in mortality rates for hypertension are also similar to the prevalence rates of hypertension. In general, more women died from hypertension than men in 2013 (CDC, 2013c). The death rate per 100,000 from hypertension for women was 11.1 while the death rate for men was 8.3. In comparison to white males who had a death rate of 8.0 per 100,000, the death rate for black males was 11.9 per 100,000. Similarly, the death rate for white females was 11.3 per 100,000 while the death rate for black females was 13.0 per 100,000. Overall, black females had the highest death rate from hypertension in comparison to white females and black and white males. In summary, blacks have poorer mortality and prevalence rates than whites. In regards to prevalence and mortality of heart

disease, women do better than men. However, for hypertension women fare worse than men in mortality and prevalence rates are different throughout the years.

Cancers follow diseases of the heart as the second largest cause of mortality in America. Of all deaths in America, 22.5 percent of deaths were caused by different cancers. Skin cancer is a highly prevalent cancer that is preventable with behavioral changes (CDC, 2012). In 2012, the incidence rate of skin cancer was 19.9 per 100,000 persons which caused it to be ranked seventh out of the top ten cancers (CDC, 2012). While skin cancer ranked as the sixth most deadly cancer for white males and females, skin cancer was not one of the top 10 cancer deaths for blacks in America. For black men and black women, between 2002- 2011, the incidence rate for melanoma remained level (CDC, 2015a,b). While it is hard to study a racial disparity because skin cancer is not considered a major cancer issue for blacks, gender disparities between white males and females can be studied.

Between 2002 and 2011, the incidence of skin cancer for white men and women increased by 1.4% per year and 1.6% per year, respectively (CDC, 2015a,b). In addition, the death rate for skin cancer for white men increased significantly by 0.9% each year (CDC, 2015c). In 2012, the number of women who died from melanomas was almost half the number of men who died, 3,238 and 6,013, respectively (CDC, 2014e). Apart from gender disparities between incidence and mortality rates of skin cancer, behavioral disparities between men and women are also important. Overall, considering three of the main sun-protective behaviors, 70% of adults reported wearing sunscreen, wearing protective sun-clothing, and seeking shade when out in the sun (CDC, 2015g). In comparison to 73% of women who use one or more sun protective measures, only 67% of men report using one or more sun-protective measure (CDC, 2015g).

In addition to heart disease and cancer, low birthweight (LBW) – defined as weighing under 2500 grams at birth – was listed as part of the mortality and morbidity health metric for surveying and improving community health (CDC, 2010; 2013b). The initial health of a newborn is important and is considered the most important predictor for infant mortality. The health of a newborn is also important because low birthweight is considered a precursor for other complications at birth and further negative health effects later in life (CDC, 2010). LBW babies are at a higher risk for health complications such as neurodevelopmental disorders, sepsis, and respiratory problems (CDC, 2010).

Low birthweight statistics reveal that the problem of LBW babies is reducing as the years go on. From 1990 to 2006 there was a decline in LBW babies; even though after 2006, slight increases in LBW have been reported (Martin, Hamilton, Osterman, Curtin, & Mathews, 2013). LBW is often associated with the period of gestation. A longer period of gestation is often correlated with a heavier newborn baby. In recent years, periods of gestation have become longer, and, therefore, birth weight has risen. Overall, there have been positive trends for gestation as the percentage of early term births has decreased by 14%, and the percentage of long-term births has increased by 13% (Martin et al., 2013).

While there have been positive overall trends for gestation periods and LBW, there are still persistent racial disparities that need to be addressed. In comparison to skin cancer that is focused on gender disparities amongst white people, LBW is focused only on racial disparities between females. Epidemiological data starting in 1990 shows that in comparison to white women, black women are persistently more likely have low birth weight babies. In comparison to the average low birth weight rate of 8.02% in 2013 for all women in the United States, the low birth weight rate for blacks was 13.08% (Martin et al., 2013).

Homicide related to violence and injury though not always considered health problem like hypertensive heart disease, skin cancer, and LBW is now listed as a public health problem. This fairly new concept has emerged because many experts think that the issue of violence can be tackled if looked at as a disease (Cure Violence, 2015a). Gary Slutkin and his “Cure Violence” campaign are one of the pioneers of conceptualizing violence as a disease. The aim of the Cure Violence movement is to “reduce violence globally using disease control and behavior change methods” (Cure Violence, 2015a, p.1). Slutkin (2015) argues that violence is similar to a contagious disease because it presents itself in clusters. Further analyses about these clusters reveals disparities within communities that breed environments for violence to spread (Slutkin, 2013). Like an infectious epidemic that can be predicted by prior epidemics, Slutkin (2013) argues that violence can be predicted by other cases of violence. Another factor that infectious diseases and violence shares is that they both spread from one individual to another (Slutkin, 2013). For example, gang violence spreads between different groups of people over long periods of time and turn into gang wars (Slutkin, 2013). In addition, individuals who are exposed to violence through their neighborhoods are likely to catch the infection of violence (Slutkin, 2013). All of this evidence has allowed the concept of violence to be thought of as a public health problem that is curable.

Violence and injury can take many forms such as intentional injury, unintentional injury, fatal and nonfatal injury. In epidemiology, the health outcome that comes out of violence is homicide (CDC, 2013b). This work will look at general, intentional homicide rates, regardless of the method used to commit the injury. In 2013, there were 16,121 deaths attributed to homicide in the United States (CDC, 2003).

Racial and gender disparities also exist within homicide rates in the United States. In 2013, blacks had an age-adjusted homicide rate of 18.71 per 2,000 in the standard population. Of about 40.8 million blacks in the United States' population, 7,950 were killed by homicide. In comparison, in 2013, 5,024 white Americans were killed by homicide, which is an age-adjusted rate of 2.52 per 2,000 standard population (i.e., about 1/8th of the rate for blacks). Overall, more blacks than whites die from homicide, and more men than women die from homicide. (Table 1).

	Homicide Rate per 2000	Number Killed
Males	8.14	12,726
Females	2.15	3,395
White Males	3.35	3,311
Black Males	33.27	6,851
White Females	1.69	1,713
Black Females	5.10	1,099

Table 1: Age-adjusted homicide rates and number killed (CDC, 2003).

As discussed above, hypertensive heart disease, skin cancer, low birth weight, and homicide are four major health outcomes that greatly affect the health of Americans. Since there is extensive epidemiological evidence that shows the disparities in these four health outcomes, much research has been conducted to understand these health disparities. This research has included economic, sociological, and psychological factors. From a psychological perspective, there are several models that can help to explain persistent disparities. One of the most applicable models is the psychosocial model and the psychosocial model of stress. For the purpose of this work, a more comprehensive title of a “psychosocial model” allows the important aspects of both models to be combined for a more in-depth understanding. Two other models that have helped in understanding the psychological role of gender and racial disparities in health outcomes are the

Health Behaviors Model and the Health Beliefs Model. In this work, these models will be combined and renamed the Health Behaviors and Belief model (HBBM).

The two models discussed are not equally strong in explaining certain gender and racial disparities in different health outcomes. That is why this work will also include a comprehensive psychological model and a pragmatic model that can help to explain and reduce disparities in a more holistic manner. The findings of a comprehensive model can be applied to making different policy decisions to better the overall health of the American public.

Health Behaviors and Beliefs Model

Analyzing the health behaviors and beliefs of an individual is one of the most common ways in which researchers try to psychologically explain negative health outcomes. Health behaviors are habits that can positively or negatively affect an individual's health (Straub, 2012). The health behaviors component of the HBBM assumes that differences in engagement of health behaviors between races and genders explain health disparities (Dressler et al., 2005). The prominent health behaviors that are related to major health outcomes are smoking, alcohol intake, physical activity, and sun-protective behaviors.

The health beliefs of an individual are their opinions about factors that influence their health such as health behaviors and health care providers. The health belief model supplements health behaviors by postulating that “decisions about health behaviors are based on four interacting factors that influence [an individual's] perceptions about health threats” (Straub, 2012, p. 165). These four factors are perceived susceptibility, perceived severity of the health threat, perceived benefits and barriers of the treatment, and cues to action (Straub, 2012). An individual's perceived susceptibility is how likely a person believes they will contract a disease. Perceived severity takes into account how serious an individual believes a health condition to be.

Understanding perceived benefits requires weighing the pros and cons of a health behavior. Cues to action involve trusted advice, symptoms, and media information.

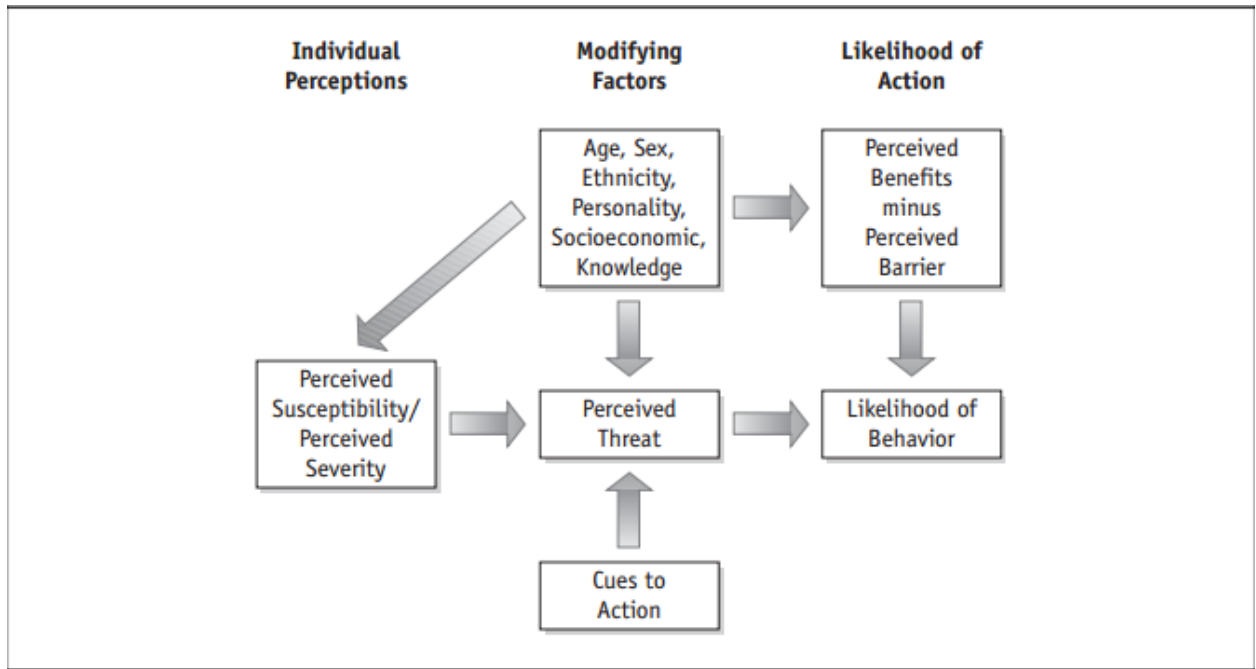


Figure 1: The Health Belief Model (Stretcher, V., & Rosenstock, I.M., 1997)

While the health belief model focuses on an individual's beliefs about the perceived benefits of treatment or changing negative behaviors, the model does not address an individual's beliefs about the perceived benefits of continuing a high-risk behavior. An individual's perceived benefits include beliefs that smoking and tanning make a person appear popular. Another factor that is related to health beliefs is the patient-provider relationship in health care. Health beliefs can affect the health behaviors of a patient and the treatment practices of a provider. On the one hand, a doctor's biased beliefs about a certain gender or racial group may cause them to give preferential treatment to one group and not the other group. On the other hand, the beliefs of a patient can have a negative impact on their health. If a patient does not trust their doctor because of issues such as race discordance or biases about gender, they may be less likely to adhere to the behavior change recommendations of a provider. In addition, a patient may feel like the

communication within a health appointment is too short or disrespectful and may forgo seeking care altogether. When the health behaviors and beliefs of an individual are taken together, the Health Behaviors and Beliefs Model takes a more comprehensive approach to internal and external factors that attempt to explain gender and racial disparities between individuals.

Health Behaviors. When looking at hypertensive heart disease, health behaviors that can impact hypertension and heart disease are an individual's sodium intake, their diet, smoking prevalence, and their level of exercise. All four of these health behaviors are also indicators for obesity. A limitation to the HBBM that should be immediately acknowledged is that an individual's unhealthy diet and exercise behaviors may be as related to their access to a healthy environment as it is to deliberate decisions to not eat well and exercise. Smoking, alcohol intake, and a mother's lack of physical activity are main health behaviors that can affect the weight of a newborn. These three factors will be discussed in depth.

Smoking can have many negative health effects and can increase the risk of being diagnosed with hypertensive heart disease and the risk of having a LBW infant. However, the health behavior model does not necessarily account for health disparities in hypertensive heart disease or LBW since the underlying causative factors are more than behavioral. Smoking increases the likelihood that an individual will develop hypertension and heart disease. However, while blacks are at higher risk for developing hypertensive heart disease, whites (19.4%) have higher smoking percentages than blacks (18.3%) (Morbidity and Mortality Weekly Report CDC, 2014). In addition to not accounting for racial disparities, health behaviors do not account for gender disparities as women (15.3%) have an overall lower percentage of smoking than men (20.5%; CDC, 2013e). Though smoking is another predictor of LBW, its association is considered tangential and more related to the high blood pressure in the mother (Dressler et al.,

2005). However, smoking behavior cannot explain LBW disparities as 17.8% of white women smoke, while only 15.4% of black women smoke (Morbidity and Mortality Weekly Report CDC, 2014).

Alcohol intake is another behavior that contributes to LBW. However, similar to smoking, rates of this health behavior cannot explain differences in LBW. In the United States, whites have a higher percentage (67.8%) of being current drinkers than any other race (Schoenborn, Adams, & Peregoy, 2013). In addition whites (5.9%) were more likely to be heavy drinkers in comparison to blacks (3.6%). Of the five categories of alcohol consumption – non-drinker, infrequent drinker, light drinker, moderate drinker, and heavy drinker – whites had a higher percentage than blacks in all categories except for the categories of non-drinker and infrequent drinker. The overall trend shows that whites have higher alcohol consumption rates than blacks, and therefore differences in alcohol consumption do not explain the disparities of LBW since black women have lower rates of alcohol consumption. Lower levels of alcohol consumption should be protective for black women. However, as this is not the case, the thought that behaviors are the cause of disparities does not hold, and other explanations should be looked sought.

Physical activity and amount of exercise is another behavior that can determine the health outcomes for an individual. Physical activity is often positively correlated to the weight of an individual. Research has shown that higher rates of physical activity and lower rates of obesity are better for avoiding heart disease and hypertension (CDC, 2014c). For hypertensive heart disease, physical activity can help explain gender and racial health disparities. In general, men (23.1%) are more likely to engage in the recommended levels for both aerobic and muscle-training levels than women (15.8%) (Schoenborn et al., 2013). On aerobic and muscle-training

levels separately, men still have higher rates than women. As noted before, women are more likely to have higher rates of hypertension. As prior mentioned, blacks have higher prevalence and mortality rates for heart disease. The health behavior of physical exercise can help to explain racial disparities as exercise is considered to reduce the risk of heart disease (CDC, 2014c). Specifically, the differences for black and whites in aerobic and muscle-training exercise are particularly useful in understand racial disparities in hypertensive heart disease. On both types of exercise, whites were more likely than blacks to reach recommended levels.

While physical activity can help explain hypertensive heart disease, it does not provide an explanation for LBW racial disparities. Heavier mothers often give birth to heavier babies (Dressler et al., 2005). However, for several reasons, including less physical activity, black women weigh more than white women (Dressler et al., 2005). While blacks have the highest percentage of obesity (47.8%), only 32.6% of whites are obese (Adult Obesity Facts, CDC, 2015). This evidence should suggest that black women should have heavier babies; however, they do not which leads to the suggestion that there is another reason beyond health behaviors that causes the LBW of black babies.

While physical activity can help explain hypertensive heart disease, on balance, health behaviors are not a sufficient explanation for hypertensive heart disease and LBW because black men and women have lower prevalence rates of negative health behaviors that could explain why they fare worse than their white counterparts. While the health behavior explanation does not hold for hypertensive heart disease and low birth weight, it is a better explanatory model for gender disparities in skin cancer rates. There are three main sun-protective behaviors that reduce sun damage: wearing sunscreen, wearing protective sun-clothing, and seeking shade (CDC, 2014d). Overall, white males and females have incidence and death rates for skin cancer that are

higher than the national average for all races (CDC, 2015f). There are gender disparities for protective use of protective sun behaviors. The overall percentage of sun protective behaviors for men is 66.5% while 73.4% of women use sun protective behaviors (National Cancer Institute, 2015). For individual protective behaviors, there is still a gender disparity because 41.0% of women use sunscreen (SPF 15), only 20.7% of men use sunscreen. Similarly, 43.5% of women seek shade, but only 30.5% of men seek shade. In comparison to the prior protective behaviors, the behavior of wearing protective clothing shows that men have a higher percentage (45.5%) than women (34.3%).

Health beliefs. While health behaviors on their own may not be able to explain health disparities, they may be able to in conjunction with other factors – such as the factors in the health belief model. A study that has looked at individual’s perceived susceptibility to coronary heart disease is the Bronx Coronary Risk Perception Study (Wright, Barnhart, & Freeman, 2010). This study recruited 256 adults who were over 40 years of age from three different outpatient clinics in the Bronx, NY. Patients had to have at least one CHD risk factor (older than 65 years of age, hypertension, diabetes, dyslipidemia, family history of premature CHD, current smoker, or obesity). The researchers assessed the participants’ perception with the Coronary Risk, Individual Perception (CRIP) scale. The four dimensions on the scale were worry, perceived health status, self-efficacy, and perceived susceptibility and vulnerability. Participants were considered to be at high risk for CHD if they had more than three risk factors. In addition, participants were considered to have risk underestimation if they were at high risk for CHD and in the low or medium risk perception category.

The study found that 55% of participants who were high risk underestimated their risk. In addition, 71% of the participants who were high risk were female, highlighting a gender

disparity. In addition to a gender disparity, there was also a racial disparity. More black participants (23.3%) underestimated their risk than white participants (13.7%). While the study used a small sample that may not be very generalizable, the study gives insight into the perceived susceptibility of individuals in an urban, minority environment. In addition, the study shows that possible interventions should consider the role of health care providers in communicating risk effectively.

Another study that looked at an individual's attitudes towards heart disease was done with older women (Ozminkowski et al, 2012). The purpose of the study was to investigate which factors prevented women from not seeking a doctor's visit to manage their heart disease. The study sample was 26 women who were 65 years of age and older with coronary artery disease. The study's results revealed that the most common barrier to receiving follow-up care was the woman's skepticism about the severity of their disease. Most women did not believe that their heart disease was serious or limiting their health or quality of life. Another health beliefs construct that the women encountered was the perceived practical barriers (scheduling a doctor's appointment). Women cited that one of the main reasons they did not seek care was because they had more pressing issues such as other health problems or their family members' health problems. In addition, another barrier that prevented them from the behavior change of scheduling doctor's appointments was the inability to find transportation to appointments. Women also did not have cues to action to change their behavior as some of them noted that their health status was up to God. While this study has a limited sample size, it does help to show how the constructs within the health belief model affect some women's decision to change their behavior.

Perceived benefits. The health belief model helps to understand disparities in hypertensive heart disease, but does not do as strong a job on its own for skin cancer. As prior noted, sun-protective behaviors help to explain gender disparities in skin cancer prevalence and mortality rates. An approach that could better analyze why individuals are less likely to engage in sun-protective behaviors may focus on an individual's beliefs about the benefits of being tan and staying out in the sun instead of merely understanding an individual's beliefs about sun-protective behavior.

A study by Mermelstein and Riesenberg (1992) examined the attitudes, knowledge, and behaviors of adolescents in relation to skin cancer and sun-protective behaviors. In addition, the researchers looked at the effectiveness of a school-based intervention on increasing knowledge and preventative attitudes amongst adolescents. The study participants included 903 female and 800 male high school students. The majority of the students were white (83%). Schools were randomized to be either control or intervention schools. Students in intervention schools watched a 45 minute educational video on the dangers of skin cancer and ways to protect against sun damage. Following the video, students completed a worksheet that assessed their awareness of their personal risk of sun damage. Finally, the students discussed barriers and preventative skin-cancer measures. Students in both the control and intervention groups completed a baseline and follow-up survey that discussed their skin type, average sun exposure, sunscreen use, indoor tanning behavior, knowledge about skin cancer and sun-protective behaviors, perceived susceptibility to sun damage, perceived benefits of sun exposure, and awareness of changing social norms towards sun-protective measures.

The results of the study, in terms of who was more likely to use sun protection, were in line with epidemiological evidence that shows that females are more likely to use sun protection.

Even though females were more likely to use sun protection, the results showed that females were also more likely to think that sun exposure had positive benefits than males. There was a relationship between perceived benefits of sun exposure and likelihood to use sun-protective behaviors in that those who saw more benefits of sun exposure were less likely to use sun-protective behaviors. The results of the study showed that while students in the control and intervention did not differ at baseline, after the intervention there was a strong and significant effect for knowledge and susceptibility. However, there was no change in perceived benefits of sun exposure.

While this study was focused on adolescents, the findings help to explain the thought process of adults as it is unlikely that perceptions will drastically change in adulthood, since habits are strongly formed in adolescents (Wadhera, Phillips, Wilkie, & Boggess, 2015). The results of this study show that while a change in behavior may help to reduce sun damage, changing an individual's beliefs about the benefits of sun exposure may be more useful. This research helps to further understand why the health behavior model may be incomplete in understanding how behaviors affect health disparities. The study confirms the disparity in usage of sun protective behaviors that cause increased rates of skin cancer for males. However, an important part about health beliefs that this research adds is that even though females are more likely to use sun protective behaviors, they still think that there are benefits to sun exposure. As the study showed, those who are more likely to think that there are benefits to sun exposure are less likely to have protective behaviors. This belief in the benefits of sun exposure may cause individuals to remain in the sun and not use sun protective behaviors as often. Their belief in the benefits may outweigh their sun-protective behaviors.

Research done by Prentice-Dunn, Jones, and Floyd (1997) substantiated the idea that perceived benefits of a negative behavior are just as important in predicting behavior change. The researchers showed that when the perceived benefits of tanning are manipulated to seem less beneficial, there is a greater intention to take action against sun damage. The researchers were concerned with the perceived benefits of tanning that arise because of a need to maintain a certain appearance. Individuals who did not report being highly concerned with their appearance had higher intentions to protect themselves against the sun. This research shows that while research normally focuses on the negative effect on enacting behaviors or negative beliefs about the benefits of treatment, it is important to also consider how beliefs about non-health issues, like physical appearance, may be just as important.

Patient-provider relationship. An aspect that pertains to health beliefs, but is separate from the health beliefs model is the patient-provider relationship. The patient-provider relationship, also known as the doctor-patient relationship, is a key component of the health behaviors and belief model because it helps to explain why a patient may not adhere to treatments or recommendations, such as behavior changes. Areas of miscommunication, bias, or distrust that may arise between the patient and the provider can negatively impact the overall health care of the patient. While a patient's distrust of a provider may cause them to not adhere to the advice of the provider, a physician's bias or communication with a patient may cause the physician to treat the patient in a subpar manner, whereby impacting the patient's care. The quality of the relationship between the patient and the provider is crucial in creating and maintaining a positive, communicative path to diagnosing and treating health issues.

Provider perspective. A patient's health care provider is often the primary source of health information. When a physician has difficulties in conveying information or has implicit

racial or gender biases, inadequate and unequal treatment of patients may arise. A physician's biases can perpetuate health disparities if they are more likely to care about patients of a certain race or gender, or less likely to believe patients of a certain race or gender. While a provider's communication can negatively impact the health outcomes of any patient, disparities between blacks and whites or males and females are more likely to arise when a provider is more attuned to one gender or race.

Research on racial disparities and the patient-provider relationship shows that providers have biases that disadvantage black patients. In particular, studies have shown that there are disparities in how physicians treat different patients for coronary artery disease (van Ryn, Burgess, Malat, and Griffin, 2006). A study conducted by Schulman and colleagues (1999) investigated the effect of race and sex on physicians' recommendations for cardiac catheterization. Cardiac catheterization is a cardiovascular procedure used to diagnose and treat heart conditions (Schulman et al., 1999). The researchers were interested in this disparity because epidemiological studies have shown a difference in treatments of cardiovascular diseases because of race and sex. Based on these prior studies, the researchers hypothesized that there would be a difference in treatment recommendations – cardiac catheterization – based on race and sex.

The results showed that the physicians' beliefs of a patient's probability of coronary artery disease were in line with the known prevalence of coronary disease in the different groups of patients. For example, statistically, older patients have higher rates of coronary disease than younger patients. The analyses also revealed that men and whites were more likely to be referred than women and blacks for cardiac catheterization. The results from the interaction of race and sex revealed that only black women were less likely to be referred for cardiac catheterization in

comparison to white men who were the reference category. This research can help explain the disparities between blacks and whites on mortality outcomes for hypertensive heart disease, especially for black women.

While Schulman and colleagues research highlighted the negative effects for black females, research done by van Ryn and colleagues (2006) showed that physician recommendations can also negatively impact black males. Their study examined how strongly a patient was recommended for coronary artery bypass graft surgery (CABG). Researchers collected the medical records and race and ethnicity of patients as well as the race and ethnicity of the physicians. Relevant medical information was the clinical factors that would make it appropriate for a patient to be recommended for CABG. The researchers also indirectly asked physicians about their perception of patients' personality characteristics and patients' probable behavior and social role.

The results of the study showed that black men were least likely to receive recommendations for CABG. Specifically, while only 21% of black men received recommendations, 40% of white and Hispanic men did. In addition, 40% of black women received recommendations for CABG which was similar to white men, and this percentage did not differ between women. The results of the study revealed that the patient's race or ethnicity partially mediated differences in physicians' perceptions of patients' social and behavioral characteristics. Specifically, blacks were rated less favorably in comparison to whites on likelihood of having social support, willingness to comply with medical advice, abusing drugs, living a physically active lifestyle, and participating in CABG if recommended. These results and those by Schulman and colleagues (1999) show that a physician's perception of a patient's race

and gender can negatively impact the patient's health, and, often, it is black patients who are negatively impacted.

In addition to race being a mediating factor for disparities, research has also investigated how gender can mediate patient care. A study done by Chakkalakal and colleagues (2013) was interested in investigating whether residential doctors differed in correctly being able to perform a cardiovascular exam on men and women. The results of the study showed that residents were less likely to perform the exam correctly on women than men. In addition, male residents were less likely than their female counterparts to perform the exam more correctly. This study is important because it shows that there are gender differences on the part of the provider that further perpetuate disparities on giving correct examinations to female patients. Disparities that lead to a lower performance in exams for female patients can help to understand why women are more likely to die from heart disease. Specifically, it is possible that women have higher death rates because exams are not performed correctly and thus fail to diagnose heart disease early.

Beyond how the gender of the patient affects physician biases, gender differences in how physicians choose to treat patients may also cause gender disparities. Studies have found that when it comes to patient-centered care, there are no differences between male and female patients (Bertakis & Azari, 2012; Weisse, Sorum, & Dominguez, 2012). However differences occur in how aggressive physicians are with care. For example, Bertakis and Azari (2012) found that female doctors were more likely to give patient-centered to their patients than male doctors. In regards to gender concordance, female-to-female concordance had the greatest amount of patient-centered care. Similarly, Weisse and colleagues (2012) found that female and male physicians differed in their prescriptions for pain management. Specifically, female physicians were more likely to prescribe lower doses of hydrocodone to male patients for persistent back

pain. These results go against the common conception that women are treated less aggressively for certain illnesses than men.

Patient perspective. In addition to the beliefs of a provider, the beliefs of the patient are also important in understanding gender and racial disparities because it is the patient who must seek care from a provider. However, psychological barriers to seeking care emerge if a patient does not trust their provider. Research on racial disparities in trust of health care providers has been equivocal. Some research has suggested that black Americans report feeling disrespected during their appointments with physicians, especially when compared to their white counterparts (Street, O'Malley, Cooper, & Haidet., 2008). In addition, minorities report feeling left out of the health decision-making process, less partnership with their providers, lower levels of trust, and lower levels of overall satisfaction with their physicians and their patient experience (Street et al., 2008; Cooper-Patrick et al., 1999). There are many reasons for why a patient may feel distrust towards their physician or disrespected by their physician. Feelings of distrust, disrespect, and discomfort that hamper communication and present as a barrier to seeking care may emerge because of negative views of health care professionals, race, and gender.

A study done by Benkert, Peters, Tate, and Dinardo (2008) investigated levels of trust and mistrust amongst low-income African-Americans with heart disease. In addition, they investigated whether these levels of trust differed depending on the type of health care provider (nurse practitioner (NP) and medical doctors) and clinic type (nurse-managed clinic (NMC) and joint-managed clinic (JMC)). They also studied race concordance between providers and patients. In comparison to research that suggests that African-Americans are distrustful of health care providers, the study revealed that trust and satisfaction were moderately high, and cultural mistrust was moderate. However, the trust for NP was significantly higher than for doctors. In

addition, patients seen in NMC had significantly higher levels of trust than those seen in JMC. Race concordance did not change these differences. The results of this study show that these health care providers were able to gain trust from their patients. It also suggests that nurse practitioners and NMC centers may play an important role in garnering trust and making minority patients more comfortable. Highlighting the role of NPs and NMC centers could help to reduce health disparities amongst blacks by making them seek healthcare more, especially for hypertension that requires medication.

Gender disparities in overall trust between men and women can also help to explain health disparities on outcomes where men are favored less than women. However, beliefs in trust of doctors cannot explain disparities completely because research has shown that while there is not a large difference in trust of physicians between men and women, men are only slightly more distrustful (Wiltshire, Person, & Allison, 2011). In particular, Wiltshire and colleagues (2011) found that men only differed in thinking that doctors perform unnecessary tests and that doctors are influenced by insurance companies. This research could explain why men are more likely to die from skin cancer and heart disease. Since men may be more likely to think that diagnostic tests are unnecessary, they may not seek treatment early on. However, research on gender disparities in trust cannot explain why women have higher mortality rates from hypertension as men are more distrustful. This would imply that women are more likely to trust and take the tests suggested by their physicians.

While distrust from the patient implies that the provider is at fault, another line of research focuses on the gender of the patient in disrupting the doctor-patient relationship regardless of the patient's gender. This research came about because prior work has found that, in conversations, men interrupt more than women (West, 1984). Interruptions can have a negative

effect on the doctor-patient relationship. Interruptions from male patients can hamper communication and reduce time spent with their physician. In addition, interruptions by male patients may make physicians feel less willing to help a patient. A study done by West (1984) revealed that male patients interrupted female physicians more than the male patient was interrupted. By being prone to interrupting, male patients may be hindering their own care which could explain why they would have poorer mortality rates for heart disease and skin cancer.

Provider-patient interaction. Distrust about health care providers can also be explained by the interaction of a patient and provider's race and gender. In particular, patients may be less likely to trust their doctors in racial and gender discordant relationships. The concept of race concordance has been studied as an explanation for miscommunication and negative doctor-patient relationships. Racial concordance research has inquired whether patients have concordant relationships because of geographical proximity or because these relationships are trusted more. A study done by Saha, Taggert, Komaromy, and Bindman (2000) looked at concordance between Hispanic, black, and white patients and physicians. Patients were asked if they chose their physician, and, if they had, whether their choice was influenced by whether or not the physician was the same race or ethnicity as them or by whether the physician spoke their language. In addition, patients were asked whether the geographic location of their physician was influential in their choice.

The results of the study revealed that for blacks and Hispanics, racial concordance did have a significant effect in determining the choice of physician (Saha et al., 2000). For Hispanic participants, the ability of the physician to speak their language was also a strong determining factor. Even after the researchers controlled for the geographic location of the physician, race concordance was still important for black participants. In comparison to black and Hispanics

who sought race concordance, white participants who also had white doctors did so because it was geographically convenient. The results of this study help show that when given the opportunity to choose a physician who is the same race and ethnicity as they are, many minorities will do so. These results can help to understand another reason why there might be disparities between whites and blacks in major health outcomes. Many minorities may not have the ability to choose a physician of the same color because of geographical location and limited access to physicians of the same race (Saha et al., 2000).

Saha et al.'s (2000) research can be supplemented by studies that have found that race concordant experiences tend to be rated more positively (Cooper et al., 2003, Street et al., 2008). Research shows that racially concordant relationships may cause the patient to adhere more to medication (Street et al., 2008). A study done by Cooper and colleagues (2003) revealed that race concordant doctors' visits were longer than non-concordant visits. The amount of time that a patient spends with their physician has been considered important to both physicians and patients (Cooper et al., 2003). Longer medical visits are also important to the overall health care of a patient because in longer visits patients tend to feel more comfortable discussing issues (Cooper et al., 2003). This could help explain racial disparities in health outcomes such as hypertensive heart disease because patients may not be spending enough time with their physician. Black hypertensive heart disease patients that have short visits may feel uncomfortable with the physician and feel less inclined to adhere to a physician's recommendations.

In addition to being longer, racial concordance visits had higher affect ratings and participants felt that the tone of voice of the physician was preferable (Cooper et al., 2003). The positive tone rating came with the patient feeling less disrespected and more open to communicate with their physician. This mutual respect is not a surprise as more respect and

trustworthiness is often seen between individuals who are part of the same social and cultural group or group affiliated – in-group (Cooper et al., 2003). The importance of voice tone, length of appointment, and overall satisfaction with communication shows the importance of avoiding harsh power dynamics in social relationships, especially the patient-provider relationship (West, 1984).

Beyond focusing on how race affects the doctor-patient relationship, research has also investigated how the gender of a care provider affects the perception of a patient about the doctor-patient relationship. While female physicians are more likely to give patient-centered care and affect to their patients, a patient's own gender biases can affect their care. The gender of a physician is most likely to affect health disparities between males and females. However, it is difficult to predict the exact disparities because research on gender concordance has been equivocal. While Street and colleagues (2008) found that racial concordance was a predictor for perceptions of shared identity, trust, and overall care, gender was not a significant predictor. A study conducted by Cooper-Patrick and colleagues (1999) also found that while racial concordance predicted patient satisfaction, gender concordance did not.

In contrast, a study conducted by Schmittiel, Grumbach, Selby, and Quesenberry (2000) revealed that women are more likely to use the opportunity to choose their doctors than men, and are more likely to choose female doctors. However, when the gender match-up of patients and doctors was examined, females with female doctors were least satisfied with the quality of care while males with female doctors were most satisfied. For illnesses such as hypertensive heart disease where women are disadvantaged later in life, having a female physician might make women more uncomfortable and might cause miscommunication, distrust, and a negative health

care experience for them. This negative experience can negatively impact the care they need for their hypertension and their likelihood to comply with treatment recommendations.

Slightly contrary to Schmittiel and colleagues' research, a study done by Bertakis and Rahman (2012) found that while there was no difference in patient patient-centered care between males and females, female patients seen by female doctors had the highest satisfaction level with patient care. A study done by Franks and Bertakis (2003) revealed that a benefit to gender concordant relationships was that they were longer than discordant relationships. This suggests that patients could have trusted their doctors more and that there was better communication.

Overall, the health behaviors and beliefs model encompasses various different factors that can help explain why disparities exist between men and women as well as between blacks and whites. Literature on the role of health behaviors in explaining disparities has been equivocal and cannot on its own explain health disparities. It is more likely that differences in behaviors play a role in creating disparities but that these behaviors cannot stand alone as an explanation. In its favor, health behaviors and perceived benefits can help explain gender differences for skin cancer. The beliefs of an individual also help to explain gender and racial disparities. However, the explanatory power of the HBBM is limited because the majority of its factors and research can only explain disparities in hypertensive heart disease and skin cancer and not low birthweight and homicide.

Part of the HBBM is the role of the patient-provider relationship. A major limitation of the patient-provider relationship is that research has not been focused on the role of the relationship in specific health outcomes. However, because research has been extensive, the impact of the relationship on health as a whole has been in depth. The patient-provider relationship illuminates the role of the patient, provider, and the interaction between the two in

perpetuating disparities. Most research on the relationship has focused on race and more should be conducted about gender. While, on balance, the HBBM is not a sufficient model in explaining gender and racial disparities in health outcomes, the factors in the model should not be disregarded and can be helpful in a comprehensive model.

Psychosocial Model

The health behaviors and beliefs model focuses on how direct internal and external action such as the behaviors a person engages in or the beliefs that a patient or provider holds perpetuate health disparities. However, the psychosocial model examines the role of structural variables in conjunction with psychological variables in perpetuating health disparities. The construct of “psychosocial” factors and determinants has emerged by combining the effect of psychological factors such as hostility, stress, and depression, with social variables that are more structural in nature like environmental conditions (Singh-Manoux, 2003; Martikainen, Bartley, & Lahelma, 2002). Some of the main psychosocial health determinants that try to explain health disparities are socioeconomic status, stress, and social support. Dressler and colleagues (2005) have separated some of these factors into a separate socioeconomic status (SES) model and a psychosocial stress model.

However, as research has shown that these determinants are very interrelated, this work will combine the two models and investigate how SES, stress, and social support affect health disparities. The concept of socioeconomic status will be looked at as a factor that predicts more psychological determinants such as stress and social support. This model will also explore the physiological and psychological effect of occupational stress and stress from institutional and perceived racism on health disparities. Finally, the role of different types of coping and social support in perpetuating racial and gender health disparities will be investigated.

Socioeconomic status. Within the United States there are income differences between races. The median income for non-Hispanic white households, in 2014, was \$60,256 while the median income for black American households was \$35,398 (DeNavas-Walt & Proctor, 2015). While whites had the second highest household income, blacks had the lowest household income. Gender disparities in full-time earnings show that, on average, men continue to earn more than women. The racial and gender disparities in income and earnings parallel disparities for poverty percentages in the United States. On average, a higher percentage of blacks (26.2%) are below the poverty line than whites (10.1%). In addition, a larger percentage of women (16.1%) are below the poverty line compared to men (13.4%). Based on this data, socioeconomic status is shown to be an important determinant of health as it can be mediated and moderated by stress and social support (DeNavas-Walt & Proctor, 2015).

Stress. Stress is a biopsychosocial determinant that can create negative consequences on physical, psychological, and interpersonal levels. Stress can help explain racial and gender disparities because high levels of stress can produce harmful effects on the body (as seen in hypertension and LBW; Straub, 2012). In addition, stress can evoke different coping styles that may make dealing with stress difficult for some people (Straub, 2012). The diathesis-stress model is helpful in understanding vulnerability to stress and states that an individual's predisposing factors to stress and precipitating factors from their environment are continuously interacting to determine susceptibility to stress and illness (Straub, 2012).

The first aspect of the diathesis-stress model pertains to predisposing factors that make a person more vulnerable to stress and illness because their bodies show greater reactivity (Straub, 2012). Reactivity means that a person reacts stronger to specific environmental factors. A study done by McGrath (2003) showed that children who had strongest cardiovascular reactivity were

more likely to have a family history of hypertension and cardiovascular disease. This helps to explain how disparities can be perpetuated as blacks are more likely to have heart disease. If predisposing factors are a main part of predicting vulnerability to stress and illness, blacks will continue to be more likely to have hypertensive heart disease. In addition to hypertensive heart disease, LBW has also been shown to have a genetic, predisposing factor. A study done by Lunde, Melve, Gjessing, Skjærven, and Irgens (2007) showed that fetal genetic factors explained 31% of the variance in birth weight and maternal genetic factors explained 22% of the variance in black mothers. In this way, African-American women are more likely to continue having LBW babies because of predisposing genetic factors.

While predispositions may explain some of the variance for hypertensive heart disease and LBW, the diathesis-stress model also discusses how precipitating factors can also induce stress and increase susceptibility to illness and stress. The precipitating environmental factors that help explain health disparities are life events, such as occupational stress and unemployment, and perceived and institutional racism. Occupational stress emerges from lower paying jobs and stressful work environments. In these environments individuals may suffer from chronic work overload or role overload. Work overload occurs when an individual has too many tasks to handle or must work for too long (Straub, 2012). Role overload refers to working several different jobs at the same time (Straub, 2012). Unemployment and job loss can also lead to unemployment as they are often positively correlated with depression and stress (Straub, 2012). The negative impact that work occupational stress and job loss can have on health disparities is seen in the health outcomes of hypertensive heart disease, low birthweight, and homicide.

Occupational stress. Generally speaking, hypertension is not directly caused by stress. However, repeated blood pressure elevations because of stress can produce hormones such as

cortisol that can increase blood pressure (Kulkarni, O'Farrell, Erasi, & Kochar, 1998; Straub, 2012). When an individual has many factors that increase stress, the stress is compounded and the effect on blood pressure is multiplied (Kulkarni et al., 1998). Hypertension disparities amongst men and women and blacks and whites can be illuminated when looking at information about employment and unemployment. Among men and women, men are more likely to hold more jobs between the ages of 18 and 46, and there is not a significant difference between unemployment rates (Bureau of Labor Statistics (BLS), 2015).

The Bureau of Labor Statistics (2015) reports that between the ages of 18 and 46, the distribution of the number of jobs held is greatest with black men, followed by white men, white women, and black women. At face value, it may seem that black men are benefiting because they have held many jobs. However, statistics that show that blacks have the lowest annual incomes reveal that having more jobs may actually mean greater job loss and job insecurity. Greater stress from job insecurity coupled with a lower SES explains why black men have more negative health outcomes for hypertensive heart disease. This hypothesis is supported by data that shows that black men are more likely to have more spells of unemployment, followed by black women, white men, and white women (BLS, 2010). The fact that black women hold fewer jobs can be explained by statistics that show that they have more spells of unemployment. Black women may have higher prevalence and mortality rates from hypertensive heart disease because they are subject to disproportionate stress from joblessness. In addition, black women may have higher rates of hypertension than white women because they do not have as many opportunities for occupational mobility that could alleviate staying in a stressful job.

Occupational stress can help explain not only hypertension but also low birth weight. In general, maternal stress has been found to be related to LBW (Rondó et al., 2003). Research

done by Homer, James, and Siegal (1990) showed that mothers who are in demanding jobs where they do not have control over the pace of the job are more likely to deliver LBW babies. A study done by Dickute and colleagues (2004) revealed that women who are unemployed are at greater risk for delivering a LBW baby than their employed counterparts. This study adds to epidemiological evidence that shows that black women deliver more LBW babies. The stress associated with a lower SES and unemployment can help explain these disparities. Other forms of occupational stress that can affect the prevalence of LBW amongst black women are related to perceived racism which will be discussed in detail subsequently.

In addition to hypertensive heart disease and LBW, research has also investigated the role of occupational stress or unemployment stress on homicide rates. Lester (1991) found that while blacks and whites had similar patterns for homicide rates, black homicide rates were more associated with unemployment than white homicide rates. One explanation for this correlation has related to shame (Gilligan, 2001; Hall & Pizarro, 2010). Hall and Pizarro (2010) argue that unemployment causes blacks, specifically black males, to self-hate and act out in violence. The approach that Hall and Pizarro take is more focused on how black males have internalized the negative typecasting in society that portrays blacks as inferior. In comparison to their white counterparts who have always been in a position of employment and power, black males have never had “legitimate access to employment” (Hall and Pizarro, 2010, p.654). The inequality that emerges from structural inequality and unequal access to employment manifests in shame, self-hate, and violence. Hall and Pizarro argue that the way to overcome this self-hate is through employment and feeling worthy and equal in society. Similarly to Hall and Pizarro, James Gilligan (2001) focuses on the role of shame in perpetuating violence. He argues that shame

emerges through interpersonal conflict and causes an individual to turn to violence. The role of violence is that it allows an individual to take back power and no longer feel inferior.

Stress and perceived and institutional racism. Another form of stress that can be related to occupational stress but is also prevalent in everyday life for some is stress caused by perceived racism. Research has shown that actual and perceived racism is a source of stress and can lead to health disparities. Racism can exist at an individual and institutional level and “denigrates individuals or groups because of phenotypic characteristics...or ethnic group affiliation” (Clark, 2004, p. 541). Perceived racism may be more subtle and is how an individual observes prejudice and discrimination towards themselves (Clark, 2004).

A model proposed by Clark (2004) hypothesizes that the perception of race causes an individual to be aroused and invokes a psychological or physiological stress response. Over time, continued arousal leads to allostatic burn and produces negative health effects. According to this model, the stress from racism produces health disparities because blacks experience more events that can be perceived as racism than other groups, especially whites. This is highly related to the pervasive history of slavery in America (Clark, 2004). A study done by Williams, Yu, and Jackson (1997) revealed that blacks are more likely to link racism with unfair treatment in comparison to their white counterparts. In addition, perceived racism was positively related to chronic health issues.

In comparison to perceived racism, institutional racism systematically produces racial inequities through laws and policies (Jones, 1972). Institutional racism adds to health disparities in ways that have been prior noted such as in doctors’ different treatment of minority patients. On a broader scale, institutional racism perpetuates health disparities because minorities do not have equal access to health care or high-quality health. Biases against minorities that perpetuate

institutional racism have been shown to begin in medical school amongst both black and white physicians and affect patient care in not only adult populations (Clark, 2004).

The negative health effects of perceived and institutional racism have been examined in hypertensive heart disease, LBW, and homicide. The research linking perceived racism with increases in blood pressure has varied (Brondolo, Rieppi, Kelly & Gerin, 2003). Some research has shown that perceived and institutional racism can lead to an occurrence of hypertensive heart disease (Clark, 2004). Individuals who experience perceived racism over a lifetime are more likely to develop hypertension in the future because of chronic stress, hyperreactivity, and vascular reactivity (Clark, 2004). A study done by Din-Dzietham, Nembhard, Collins, and Davis (2004) showed that perceived racism increased the likelihood of hypertension amongst African-Americans. In addition, race-based discrimination at work was positively correlated with increased systolic and diastolic blood pressure.

However, a study done by Peters (2004) showed the high levels of perceived racism in African-American patients were not positively associated with high blood pressure. Instead, age moderated the relationship between high blood pressure and perceived racism. Older adults were more likely to have the highest levels of blood pressure but the lowest levels of perceived racism. Peters suggested that this discrepancy could be due to internalized oppression that caused older adults to not be continuously aware of racism.

Similarly to hypertensive heart disease, perceived racism is a moderator for LBW. One of the main explanations for why black women are more likely to deliver LBW babies in comparison to white women is the effect of perceived racism. A study that looked at the intersection of heart disease and LBW was the CARDIA study (Mustillo et al., 2004). The researchers looked at the births of women who were enrolled in the Coronary Artery Risk

Development in Young Adults study. The study investigated differences in preterm and low weight births between black and white women. The study found that perceived racism was correlated to preterm births and LBW babies. Specifically, they found that perceived racism contributed to racial disparities as significantly more black women who had preterm and LBW babies reported perceived racism. None of the white women who had low birth weight babies had experienced perceived racism, whereas 61% of black women with LBW babies experienced perceived racism.

Research has also been done to examine the effect of perceived racism on the gestational period and weight for African-American babies. Collins and colleagues (2000) conducted a hospital-based case-control study that revealed that there was a relationship between African-American mothers who had perceived racism during pregnancy and very LBW babies. Another study done by Collins, David, Handler, Wall, and Andes (2004) looked at lifetime exposure of perceived racism instead of only perceived racism during pregnancy. The results again revealed that the lifetime exposure of perceived racism was an independent risk factor for preterm births and LBW babies. The effects that Collins and colleagues found (2000, 2004) are not changed depending on socioeconomic status. Regardless of socioeconomic status, black women are still found to deliver lower weight babies than their white counterparts, suggesting again that perceived racism is an independent risk factor (Adelman et al., 2008).

Perceived and institutional racism may also play a part in explaining racial disparities in homicide rates. There has not been a significant amount of research that has investigated the effects of racism on homicide rates. However, Martin and colleagues (2011) hypothesized that in addition to socioeconomic disadvantage, “racial isolation, and social disorganization”, the high presence of blacks in the criminal justice system can be explained by perceived personal

discrimination (p.662). Martin et al. (2011) looked at longitudinal data of black youth in different communities in two different states. The results of this data showed that perceived racism was positively related to violence and delinquency.

Institutional racism also perpetuates disparities in homicide rate, specifically when looking at disparities in deaths from legal intervention – death caused by legal authorities during law enforcement activities (CDC, 2007). In 2013, the age- adjusted rate for deaths by legal intervention for white males was 0.26 and the rate for white women was 0.01 (CDC, 2003). However, it should be noted that WISQARS identifies the number for white women as unstable. While the rate for black women was 0.02 and was slightly higher than that for white women, the rate was also identified as unstable. However, the rate for black men was 0.69 which is significantly larger than that for white men. Beyond being more likely to be victims of homicide, blacks may also internalize fear of law enforcement. Internalized perceived racism may cause blacks to engage in violent lifestyles. Similarly, perceived racism and explicit racism may lead blacks to be actual victims of homicide and victims of death at the hands of law enforcement (Martin et al., 2011).

Coping and social support. When the stress of jobs, unemployment, and institutional and perceived racism begin to take a toll on an individual, a way to alleviate this stress is through various types of coping and social support. As defined by Straub (2012), “coping refers to the cognitive, behavioral, and emotional ways that people deal with stressful situations and includes any attempt to preserve mental and physical health” (p.124). A form of coping that will be highlighted is social support which is “companionship from others that conveys emotional concern, material assistance, or honest feedback about a situation” (Straub, 2012, p.144). In relation to the health outcomes explored in this work, coping and social support are most

important for hypertensive heart disease, mothers who suffer from stress during pregnancy, and those who are more likely to be victims of homicide.

In general, men and women differ in their coping styles physiologically and practically. Research has been contradictory in finding a sole physiological explanation for hypertensive heart disease disparities between men and women. The physiological explanation cannot explain why women have higher levels of high blood pressure than men. While research has shown that women have lower blood pressure reactivity than men, research has also shown that women have a higher immune system response compared to men (Straub, 2012). Other research has shown that when it comes to occupational stress, there is no difference in physiological coping – such as heart rate activation – between men and women.

Because gender differences in health outcomes cannot be explained with physiology, differences in practical coping strategies are often an explanation. The two main coping strategies are emotion-focused coping strategies and problem-focused coping strategies. The former strategy focuses on dealing with emotional reactions that arise from stress, and the latter strategy refers to how problems are directly dealt with by “reducing its demands or by increasing our capacity to deal with the stressor” (Straub, 2012, p.125). Deciding which strategy is better depends on the longevity of the stressor and whether the stressor is controllable. While both strategies can be used in most situations, men and women differ on using these strategies. Men have been found more likely to use problem-focused coping strategies, while women are more likely to use emotion-focused coping strategies (Straub, 2012).

A study done by Akbari, Aliloo, and Aslanabadi (2010) revealed that in comparison to their healthy counterparts, men and women with heart disease were more likely to have higher stress and use emotion-focused coping strategies. The study revealed that 71% of the variance in

predicting the onset of heart disease was attributed to stress and coping. When stratified by gender, the researchers found that men were more likely to try and directly confront a stressor while women were more likely to try and exercise self-control. Differences in coping can help to explain why women have higher mortality rates of hypertension. If women are focused more on emotional-coping while men are more focused on problem-solving, women may feel less able to control their problems whereby increasing their blood pressure. On the other hand, men may have higher mortality rates from heart disease because in directly trying to change a situation they are increasing their reactivity and heart rate. However, gender differences in coping strategies do not help to explain skin cancer rates because men are more likely to have problem-solving coping strategies which should cause them to use direct actions like sunscreen to prevent skin cancer.

Differences also arise between coping strategies between individuals of different socioeconomic statuses. As mentioned previously, SES helps to predict who is more likely to experience occupational and unemployment stress. In general, lower SES families who are predominantly ethnic minorities are more likely to have stress and are more likely to focus on emotion-focused coping than those with of a higher SES (Straub, 2012). It is hypothesized that a chronic lack of perceived psychological control causes this reliance on emotion-focused coping. As seen before, black Americans – especially those prone to be perpetrators or victims of homicide or experience perceived racism- do not feel like they have any control in their lives. Since an individual feels like they cannot control stressors, they rely on emotion-focused coping strategies because they feel as if they can only exert control over their own emotions. This reliance on emotion-focused strategies and a lack of perceived control further perpetuates health

disparities as perception of control has been shown to be associated with better health (Straub, 2012).

The relationship between SES, race, and the role that social support has in coping is seen in access to social support. Social support is associated with several positive health outcomes such as lower mortality rates, faster recovery from sickness, fewer medical complications, and less distress in terminal illness (Straub, 2012). However, a study that looked at SES and health risks, such as hypertension, found that low SES African-American men are less likely to have emotional support than their high SES counterparts (James et al., 2006). And in particular, low SES black men were 7 times more likely to suffer from hypertension (James et al., 2006). This research shows factors that can explain why African-American men have higher rates of hypertension than their white counterparts. In particular, the research helps explain why African-American men are more likely to have higher prevalence and mortality rates than white women and black women because black men have lower levels of social support and have a lower SES. However, since this study did not investigate black women, conclusions about the role of race, SES, and social support cannot be drawn about why black women still have higher mortality rates from hypertension.

Additional research has found that social support helps buffer the negative effects of hypertension. Specifically, Fiscella, Winters, Tancredi, and Franks (2011) explored hypertension disparities between whites and blacks. Though their main research question was focused on the role of Vitamin D, they found that while Vitamin D did not fully explain why blacks had higher rates of hypertension, social support was also a factor. Dressler, dos Santos, and Viteri (1986) also found that in comparison to their white counterparts, blacks with the low social support resources had the highest levels of blood pressure.

In contrast to research investigating the relationship between social support and hypertensive heart disease, the research looking at the relationship between social support and LBW and social support and homicide has been less extensive. As noted before, African-American women are more likely to have LBW babies than their white counterparts (Norbeck, DeJoseph, & Smith, 1996). In addition, research has suggested that lower social support rates during pregnancy are associated with lower birth babies (Norbeck et al., 1996; Lidderdale & Walsh, 1998). An empirical study done by Norbeck and colleagues (1996) looked at the effect of pregnant women receiving more social support in comparison to a control group who did not receive additional social support. All of the participants were identified as at risk for delivering LBW because they did not have adequate levels of social support. The researchers found that women who received additional support during their pregnancy gave birth to fewer LBW babies than those in the control group.

Similarly to the negative effect that a lack of social support can have on LBW, research has shown that a lack of social support can have a negative effect on homicide rates (Lo, Howell, & Cheng, 2013). Specifically, research has shown that black American males are more likely to be victims of homicide for several social reasons. While reasons such as unemployment and racism have been discussed previously, the investigation done by Lo, Howell, and Cheng (2013) suggested that the six main factors for predicting who is at risk for being a homicide victim are: “being male, African-American, young, of low socioeconomic status, without adequate social support, and mentally ill or a substance user” (p.125). These claims are supported by epidemiological evidence, as prior noted. Lo and colleagues (2013) hypothesize that a lack of social support can cause homicide victimization because an individual does not have any way to sustain their emotional well-being and this reduces an individual’s chances of social integration.

While not discussed in their work, it could be hypothesized that a lack of social support can also increase the chances of being a victim of homicide because individuals are more likely to further internalize shame and self-hatred because they do not have any people to discuss their struggles with. This could in turn cause them to seek other, violent ways to cope placing them in dangerous situations. While social support and coping could be a pathway to reduce homicide, if an individual does not have access to this resource they could be more likely to seek alternative, destructive ways to solve problems in violent environments.

The psychosocial model that attempts to explain gender and racial disparities between hypertensive heart disease, skin cancer, low birth weight, and homicide is multifaceted and much larger than the scope of this paper. While it is successful at explaining some disparities, the psychosocial model is not successful at explaining all. Specifically, the psychosocial model is not able to explain gender disparities between whites for skin cancer rates. The model succeeds in explaining the role of socioeconomic status in racial perpetuating disparities. In particular, the model can help understand the relationship between SES and hypertensive heart disease and SES and violence when focused on employment fluctuations and social support. However, socioeconomic status cannot explain the differences between low SES and high SES black women who both deliver LBW babies in comparison to their white counterparts. In this instance, the perceived and institutional racism aspect of the psychosocial model helps to explain these disparities. While the factors in the psychosocial model are strong, more research should be conducted on the influence of these factors on skin cancer, low birth weight, and violence.

Comprehensive Model

While the previous models vary on their ability to explain racial and gender disparities in major health outcomes, a comprehensive model (see Figure 2) – titled the “Levels and

Conditions for Health Equality” (Levels and Conditions) – presents a framework to understand, and hopefully reduce, health disparities by addressing the complexity at various levels. The model incorporates the most influential aspects of the previously discussed models while highlighting the importance of health literacy to supplement previous models. Health literacy is “the degree to which individuals have the capacity to obtain, process, and understand the health information needed to make appropriate health decisions” (Ingram & Ivanov, 2013, p.22). In addition, the model uses an inter-level approach to understand the role that different levels of society play in creating health conditions. The purpose of the model is to foster conditions that can promote health equality, and not just in the health outcomes discussed in detail. The main levels of the model from smallest to largest are: the individual level, the interpersonal level, the communal level, institutional level, and societal level.

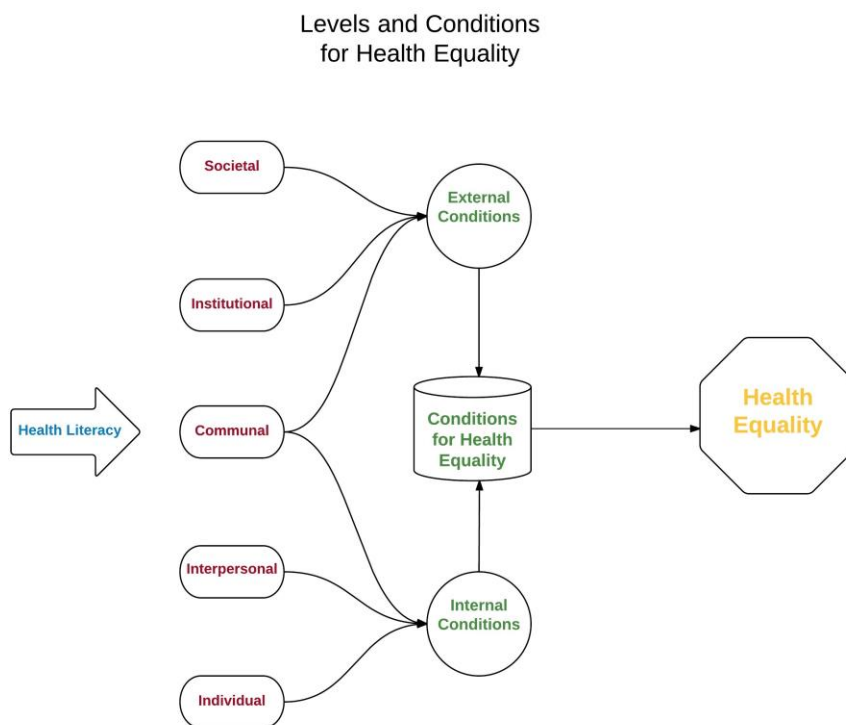


Figure 2. A model that describes how health equality can be achieved through different levels that are involved in an individual’s health care.

These five levels are not mutually exclusive and interact with one another to create the internal and external conditions that create health equity. However, at the core, the three highest levels (societal, institutional, and communal) help create the external conditions, while the three lowest levels (communal, interpersonal, and individual) help create the internal conditions. External conditions include health decisions that are not made by an individual that can affect their health while internal conditions emerge from an individual's personal decisions. While different levels contribute to either internal or external factors and while their role may be less explicit, each level plays a psychological role in affecting health.

The model can be understood in both a top-down and down-up movement. At the center of this model is the belief that when both the internal and external conditions are present an individual has the ability to play a full role in their health. Specifically, instead of blaming disadvantaged individuals for their health, this model points back to research that shows that there are many psychological, economic, and social factors that are out of an individual's control. At large, this model highlights that certain structures and communications need to be in place to achieve better health.

Health literacy. In addition to specific structures, general health literacy for all levels is a crucial beginning step. A component of a person's beliefs is their health literacy. Health literacy and health behaviors are intricately linked as understanding the information needed to make a health decision ultimately affects whether the decision will be health-promoting or health-hindering. In general, it is believed that African-Americans have lower levels of health literacy than whites and also adhere less to behaviors (Ingram & Ivanov, 2013). This can be explained by the suggestion that individuals with low health literacy levels are 12 to 18 times more likely than others to lack the ability to understand and adhere to their health care regimens (Agency for

Research Healthcare and Quality, 2007). Health literacy is also important for health care providers, whether they be doctors, nurses, or policy makers. In this way, health literacy shows the multidisciplinary aspect of health equality, specifically that “all policy is health policy” (K. Edwards, personal communication, 2014).

Societal level. Starting from the broadest level, the societal level encompasses actors such as policy makers and government officials. As prior discussed, SES is often associated with gender and racial disparities. Policies set in place that cause SES, health access, and educational disparities help to perpetuate health disparities. At the societal level, health psychology is less explicit but is important in educating all individuals in a population. Their role in creating positive conditions is in creating policies that increase health literacy for disadvantaged communities such as men with a risk of acquiring skin cancer and blacks more likely to die from hypertensive heart disease.

Institutional level. The second level after the societal level is the institutional level. The key actors in this level are institutions such as hospitals, healthcare facilities, providers within these institutions such as doctors and nurses, and policy makers of the institution such as a board of managers. As prior discussed in detail, the psychology of the patient-provider relationship plays a large role in health disparities through bias, trust, and concordance. The role of health literacy in the patient-provider relationship and at the institutional level is explicit as providers and those in health care institutions often give the most medical information to patients. If physicians are not completely literate or do not know how to communicate health information in a fruitful way, disparities will perpetuate. Providers should be health literate by understanding the perceived benefits that their patients might have and understanding the trust levels of their patient has a higher distrust of medicine because they are from a disadvantaged population.

Communal level. The communal level follows the institutional level, and includes the group of people that an individual trusts and surrounds oneself with. This can be a spatially located community like a neighborhood or a community of shared values such as meeting groups with individuals of the same gender, race, or ethnicity. The community is a central level because it fosters both external and internal conditions. The community is important for creating external conditions because it provides an avenue for which individuals can get their concerns heard at the institutional and societal levels. While individuals can speak to policy makers on their own, being supported by a larger community or using connections community members have established is also beneficial.

The communal level is also integral in contributing to internal conditions for health equality. By the process of directing health concerns to community members, individuals are also able to cope and gain social support. While blacks and low SES individuals are more likely to rely on emotion-focused coping strategies, their ability to discuss with other community members ways in which to fix health barriers can increase their use of problem-focused coping strategies. Community leaders can also help alleviate individuals distrust in health care because individuals trust those similar to them. It is also important for community leaders to be health literate because individuals see them as trustworthy sources.

Interpersonal level. The psychological importance of the interpersonal level is similar to that of the community level. This level seeks to increase social support and coping for individuals. The actors in this level can be family members, friends, coworkers, and other individuals the patient feels close to. The psychological impact of the communal and interpersonal level is the same. However, the main difference between the communal and

interpersonal level is that access to social support may be faster and more direct when searching for only one individual instead of a large group.

Individual level. At the individual level – the final level – the role of health psychology is most explicit. At this level, an individual works to be a champion of their own health by becoming more health literate, changing behaviors to keep healthy, and being aware of personal beliefs that disadvantage them. However, as prior noted, the role that an individual takes in their own health cannot be done so without help from other levels. In particular, individuals such as blacks and women are already disadvantaged and need support, knowledge, and proper internal and external conditions to improve their own health.

Just as no model can solely explain disparities, no single level can solve disparities. As prior shown, the behaviors of an individual cannot explain disparities. While beliefs can be helpful, understanding other psychological factors such as the patient-provider relationship and social support is also important. When all levels work together to make each other more health literate, the individual is able to take better control of their life and psychologically feel as if they can have more control over their health. These conditions – whether external or internal – make up the overall conditions that reduce health disparities.

Pragmatic Policy Model

While the comprehensive model can be used to predict and reduce health disparities, the Patient-Provider Health Equity Model (PPHE) is a pragmatic model that can be implemented in healthcare settings. The PPHE model was created based on literature that discusses the negative effects of race discordance and racial bias that can affect how both the patient and provider think about the healthcare relationship.

Provider-Patient Health Equity Chart

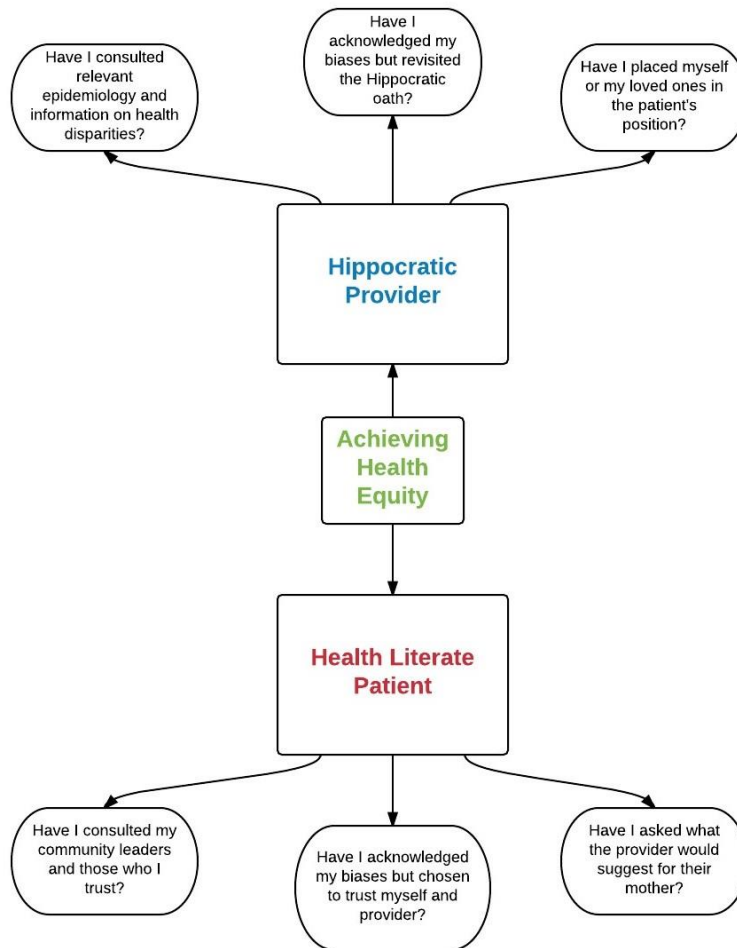


Figure 3. A flowchart to help providers and patients address their biases and their role in improving health equity.

The model is set in theories that discuss how providers and patients can have implicit biases that negatively impact the healthcare relationship (Schulman et al., 1999, Kahneman, 2011, Gigerenzer, 2014). Daniel Kahneman discusses a categorization of thinking as System 1 and System 2. System 1 is categorized by being automatic and fast acting, while System 2 is associated with “agency, choice, and concentration” (2011, p.20-21). The distinction between System 1 and System 2 is important for understanding how biases in the doctor-patient

relationship cause disparities because the two systems can be affected by illusions and associations. Many of the errors that arise from biases are made by System 1 who seeks to make decision-making easier through associatively coherent beliefs and actions, and is able to act on biases because System 2 readily checks System 1. In the PPHE model, Kahneman's work is supplemented by Gerd Gigerenzer's work which discusses how patients can become more risk literate and avoid being entrapped in defensive medical decisions – decisions that doctors make to avoid litigation on the part of the patient.

The hope is that the provider and the patient would look over the model before a health appointment. The chart would be placed in the examination room and would be given to patients with reminders about the time of their doctor's appointment or handed out in community places such as hair salons or community centers. The questions are meant to be primes that counteract negative associations that the patient and the provider might have. As shown in Schulman and colleagues' work (1999), doctors can successfully acknowledge which groups of patients are more likely to suffer from heart disease. However, the purpose of the question "have I consulted relevant epidemiology and information on health disparities" is to prime doctors to remember which patients suffer disproportionately. The likelihood that this prompt may cause a doctor to undertreat those who do not have a higher risk is not high because treatment for advantaged groups serves as the baseline for what is appropriate (Schulman et al., 1999). The purpose of the Hippocratic Oath prompt is to prime doctors to remember that while they may have biases, they have taken an oath to treat all patients equally. Specifically, the Hippocratic Oath states that a physician swears to "apply, for the benefit of the sick, all measures which are required, avoiding those twin traps of overtreatment and therapeutic nihilism" (Lasagna, 1964, p.1). The final question asks physicians to consider what they would do for their relative who was in the same

position. This is adapted from research done by Gigerenzer (2014) which suggests that patients can counter defensive decision-making and elicit a genuine answer about a course of treatment by asking their providers how they would treat their mothers in a similar situation.

In comparison to the providers' questions that focus more on priming, the patient's questions are meant to enact proactive behavior about their own health as well as prime them to trust their physicians. The first question is meant to encourage patients to go to trusted members of their community who can give them advice on the health care process. The second question for patients urges them to directly acknowledge whether or not they have any biases towards the health care system or their physician. In addition, the second question reminds the patient to look at any relevant health literacy information that might be useful for their appointment. The third question is parallel to the provider's third question and serves the same purpose as Gigerenzer suggested (2014).

The reason that the patients' and providers' questions are on one chart is so that they can see that the other is trying to better the relationship. This will hopefully increase trust on both parts and will form a positive association in each individual's mind. The questions activate System 2 in order to slow down the biases that may emerge in the System 1 of physicians and patients when they encounter one another.

Policy Recommendations

The prior literature review of how psychological models attempt to explain health disparities shows that health disparities are truly health inequities. As defined by the WHO, health inequities "involve more than inequality with respect to health determinants, access to the resources needed to improve and maintain health or health outcomes. They also entail a failure to avoid or overcome inequalities that infringe on fairness and human rights norms" (2015, p.1).

The comprehensive model shows that the social determinants that influence a person's health and disadvantage some more than others are not founded in unchangeable circumstances, such as genetic and biological factors. In actuality, many of the factors that perpetuate health disparities can be changed. By applying the Levels and Conditions model to the major health outcomes, further policy recommendations for society, healthcare providers, and healthcare institutions can be created. These policy recommendations are grounded in a hope that health disparities can be actively reduced when all health care actors understand that all individuals' health can be improved. The aforementioned literature and newly proposed models can be applied to different policies to better the overall health of all Americans. While these policies can help increase the conditions for health at all levels, especially strong policies can be implemented at the communal, institutional, and societal levels.

Communal level. At the communal level, the PPHE can suggest policy changes. The PPHE suggests that patients should consult their community health advisors about any questions or concerns. These community advisors serve as a form of social support and are used to make disadvantaged individuals feel more trusting about health care professionals and the health care system. Consulting trusted members of a community would allow patients to feel more comfortable and familiar with suggestions that are being made by their general health care providers. When it comes to increasing trust in communities, the institutional level can work with the communal level. Health care facilities could make it part of their outreach programs to place informational materials in trusted community places such as beauty salons, barber shops, churches, and corner stores.

Using trusted members of the community to deliver health information has been used in various different settings. In one study by Leader and Weddington (2014), the researchers

successfully delivered health-related information to African-American women in beauty salons. A beauty salon intervention was used because hair stylists are trusted members of the community who can deliver important health information that African-American women may not be comfortable getting from their healthcare providers. While Leader and Weddington (2014) were only focused on promoting the Human Papillomavirus (HPV) vaccine, this intervention could be used to hand out information in beauty salons about seeking regular check-ups, behavior changes, and the risks and benefits of screening. As black women have the highest risk for hypertensive heart disease, beauty salon interventions would be a good way to reduce the disparities that black women face. In addition, these pamphlets in salons could include information on what questions a black woman should ask their doctors so that they can evade any negative biases a doctor might have such as in not recommending them for treatments like cardiac catheterization (Schulman et al., 1999).

Similar to how community members could help reduce disparities for hypertensive heart disease, community members could also help reduce disparities in homicide rates. As aforementioned, the stress from perceived racism and unemployment can contribute to increased violence amongst black men. An intervention that has been used to stop the spread of violence was created by Gary Slutkin. The model used by Cure Violence – interrupt transmission, identify and change the thinking of highest potential transmitters, and change group norms – implements community outreach workers and individuals called “interrupters” whose role is to stop the spread of violence (Cure Violence, 2015b). Interrupters, in particular, are trusted community members who have experienced or participated in violence. However, they give back to the community by talking to possible perpetrators of violence about different ways to handle situations before they happen (Cure Violence, 2015b). Interrupters actively seek out a situation

that can be potentially violent in the hopes of speaking one-on-one with potential perpetrators to prevent inevitable violence and victims (Cure Violence, 2015b).

Communities that suffer from disproportionate levels of homicide should be a main focus of state health legislature. Representatives at the local and state level should work together to see how programs that train and sustain community health workers and interrupters can be brought into the community. For example, implementing the Cure Violence model would be beneficial as it has been proven to be effective. In particular, three separate reviews showed that there was a 41-73% decline in shooting and killings where interrupters were used (Cure Violence, 2015c). In addition to interrupters, more societal policies could help to reduce perceived and institutional racism. Such policies could require police to wear body cameras or go through racial and gender sensitivity training.

Institutional level. From the research that has been discussed and models that have been created, institutional policies could be strong in health care facilities. Specifically, policies could have the “Patient-Provider Health Equity Chart” displayed in each health care room. Like the Goldman algorithm that is used to predict whether a patient is having a heart attack, the PPHE could be an efficient way to improve the health care experience of patients and providers. (Goldman et al., 1996; Gladwell, 2005).

Similar to policies that are more societal for reducing homicide rates, reducing the racial disparity of LBW babies would require larger an intersection of societal and institutional policies. These policies could be implemented at work places and could create accessible and confidential channels for women to describe their perceived racism in the workplace. Institutions could also establish working groups that continue to assess the racial atmosphere of a work environment so that black women feel comfortable in predominantly white spaces.

Societal level. In comparison to policy changes at the institutional level, policy recommendations at the societal level are broader and can affect more individuals. For this reason, many policy changes at the societal level are focused on education. Part of the Hippocratic Oath and the forefront of public health is prevention. In the modern version of the Hippocratic Oath, one of the phrases that doctors recite is “I will prevent disease whenever I can, for prevention is preferable to cure” (Lasagna, 1964, p.2). A way to prevent disparities is to improve the medical school curriculum to include information about disparities. Theoretically, this information would present the aforementioned factors that help to explain disparities so physicians are aware of them and reduce disparities by bettering the doctor-patient relationship. In addition, changing the academic curriculum for all health care providers would prove advantageous as nurses and nurse practitioners engage with patients just as much as physicians.

An important area that should be included in medical education is information on racial concordance. Research on racial concordance shows ways in which the health care of minorities can be bettered. If African-Americans, and other minorities, are less likely to seek care from non-concordant physicians, it is useful to address the issues of why they do not want to. Since it may not be possible to guarantee racial and ethnic concordance, it is important to focus on how to facilitate communication in non-concordant relationships. In particular, it is important for physicians to be aware of how their vocal tones and physical mannerisms may be perceived (Street et al., 2008). In addition, physicians should be trained in cultural sensitivity and competency so that they understand their patients’ views and beliefs.

Educational policy changes should also focus on making the patient more health literate. These educational policies should be created for young children and young adults and should focus on promoting positive health behaviors and beliefs. For example, literature has shown that

students' behaviors and beliefs about sun-protective behaviors are linked to what they believe makes individuals more attractive. Specifically, students who think that tan skin is more attractive are less likely to use sun-protective behaviors (Mermelstein and Riesenber, 1992). Health education should show students that these beliefs and behaviors can cause negative health outcomes.

Health education in elementary schools should also focus on making children understand why they have beliefs about perceived benefits. Once students are aware of their perceived benefits, the curriculum should try and show students why they think this way. Elementary health education that highlights perceived benefits can help to begin preventing skin cancer disparities at a young age. Elementary school curriculum could show students that their beliefs are influenced by various types of media such as beauty magazines and TV shows like *The Jersey Shore* that glamourize tanning. To reduce the disparities for men, showing the role of sun-protective behaviors in activities that boys engage in could be beneficial. An activity or video that could help to engage all students and help them to understand the effect on their own self would be to show them the ultraviolet (UV) exposure on their own skin. A study that helped to change perceived benefits showed that beachgoers were more likely to use sunscreen after seeing images of the UV exposure on their own skin (Mahler, Kulik, Gibbons, Gerrard, & Harrell, 2003). Seeing their skin in a negative way made them reconsider the perceived benefits of tanning.

At the societal, institutional, and communal levels different policies can be drawn to reduce health disparities because "all policy is health policy" (K. Edwards, personal communication, 2014). The fact that "all policy is health policy" is crucial to reducing gender and racial disparities because the health disparities being discussed are health inequities (K.

Edwards, personal communication, 2014). The investigation of the psychological determinants associated with gender and racial disparities in mortality and morbidity in four major health outcomes – hypertensive heart disease, skin cancer, low birth weight, and homicide reveal that these disparities are highly preventable. In particular, the literature review of the health behaviors and beliefs model and the psychosocial model reveal the extent to which disparities in health outcomes are inequities because outcomes are seldom explained by unchangeable, biological factors.

While the models are extensive, many of the factors are interrelated. Understanding the interactions of the factors can help to explain, prevent, and reduce gender and racial disparities. The Levels and Conditions model was able to show the importance of health literacy and viewing health disparities from an intra-level approach. When more research is conducted on the intersection of public health and psychology, pragmatic models like the Patient-Provider Health Equity Chart can emerge to better the behaviors, beliefs, and institutions that greatly impact health. While the problem of racial and gender disparities in America may seem complex, the first step to reducing disparities – identifying and acknowledging health disparities – has been accomplished with extensive epidemiological evidence. Continued research on racial and gender health disparities will give individuals, communities, and policy makers the ability to achieve goals set out for all people – the right to health and well-being. As more psychological factors that affect racial and gender disparities are identified, the written right to health will transcend mere words and become an achievable action. Most importantly, every individual will be able to live an equally healthy life that allows them to be an active American and global citizen.

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