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# BLACK-WHITE DIFFERENCES IN HEALTH AND MORTALITY: A Review And Conceptual Model

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An important segment of social science research focuses on differences in health and mortality between the African American and non-Hispanic white populations in the United States. This article begins by documenting some of the current health and mortality differences. I then review and critique the three major theoretical approaches that are most often used to explain such differences: racial genetic, cultural/behavioral, and socioeconomic. Finally, I present an alternative conceptual framework for the study of black-white differences in health and mortality. This reorientation of the importance of race for health and mortality moves beyond narrow genetic, cultural/behavioral, or socioeconomic representations to include, most importantly, multiple forms of racism as crucial sociological determinants of health and mortality differentials. Key sets of intervening, or proximate, variables are also identified to specify the process by which the health and mortality differentials are created. While no single future study may encompass all of the factors highlighted in the proposed framework, data collection and research efforts in this area can be guided by a model that organizes into a relatively parsimonious framework the seemingly endless number of factors involved in the creation of such differences.

An important segment of social science research focuses on differences in health and mortality between the African American and non-Hispanic white U.S. populations. A sample of recent literature yields articles on black-white differences in overall health (Dressler 1993a), overall mortality and life expectancy (Manton, Patrick, and Johnson 1987; McCord and Freeman 1994; Navarro 1990; Potter 1991; Rogers 1992), birth weight (Kallan 1993; Mangold and Powell-Griner 1991), infant mortality (David and Collins 1991; Eberstein 1995; Hummer 1993b; LaVeist 1992), women's reproductive health status (Geronimus 1992; Geronimus and Bound 1990), hypertension (Kreiger 1990; Williams 1992), and self-reported health and activity (Mutchler and Burr 1991; Rushing, Ritter, and Burton 1992). Articles on black-white differences in health and mortality also appear regularly in public policy, public health, and medical journals.

First, this article documents some of the key current black-white differences in health and mortality. Second, I review and critique several theoretical approaches that attempt to understand such differences. Finally, I outline an updated approach toward understanding black-

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white health and mortality differences, focusing on the sociological significance of "race" and its undesirable affiliate, racism. This article strongly suggests: (1) current black-white differences in health and mortality are wide and show few signs of imminent convergence, (2) current theoretical approaches to understanding black-white differences are inadequate, and (3) more thorough understanding of such differences, as well as effective solutions for eliminating them, must consider not only socioeconomic and behavioral differences between groups but also the effects of both institutional and individual-level racism. In turn, it is critical to identify the principal intervening variables through which both racial socioeconomic stratification and multiple forms of racism operate to lead to poorer health and higher mortality among African Americans.

### EXAMPLES OF BLACK-WHITE HEALTH AND MORTALITY DIFFERENCES

Infant mortality rates are often used as gauges of the quality of life of populations. This does not bode well for infants born to African American women: they currently have almost 2.4 times the rate of death as infants born to non-Hispanic white women (NCHS 1993, p. 36). While rates for each group have declined during the entire Twentieth Century, the percentage decreases among white infants have been much more precipitous than among black infants. Thus, the rate ratio of black to white infant mortality has been increasing, especially since 1970 (Table 1). In addition, the infant mortality rate for African Americans did not come close to meeting the 1990 objective of 12 deaths per 1,000 live births set by the U.S. Public Health Service. Other U.S. subpopulations, including non-Hispanic whites, Hispanics, Asians, and Native Americans, all realized their infant mortality rate targets set for the year 1990 (Koontz 1984; Samuels 1986).

**TABLE 1: BLACK-WHITE INFANT MORTALITY DIFFERENTIALS  
IN THE UNITED STATES**

Year	IMR (per 1,000 live births)		Rate Ratio
	Black	White	
1940	72.9	43.2	1.69
1950	43.9	26.8	1.64
1960	44.3	22.9	1.93
1970	32.6	17.8	1.83
1980	21.4	11.0	1.95
1990	17.0	7.7	2.21

Source: NCHS (1993).

Note: These rates are based on the race of the child, as specified by National Center for Health Statistics (NCHS) guidelines over most of the past fifty years. In recent years, NCHS has adopted new guidelines regarding the assignment of race in the calculation of infant mortality rates. The new guidelines use maternal race as the racial identifier and have a slight effect on recently published infant mortality rates. Had I used the new guidelines for 1990 in this table, the black infant mortality rate (IMR) would be 18.0, the white IMR would be 7.6, and the rate ratio would be 2.37, as indicated in the text (NCHS 1993).

Unfortunately, mortality differences do not cease with infancy. African Americans have higher age-adjusted rates than whites for most leading causes of death, including heart disease, cerebrovascular diseases, malignant neoplasms, pneumonia and influenza, diabetes mel-

litus, external causes such as injuries and homicides, AIDS, and others (NCHS 1993, pp. 45-46). For example, black men have an age-adjusted rate of heart disease, the leading cause of death in the United States, that is 37 percent higher than for white men; the rate for black women is 63 percent higher than for white women (NCHS 1993, pp. 45-46). For Black men, the age-adjusted rate of malignant neoplasms, the second leading cause of death in the U.S., exceeds that of White men by 55% and, for Black women, exceeds that of White women by nearly 25% (NCHS, 1993: p.45-46). Percentage differences between groups are even greater when external causes, cerebrovascular diseases, infectious diseases, diabetes, and cirrhosis and liver disease are considered. Even black children aged 1-14, ages at which mortality rates are the lowest across the life span, have nearly twice the rate of mortality as white children, due to the large disparity in accidental death rates between groups (NRC 1989, p. 405). The cause of death differences aggregate to a 65 percent higher age-adjusted death rate for African Americans and a difference of seven years in life expectancy between groups (NCHS 1993, p. 44). While the black-white gap in life expectancy showed some signs of convergence up through 1980, it widened in the late 1980s (Table 2), in large part due to the decreased life expectancy of African American men and women from 1984 to 1989 (Kochanek, Maurer, and Rosenberg 1994; NCHS 1993, p. 44).

**TABLE 2: BLACK-WHITE DIFFERENCES IN LIFE EXPECTANCY  
IN THE UNITED STATES**

Year	Life Expectancy		Difference in Years
	Black	White	
1950	60.7	69.1	8.4
1960	63.2	70.6	7.4
1970	64.1	71.7	7.6
1980	68.1	74.4	6.3
1990	69.1	76.1	7.0

Source: NCHS (1993).

Like mortality differences, numerous health indicators also reflect wide differences between U.S. blacks and whites. For instance, the percentage of low birth weight infants is more than twice as high for blacks (13.3 percent) than for whites (5.7 percent) (Starfield 1991). In fact, the percentage of African American infants born who weigh less than 2500 grams has increased slowly but steadily since 1984 (Partin and Palloni 1994). Black children are also far less likely than white children to be immunized against infectious diseases and, as a result, have higher rates of measles, rubella, and other childhood illnesses (NRC 1989, pp. 408-409).

Among adults, blacks (15.1 percent) are almost twice as likely as whites (8.6 percent) to self-assess their health as fair to poor (NCHS 1993, p. 101). Black adults are also much more likely to have high blood pressure (37 percent) than white adults (18 percent), with the excess level in the black population due entirely to essential (no known medical cause) hypertension (Dressler 1993a; Williams 1992). The prevalence of sexually transmitted diseases (STDs), including gonorrhea, syphilis, HIV, and chlamydia, is also much higher in African American communities, especially in inner cities (Aral and Holmes 1990; Gershman and Rolfs 1991; NCHS 1993; Rice, Roberts, Handsfield, and Holmes 1991). Alarming, African Americans

may have up to fifty times the rate of primary and secondary syphilis than non-Hispanic whites (Gershman and Rolfs 1991). Black adults are also more likely to be overweight (37.7 percent) than white adults (25.1 percent) and more likely to report that chronic conditions limit their activity (15.8 percent versus 13.4 percent) (NCHS 1993, p. 99, 112). In short, a host of health and mortality measures mark the severe disadvantages experienced by the African American population in comparison to non-Hispanic whites. While many measures of health and mortality have improved for both whites and blacks over the past fifty years, black-white gaps remain wide, and blacks are not expected to achieve health equality with whites anytime in the near future (NRC 1989, p. 397).

### THEORETICAL APPROACHES

Prior reviews have identified three major theoretical approaches that inform the racial health and mortality differences literature: (1) the racial genetic approach, (2) the cultural/behavioral approach, and (3) the socioeconomic approach (Dressler 1993a; Eberstein 1989; Frisbie and Bean 1978). This section outlines these approaches, drawing attention to the benefits and drawbacks of each.

The racial genetic approach posits that black-white differences in health and mortality result from the dissimilar population distribution of genes that influence the health and mortality of individuals. While examples of a strict genetic approach to black-white differences are infrequent in contemporary literature, the influence of this approach is still fairly widespread. One reason is that most studies report poorer health and higher mortality among African Americans, even controlling for some socioeconomic, behavioral, and health care variables in statistical models. Despite cautions from many researchers, the residual of the "race" coefficient is often interpreted as a genetic component (Wise 1993), perhaps due to persisting notions of an outdated conceptualization of race that originated at the turn of the century and even before (Montagu 1974). Missing from such interpretations is an understanding of the social significance of race in U.S. society and, especially, how health and mortality outcomes may be affected by many social and biological factors related to race that are both difficult to statistically control and not genetically determined.

Numerous authors writing about black-white differences in infant health and mortality argue that the effects of genetic factors are limited or even nonexistent. In a comprehensive review of birth weight and infant mortality differences among U.S. minority groups, Samuels (1986) argues that the historically held unfavorable positions of minority groups should be emphasized over genetic factors. David and Collins (1991) note that for ten disease categories, mortality among infants born to black women is higher than among infants born to non-Hispanic white women for all but congenital abnormalities, the one category in which genetic differences, if they existed, might be expected to be influential. Furthermore, Eberstein (1995) argues that even though mean birth weights of black and white infants differ by about two hundred grams, birth weight acts as a mechanism for the influences of the differing social contexts and demographic and health backgrounds that characterize U.S. blacks and whites.

Also at odds with the racial genetic approach is the fact that it is increasingly clear that African Americans of all ages may be more genetically heterogeneous as a population than whites or Hispanics; in other words, a person classified as black could be more genetically dissimilar from another black person than from a white person (Cooper 1994). In turn, many argue that racial genetic patterns hold little explanatory promise for black-white health and mortality differentials (Cooper 1994; Williams, Lavizzo-Mourey, and Warren 1994). In short,

there is little evidence that the racial population distribution of genes accounts for the numerous health and mortality differences exhibited between blacks and whites.<sup>1</sup> Black-white patterns of health care receipt and socioeconomic differentiation, which cannot possibly be related to the racial population distribution of genes, are also so parallel to health and mortality differences that a theoretical approach based on genetics seems nearly inconceivable (Dressler 1993a). Thus, the racial-genetic approach adds little to the modern understanding of black-white differences in health and mortality.

The cultural/behavioral approach to black-white differences in health and mortality also guides a portion of the literature in this area. This approach suggests that group variations in values, beliefs, attitudes, traditions, and lifestyles are instrumental in maintaining health and mortality differentials. Examples include black-white variations in family formation, social support, problem solving, diet, smoking, alcohol and drug use, and exercise patterns. Such factors are thought to have important health and mortality impacts on the respective populations. Statistical controls for behavioral and familial factors like drug use and marital status have been shown to reduce black-white health and mortality differences (e.g. Joyce 1990; Rogers 1992), and such factors have potential value in the explanation of health and mortality differences. Often, however, controls for cultural and behavioral factors fail to close the gap between blacks and whites for many health and mortality outcomes (Dressler 1993a; Duelberg 1992; Hummer 1993a; Kleinman, Pierre, Madans, Land, and Schramm 1988; Manton et al. 1987; Rogers, Hummer, Nam, and Peters 1995; Shiono, Klebanoff, and Rhoads 1986), leading some critics to suggest that the overall approach is ineffective (Dressler 1993a). While this section argues that a strict cultural/behavioral approach to health and mortality differences is usually ineffective and potentially damaging, the use of cultural and behavioral variables as explanatory variables can be helpful if they are placed in their appropriate social, economic, and historical contexts.

First, it is important to consider ineffective applications of the cultural/behavioral approach to health and mortality differences. For example, several recent policy papers on infant mortality illustrate a distressing—and largely victim-blaming—aspect of this approach. These works strike a chord consonant with the rugged individualism characteristic of U.S. society. In other words, these works focus narrowly on individual behaviors as explanatory variables and largely downplay the social, cultural, and historical contexts of racial or ethnic group membership. The first example is Singh's (1990) essay, "Why America's Infants Are Dying." The overriding conclusion is that many U.S. women do not receive appropriate prenatal care, with poor maternal behavior and lack of motivation clearly the keys:

But the fourth, and perhaps most important, barrier to prenatal care has to do with the behavior and motivation of mothers themselves. Our health care system can help only those who seek assistance. A free society cannot force a woman to obtain prenatal care, nor can it constantly look over her shoulder to ensure that she doesn't smoke, take drugs, or otherwise damage herself or her child. (Singh 1990, p. 56)

Referring to African Americans, Singh argues that conditions and "rules of the game" do not explain why the black rate of infant mortality is more than twice that of whites or why more black than white women receive inadequate prenatal care. On the contrary, Singh argues that the solution lies in "healing thyself"—although no specifics accompany this recommendation. Clearly, there is indifference to the social, cultural, and historical contexts in which African

Americans live. This strict behavioral approach forces readers to focus on symptoms, such as drug use and lack of prenatal care, rather than root causes of the differentials being addressed.

In a second example, Eberstadt (1991) discusses "America's Infant Mortality Puzzle", and suggests that as long as Americans pay close attention to their freedoms and rights—"and one of those rights is to be a negligent parent"—the U.S. rate of infant mortality will continue to exceed that of many other developed nations. While asserting that "America's Infant Mortality Puzzle" cuts across racial lines, Eberstadt argues that "illegitimacy" and its repercussions are perhaps the key, often overlooked, determinant of U.S. infant mortality. These repercussions include the high percentage of unwanted children born to single women, as well as less healthful behavior exhibited by single parents toward the care and treatment of their children (Eberstadt 1991). Underlying this argument is the fact that, among blacks, about two-thirds of children are born to unmarried women, while for whites only about one-fifth of children are born to unmarried women (NCHS 1993, p. 25). One reasonable conclusion is that the collective "decision" of unmarried African American women to have children is an important factor in understanding their high rate of infant mortality. Again, indifference to the historical, cultural, and social contexts by which fertility patterns, health behavior, and health care are distributed is a classic example of blaming victims for social problems (Ryan 1971).

While most research-related applications of the cultural/behavioral approach are less disfiguring and more valuable than the above examples, they also fail to consider the broader social, economic, and historical contexts underlying black-white differences in behavior, attitudes, and family formation. Joyce (1990), for instance, analyzed the dramatically increased percentage of low birth weight Black infants in New York City during the 1980s, suggesting that rising maternal substance abuse is the most likely explanation. Maternal drug use is undoubtedly a risk factor for low birth weight—and perhaps increasingly so throughout the 1980s. Yet no mention is made of the increased social and economic stresses and the intensified legal and illegal marketing of substances experienced by individuals living in the high-unemployment, recession-plagued, segregated cities in the 1980s (e.g. Davis 1987; Wilson 1987). Structural economic trends and intense marketing techniques have strong impacts on cultural and behavioral factors, such as family formation, drug use, and smoking (James 1993; Williams 1990). Thus, cultural and behavioral factors may often play a part in explaining health and mortality differences—but they must be placed in a context that emphasizes their at least partial dependence upon social, economic, and historical circumstances.

In short, analyses grounded in the cultural/behavior approach focus on proximate determinants of health and mortality differentials rather than root causes. Thus, they tend to suggest policies and programs geared toward clinical and behavioral solutions of health and mortality differentials rather than search for wider-ranging and perhaps more long-term solutions in the broader social and economic arenas. When narrowly applied in a behavioral sense, the cultural/behavioral also has the potential for victim blaming, given the individualistic orientation that accompanies it. If behavioral and cultural factors, such as social support and family formation, and group attitudes and beliefs are embedded within a framework that considers them in their appropriate social, economic, and historical contexts, they have the potential to be identified as important intervening variables linking race to health and mortality outcomes. The framework identified below places them in just such a context.

The third and most common theoretical approach, the socioeconomic approach, posits that black-white health and mortality differences exist because blacks are disproportionately concentrated within the lower socioeconomic stratas of society and, thus, are faced with higher

health and mortality risks associated with factors such as poor education, poverty, and unemployment. Indisputably, socioeconomic factors play key roles in understanding black-white health and mortality differences, and much may be gained from this approach (Manton et al. 1987; NRC 1989; Susser, Watson, and Hopper 1985). Nevertheless, there are critical drawbacks to the sole reliance on a socioeconomic-based approach.

First, most of these studies fail to consider the sources of socioeconomic differences between blacks and whites (Frisbie and Bean 1978). As a consequence, socioeconomic inequality is often controlled for in studies of black-white differences in health and mortality without being considered as an important consequence of racism in its own right (Adler, Boyce, Chesney, Cohen, Folkman, Kahn, and Syme 1994). However, African Americans do not just happen to be overrepresented in lower socioeconomic strata; rather, a higher proportion of African Americans than U.S. whites are represented in lower socioeconomic classifications because of the continuing significance of what it means to be black in U.S. society. In other words, black-white differences in health and mortality are not confounded by socioeconomic inequality; the black-white social distinction is the cause of both socioeconomic- and health-based inequality (Cooper 1984). Thus, "controlling for socioeconomic status" in studies of black-white health and mortality differences should be implemented only when it is explicitly recognized that differences in the socioeconomic distribution of resources stem from the racist ideology that existed and continues to exist in U.S. society.

A second, though related, weakness to the socioeconomic approach is that individual and institutional-level issues of racism are often ignored. Thus, black-white differences in health and mortality are frequently reduced to a question of socioeconomic differentiation that, if statistically controlled, should result in equal risks of health and mortality (e.g. Keil, Sutherland, Knapp, and Tyroler 1992). However, numerous reports continue to document color-based discrimination at various levels and of various types in U.S. society, ranging from discrimination in the housing market, educational institutions, and within governments and corporations to individual acts of racism and violence (David and Collins 1991; Farley and Allen 1988; Feagin 1991; Hogue and Hargraves 1993; Hughes and Hertel 1990; Keith and Herring 1991; Massey and Denton 1993; NRC 1989). Although difficulties arise in measuring multiple forms of racism, such efforts have begun to produce results that demonstrate the substantial negative health and mortality effects of discrimination, even for middle-class African Americans (Dressler 1991; LaVeist 1992). Racial differences in health and mortality cannot be considered without incorporating individual and institutional discrimination into explanatory models.

A third weakness to the socioeconomic approach is in its execution: differences in education, yearly income, and/or occupation are often used to capture the extent of socioeconomic inequality in most studies while related inequalities are left unmeasured. Such inequalities include those based on wealth, purchasing power, the quality of education, insurance coverage, and occupational stability. Thus, consideration of socioeconomic differences between groups is often incomplete. For example, beyond the well-known differences among groups in yearly per capita income, African Americans also lag far behind whites in net worth; per capita wealth for whites is about five times that of blacks in the United States (NRC 1989, pp. 291-292). Thus, blacks have far fewer resources with which to achieve economic security and to cope with economic and health adversities throughout their lives. Like yearly income, differences in wealth have important health effects over the life course and are critical in understanding black-white health and mortality differentials (Mutchler and Burr 1991). Con-



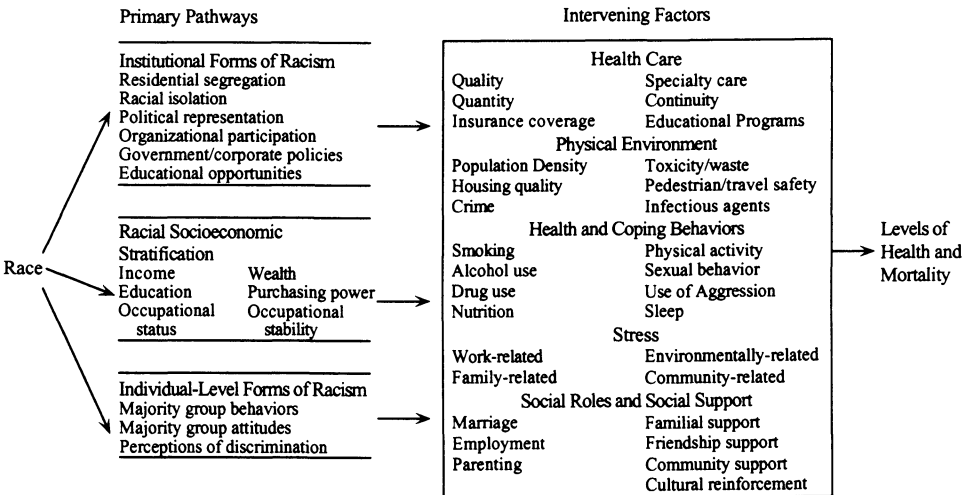
sequently, socioeconomic status, as a concept, must be given more complete consideration and careful operationalization when health and mortality differentials are at issue (Krieger and Fee 1994; Syme, Moss, and Krieger 1994).

Overall, statistical controls for even carefully measured socioeconomic factors usually fall short in explaining black-white differences in health and mortality (Collins and David 1990; Geronimus 1992; Hummer 1993b; Kreiger 1990; Potter 1991; Schoendorf, Hogue, Kleinman, and Rowley 1992; Sorlie, Rogot, Anderson, Johnson, and Backland 1992).<sup>2</sup> For example, controls for maternal education and family income explain just 20-25 percent of the infant mortality difference between U.S. blacks and whites (Hummer, 1993b). Thus, while vitally important, socioeconomic differences are not the sole reason that significant black-white health and mortality differences exist. The following redirection moves beyond socioeconomic-dependent explanations to include discrimination-related factors as central to the understanding of black-white health and mortality differences.

### A REDIRECTED APPROACH

Figure 1 presents an updated conceptual framework for understanding black-white differences in health and mortality. This model posits that race is an important social determinant of health and mortality, operating through three primary pathways and five intervening sets of factors to affect health and mortality. The following discussion first defines and highlights the contemporary significance of race as an important determinant of health and mortality. This conceptualization moves beyond narrower notions of race (critiqued above) as groups of genetic, cultural/behavioral, or socioeconomic characteristics to include, most importantly, multiple forms of racism as key determinants of health and mortality differentials. Then, I outline the primary pathways and intervening factors through which race works to create black-white health and mortality differences.

**FIGURE 1: CONCEPTUAL FRAMEWORK RELATING RACE TO HEALTH AND MORTALITY**



### **Race: Moving Beyond Socioeconomic Disadvantage**

Conceptually, the definition of race in studies of U.S. black-white health and mortality differentials must recognize the significance of the African slave trade as the creator of a color-based, stratified society (Montagu 1974). Following Emancipation, Jim Crow laws provided the legal mechanism to perpetuate the racist stratifying principles and overt acts of discrimination instituted by the slave trade (NRC 1989). In recent decades, the civil rights movement and legislation have brought hope and action that such racist principles and behaviors were dissipating. However, civil rights legislation has also mistakenly provided many people with the illusion that U.S. stratifying processes (including the stratification of health) are no longer influenced by race. In contrast, African Americans not only remain socioeconomically disadvantaged (Farley and Allen 1988) but also continue to suffer from the abrasive effects of both institutional and individual-level racism (Essed 1991; Feagin 1991). In short, race may not encompass all of the overt discriminatory connotations that it once did but remains an important stratifier of U.S. society.

What this means for studies of black-white differences in health and mortality is that the socioeconomic disadvantages experienced by blacks are but one, albeit important, pathway through which race influences health and mortality (Figure 1). This is because socioeconomic differences among social groups have important health and mortality impacts such that more socioeconomically disadvantaged groups generally have poorer measures of health and higher mortality than their more-advantaged counterparts (Antonovsky 1967; Kitagawa and Hauser 1973; Navarro 1991; Williams 1990). Because African Americans are overrepresented among the lower socioeconomic strata of society, socioeconomic factors play an important role in their poorer health and higher mortality, an assertion that has been supported by nearly every article on the subject. Nevertheless, black socioeconomic disadvantage is just one consequence of U.S. racist ideology and is only partially responsible for black-white health and mortality differences.

### **The Central Importance of Racism**

This poses a key question: What other key dimensions of race can help researchers fully understand racial health and mortality differences? The answer may be that the often-overlooked affiliate of race—racism—continues to have a critical impact on health and mortality within the United States.

Thus, the second primary pathway indicates that the contemporary battle with institutional-level discrimination also elevates health and mortality risks within the African American population (Figure 1). Some promising recent studies use measures of residential segregation (LaVeist 1993; LaVeist 1989; Polednak 1991), racial isolation (Potter 1991), and political underrepresentation (LaVeist 1993; 1992) in explanations of black-white differences in infant mortality and life expectancy. Each taps an aspect of institutionally based discrimination that continues to be important in differentiating blacks and whites (Massey and Denton 1993; NRC 1989).

LaVeist (1993), for example, shows that, net of poverty and educational differences, both residential segregation and political underrepresentation are associated with higher black infant mortality among a sample of 176 U.S. cities. Residential segregation in major urban areas heightens health and mortality risks for blacks by increasing exposure to environmental risks like toxins and pollutants and safety and security risks, decreasing access to and increasing costs for health care, and exposing children and adults to overcrowded and unsanitary

living conditions. Political underrepresentation increases powerlessness and stress within African American communities and may be associated with the underfunding of important social programs (LaVeist 1992). In turn, each of these conditions is delineated as an important intervening factor for health and mortality in Figure 1.

In another example, Potter (1991) displays a striking relationship between the racial isolation of African Americans in large inner-city areas and the black-white homicide differential. That is, higher homicide rate differentials between blacks and whites are associated significantly with increased black racial isolation within U.S. metropolitan areas, net of group socioeconomic differences. Potter (1991, p. 318) suggests that black, racially isolated populations in U.S. society are "repressed, disenfranchised, and isolated from the possibilities existing in broader society, with little hope for escaping the cycle of poverty." Once again, institutional discrimination, in the form of the isolation of many African-Americans from society's broader opportunities, is shown to have an important impact on black-white mortality differences.

The third primary pathway indicates that individual-level racism also has important health and mortality effects for African Americans. Dressler's (1993a; 1993b; 1991) work on hypertension in the African American community is currently of greatest promise in this area. Dressler conceptualizes skin color among African Americans as a marker for the everyday battle with discrimination and includes this measure in statistical models that also include conventional markers of socioeconomic status. This is because darker-skinned African Americans face more rigid, frustrating, and extensive bouts with racism in everyday life than lighter-skinner African Americans (Keith and Herring 1991; Hughes and Hertel 1990). Dressler (1993a) demonstrates that (1) darker skin color, especially for those who maintain higher-ranking lifestyles, is associated with elevated blood pressure, independent of socioeconomic variables, and (2) darker-skinned black people who maintain higher status lifestyles experience more frustrating social interactions than lighter-skinned black people. Frustrating social interactions and color-based barriers are thought to be important antecedents of sustained, elevated blood pressure among blacks (Dressler 1991). Thus, the frustrating battle with everyday, individual-level racism, net of socioeconomic factors, has potentially important health effects, especially for darker-skinned African Americans.

The effects of individual-level racism can also accumulate over the life course to raise health and mortality risks for African Americans. Recent qualitative evidence suggests that many blacks do not experience just isolated incidents of individual-level discrimination; such incidents are lifelong, energy-draining, and potentially damaging to health (Feagin 1991). Feagin (1991, p. 109) adds that "when blatant acts of avoidance, verbal harassment, and physical attack combine with subtle and covert slights, and these accumulate over months, years, and lifetimes, the impact on a black person is far more than the sum of the individual instances." Limited empirical studies have shown that African American women from their mid-twenties through their late thirties have higher death rates, poorer health, and poorer birth outcomes than their white counterparts because of rapidly increasing rates of hypertension (Geronimus, Andersen, and Bound 1991), smoking (Geronimus, Neidert, and Bound 1993), and high blood lead levels (Geronimus and Hillemeier 1992) with age (see also Geronimus and Bound 1990). These disadvantages are not apparent among younger, childbearing black women. Thus, the function of dealing with day-to-day experiences of socioeconomic disadvantage and discrimination can have potentially damaging health effects (Geronimus 1992). While skin color is suggested as a possible measure for the individual effects of racism

(Dressler 1993a), a skin color by age interaction term may be important for quantitatively capturing the cumulative effects of individual-level racism over the life course.

### **Intervening Factors**

Five sets of intervening factors are depicted in the conceptual model. Each is thought to transfer the influence of the three primary pathways into poorer health and higher mortality for African American individuals. As a set, they may work additively, interactively, or even counter to one another in their effects.<sup>3</sup> In other words, health care, the physical environment, health and coping behavior, stress, and social roles and support are conceptualized as intervening, or proximate, determinants for black-white health and mortality differentials (Mosley and Chen 1984). They act as mechanisms by which racial socioeconomic stratification, institutionally based racism, and individual-level racism differentially affect the biological health and mortality outcomes of U.S. whites and blacks.

The first, health care, is stratified by race and affects the health and mortality of infants, children, and adults (Hope 1992; NRC 1989; NCHS 1993; Wallace 1990). Simply put, those with better health care are more likely to live healthier, longer lives. While the difference in yearly health care visits between blacks and whites decreased drastically because of the impact of social policies in the 1960s, group patterns of health care remain very diverse. In contrast to non-Hispanic whites, African Americans tend to receive care from public clinics, emergency rooms, and in fewer private settings (NRC 1989 pp. 429-436). In addition, blacks are not only less likely than whites to possess private health insurance but are also more likely to be completely uninsured (NRC 1989, pp. 430-431). Health care for African Americans also lacks continuity and is less specialized (NRC 1989, p. 439; NCHS 1993).

Black-white health care differences persist beyond racial socioeconomic stratification and are thought to be heavily influenced by other race-related factors (Blendon, Aiken, Freeman, and Corey 1989; Hansell 1991; Wallace 1990). Residential segregation, one form of institutional discrimination, influences the type and quality of care received by Blacks (Wallace 1990). Geographic segregation separates many blacks from the highest quality health services and personnel and presents transportation obstacles to obtaining care. Open and subtle hostility by health care workers toward blacks, forms of individual-level racism, also influences their receipt of health care and may lead to poor health (Wallace 1990).

The differential quality of the physical environment in which U.S. black and white populations live also intervenes in the relationship between the primary pathways and health and mortality. A sizable percentage of African Americans live in large, urban, highly segregated cities with high concentrations of poverty, some of which are even termed "hypersegregated" (Massey and Denton 1989). Many are also characterized by highly toxic environments (Bullard 1983), high population densities (Massey and Denton 1989), high levels of vacant and substandard housing (NRC 1989, p. 406), high crime rates, and more dangerous conditions than found in more advantaged residential environments (Massey and Denton 1993). The quality of the physical environment also suffers in smaller, segregated, poor communities, such as in the rural South (Summers 1991). Like health care, environmental factors like housing, toxicity, population density, and safety have important influences on the health and mortality of the populations living in such conditions. House fires, lead poisoning, pedestrian accidents, and increased exposure to infectious diseases are just a few examples of the health and mortality hazards associated with living in inferior environmental conditions.

Health and coping behaviors are also mechanisms through which the primary pathways are transferred into increased health and mortality risks for African Americans. These behaviors include alcohol and drug use, cigarette smoking, poor nutrition, lack of physical activity, risky sexual behavior, and the use of aggression, all of which have well-known associations with poor health and mortality (Berkman and Breslow 1983; NCHS 1993). In American society, health behaviors are often viewed as autonomous lifestyle features, unrelated to social influences like racism and socioeconomic stratification (see above discussion). On the contrary, the group patterning of health behaviors depends heavily upon social influences such as socioeconomic stability and perceptions and responses to discrimination (Williams 1990). Health behaviors are also influenced by institutional forces such as the target marketing of goods like cigarettes and illegal drugs (Davis 1987), the availability of educational programs that work to reduce such behavior (Cooper and Simmons 1985), and funding for governmental programs, such as the Women, Infants, and Children (WIC) program (NRC 1989).

In addition, detrimental health and coping behaviors may be stress-managing mechanisms for those who are struggling with day-to-day socioeconomic disadvantages and racism (David and Collins 1991; Essed 1991). Differences in smoking patterns between white and black women, for instance, suggest that the lives of black women in their late twenties and thirties are more stressful than those of their white counterparts and black women's greater tendency to smoke at these ages may be, in part, a response to this stress (Geronimus, et al. 1993). The sources of the stress, the stress itself, and the physical toll taken by actively coping with stress through detrimental health behavior may contribute to the excess disease and mortality burden suffered by black women at these ages (Geronimus, et al. 1993). Thus, health and coping behaviors should not be viewed as independent determinants of health and mortality that are unassociated with social background; rather, health and coping behaviors are intervening mechanisms by which racism and socioeconomic disadvantage work to elevate poor health and mortality among disadvantaged populations.

Stress is a fourth mechanism by which the primary pathways exert their influence on health and mortality. It is well-known that those who are socioeconomically disadvantaged experience additional work, family, and community stresses compared to the more socioeconomically advantaged and that exposure to both poverty and racism may be especially stress-inducing (Kessler 1979; Kessler and Neighbors 1986). Among those of similar socioeconomic status, blacks also react to the experience of racist situations with more internalized, stress-producing anger than whites (Armstead, Lawler, Gordon, Cross, and Gibbons 1989; Krieger 1990). African Americans are also more likely than whites of the same socioeconomic status level to experience stressful life events such as unemployment, family illnesses and deaths, family instability, and criminal victimization (Dohrenwend and Dohrenwend 1970). In turn, stress has been associated with various health problems, including poor pregnancy outcomes (Hobel 1991; Istvan 1986), violence (Potter 1991), elevated blood pressure and diabetes (Cottington, Brock, House, and Hawthorne 1985; Cox, Taylor, Nowacek, Holley-Wilcox, Pohl, and Guthrow 1984), and even cancer and heart disease (Dodge and Martin 1979). While the intervening effect of stress on black-white health and mortality differences is largely an open question due to measurement problems associated with stress, its potential explanatory power looms large.

The protective effects of social roles and support are the final intervening mechanisms through which the primary pathways work to influence health and mortality. Many studies document the importance of social support from family, friends, coworkers, and community

as protective devices from poor health and mortality (Gove 1973; Rogers 1991). Others suggest that meaningful social roles (e.g. employment, marriage, and parenting) are especially important protective devices for better health and longer lives (House, Landis, and Umberson 1988).

While it is argued that many African Americans enjoy a close-knit, supportive network of friends and relatives (Stack 1974), others suggest that socioeconomic and discriminatory hardships take a critical toll in the formation and continuation of close social ties within the black community (James 1993; NRC 1989, p. 527; Wilson 1987). For instance, the National Research Council (NRC 1989, p. 512) concludes that, among blacks, "extended kinship ties have weakened, and a husband-wife family often is not strongly supported and constrained by the surrounding social structure." Similarly, Wilson (1987) argues that historically poor wages, together with large increases in structural unemployment and incarceration over the past twenty years, have severely decreased the pool of marriageable black men. Socioeconomic disadvantages and discrimination not only keeps the men from enjoying the protective effects of employment and family against poor health (Rushing et al. 1992), but also impedes many more blacks than whites from building the close, supportive ties associated with more advantaged family situations. Likewise, older black women may also lack close family ties because of lower rates of marriage and the shorter life expectancies of men within the black community.

Unlike some other U.S. minority groups, African Americans receive little social support or cultural reinforcement from continued streams of immigrants. In contrast, the continued streams of young, healthy immigrants from Latin American and Asian nations tend to reinforce strong Hispanic and Asian cultural support patterns and help maintain higher levels of health and more beneficial health behavior within their communities (James 1993). The foreign-born black people whose health outcomes have been studied tend to demonstrate better health and more beneficial health behavior than native-born black people (Cabral, Fried, Levenson, Amaro, and Zuckerman 1990; Kleinman, Fingerhut, and Prager 1991), a pattern that is also visible among several Hispanic and Asian groups (Rumbaut and Weeks 1989; Scribner and Dwyer 1989; Williams, Binkin, and Clingman 1986). However, since the forced migration of the early 1800s, black immigration to the United States has been comparatively light. As a result, black immigrants are not numerically or culturally influential in the overall health and mortality statistics exhibited among African Americans. In short, the quality and quantity of social support received by blacks may be heavily influenced by barriers opposed to the building of necessary ties.

## DISCUSSION

The purpose of a conceptual framework in the study of black-white health and mortality differences is to provide an organizing foundation on which to base future research work. While no single future study may encompass all of the factors discussed above, data collection and research efforts can be guided by a model that organizes the seemingly endless number of factors involved in the creation of such differences into a relatively parsimonious explanatory framework. Thus, the significance of the current framework lies in five fundamental ideas: #1. The sociological significance of race: Future work in this area must move away from narrow, outdated notions of race as genetic inheritance or socioeconomic or behavioral characteristics to focus on the most relevant stratifying principles of race—namely, the multiple forms of discrimination and more encompassing measures of socioeconomic disadvantage.

#2. A parsimonious framework: Variables are grouped together into three primary pathways and five intervening factors, making it possible to integrate key measures from each category into data collection efforts and statistical models. While the inclusion of appropriate intervening variables will vary depending upon the specific health or mortality differential in question, several fundamental measures of the primary pathways are recommended. Institutional forms of racism include residential segregation, political representation, and education opportunities; socioeconomic stratification includes income, education, occupation, and wealth. To best tap black experiences with and responses to individual-level racism, optimal measures include skin color and a skin color by age interaction term.

#3. An organized order of causality: The primary pathways illustrate the main social avenues by which race influences health and mortality. The intervening factors delineate the mechanisms through which socioeconomic disadvantage and racism are transferred into poorer health and higher mortality for African Americans. Thus, this framework facilitates more precise statistical modeling of the processes through which health and mortality differentials are created. For most purposes, race can be considered a stratifying variable, with different models specified for each group.<sup>4</sup> Primary pathway variables would best be specified as exogenous variables or statistically determined outside of the model. Intervening factors would be considered as endogenous variables, structured in large part by the primary pathways. Health and mortality measures would be outcome variables. A comparison of the two models (black versus white) would shed important light on the creation of health and mortality differences in question.

#4. A multidisciplinary approach: Although the focus here is clearly sociological, the framework encompasses a multidisciplinary approach toward the understanding of health and mortality differences. For example, the inclusion of the physical environment, health behaviors, and stress as intervening mechanisms for health and mortality differentials moves well beyond the bounds of social demography; indeed, these factors are often central foci of the public health, public policy, and medical literatures. To the extent that these literatures continue to be interested in racial health and mortality differences (and currently, this interest is very high), this framework should also serve to guide data collection and research efforts outside the bounds of social demography.

#5. Flexibility in the dependent variable: The framework is intended to be broad enough to inform the work of those interested in black-white differences in numerous aspects of health and mortality, including the examination of specific causes of death (Rogers 1994). While specific variables within categories of the intervening mechanisms are sure to change depending upon the health or mortality outcome in question, the general concern of what race means for health and mortality is at issue.

To further clarify the framework's potential, I present a very brief discussion of the infant mortality differences literature. Simply put, efforts to fully understand black-white differences in infant mortality are consistently disappointing; the nearly exclusive reliance on narrow socioeconomic and behavioral/cultural frameworks invariably leaves researchers and policy makers perplexed as to why black infants are more than twice as likely as white infants to die (David and Collins 1991; Eberstein 1995). While a comprehensive array of individual-level socioeconomic factors is clearly important (Hummer 1993b), the most promising solution appears to lie in the linkage between socioeconomic deprivation and the effects of institutional discrimination at the macrolevel (Eberstein 1995; Geronimus 1992; Hummer 1993a).

This framework builds on that important literature by specifying clearly the three primary pathways through which racial differences in infant mortality and other health outcomes are thought to be created. Future data collection efforts in the area of racial mortality differentials must be cognizant of the idea that the central driving forces behind such differentials are socioeconomic disadvantage and racism. Along these lines, it is important that attempts be made to link institutional-level indicators of racism to microlevel maternal health and infant mortality data. A successful linkage of this nature was recently demonstrated in the examination of racial differences in sexual activity (Brewster 1994). More precise measures of socioeconomic disadvantage and individual experiences with racism are also warranted.

In turn, it is not enough to “account” for such infant mortality or other health differences through a better specification of sociological variables; an explanation of the differences involves a precise specification of the entire process through which they are created. Thus, careful detailing of the intervening variables involved in the process is also essential. In the case of infant mortality, this includes a set of intervening factors ranging from measures of maternal stress, nutrition, and the physical environment to their access to social support and prenatal care. Clearly, this sets a significant and challenging research agenda.

One final remark involves the applicability of the conceptual model presented here to the understanding of health and mortality differences among non-Hispanic whites and other race/ethnic groups, such as Hispanics, Asian Americans, and Native Americans. Specific variables and disease etiologies will vary by group and health condition; nevertheless, the general process by which health and mortality differences are created can be conceptualized as a similar process, especially when the concepts of race and ethnicity are stripped of their biological connotations (Dressler 1993a). For instance, each U.S. minority group will have its own set of socioeconomic characteristics and experiences with institutional and individual-level forms of discrimination that influence its levels of health and mortality for specific conditions. Each group also adapts to its circumstances in unique ways, through support networks, behavioral responses, migration patterns, and other mechanisms. Although race and ethnic differentials persevere across many health conditions and causes of death, and specific processes and etiologies should be studied and understood for policy formulation, the general issue of health and mortality differentials is at issue. As efforts toward health equality for all people continue, a conceptual framework based on the social meaning of race and/or ethnicity and their consequences should serve to inform the data collection efforts, research work, and policy adoptions made in this critical area.



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### NOTES

1. Diseases with a clear genetic basis, in which gene frequencies are known to differ between U.S. blacks and whites, can account for only a tiny fraction of the excess poor health and mortality among African Americans. For example, sickle-cell anemia and other hemoglobinopathies accounted for only 277 (0.3 percent) of the 80,000 excess African American deaths in one recent year (Cooper 1984). Thus, while the population distribution of genes cannot be completely dismissed in understanding group differences, emphasis on such factors should be minimal.

2. There are exceptions. Rogers (1992), for example, uses a set of demographic, familial, and socioeconomic explanatory variables to statistically explain black-white differences in all-cause adult mortality. By individual cause, differences in circulatory diseases, cancers, respiratory diseases, and accidents were explained using the identical set of variables, while differences in infectious diseases, diabetes, homicides, and other causes remained. The success of his model, in comparison to most others, is probably due to (1) only adults 25 and older were considered, thus selecting out some of the most disadvantaged blacks—the disproportionate number of blacks who die before the age of 25 compared to whites—from being in the sample, (2) only the noninstitutionalized population was sampled, which again disproportionately selects out some of the most disadvantaged young blacks, and (3) he employed a more complete set of variables than most similar studies, including, for instance, measures of marital status and family size.

3. For instance, a high degree of social support has the potential to counteract the negative effects of stress.

4. Some variables, such as skin color, would have very little meaning for a model constructed for non-Hispanic whites. This article and others (e.g. David and Collins 1991) emphasize that some factors (such as discrimination) work primarily or even solely within the African-American population to raise health and mortality risks.

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