# RACIAL DISPARITIES IN CORONARY HEART DISEASE: A SOCIOLOGICAL VIEW OF THE MEDICAL LITERATURE ON PHYSICIAN BIAS

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**Purpose:** To interpret, within a sociological context, evidence of physician bias in the management and outcomes of coronary heart disease (CHD) treatment for African Americans vs Whites.

**Data Identification:** Articles addressing race and ethnic disparities in CHD, and gender as an additional risk factor, published since 1980, were searched and reviewed. Source material was identified using the electronic search engines for MEDLINE and Sociological Abstracts.

**Study Selection:** Articles were included in the review of race or ethnic disparities in heart disease when they provided *direct* or *indirect* evidence of potential sources of physician bias and/or differential treatment for CHD. Three types of studies suggest the presence of physician bias, and include those demonstrating: 1) patterned disparities in treatments and interventions; 2) practitioner perceptual bias/stereotyping of patients; and 3) patient perceptions of bias in treatment.

**Results:** A growing body of research supports the presence of physician bias in differential treatment practices for CHD based on patient race/ethnicity, and sometimes patient gender and socioeconomic status, which manifests as additional risk factors in the quality of care, pharmacological therapy, and use of invasive procedures. Access to care and patient preferences/behaviors do not fully account for racial disparities in CHD treatment.

**Conclusion:** Socioeconomics, individual racism, and institutional racism represent 3 predominant pathways to differential treatment for CHD that are mediated by the patient-provider relationship. Racial biases are shown to be a part of the social structure of medical practices at both the macro and micro levels. Individual healthcare providers can potentially reduce disparities in Black-White CHD treatment and outcomes by examining the patient-provider relationship for bias. Future studies will require addressing more direct ways of measuring, monitoring, and reducing subtle bias in the healthcare system. (*Ethn Dis*. 2004; 14:360–371.)

**Key Words:** Physician Bias, African American, Cardiovascular Disease, Racism

## INTRODUCTION

A report from the National Center on Health Statistics cited the age-adjusted heart disease rate for African-American men as 37% higher than that for White men, while the rate given for African-American women was 63% higher than for White women.[1] Compared with Whites, African-American patients suffer an excess burden of cardiovascular mortality, and the gap may be widening.[2–6] African Americans are about 3 times as likely as Whites to develop cardiovascular disease, and are twice as likely to die from it. There is a growing body of research on racial/ethnic differences in cardiovascular disease in several areas: genetics,[7] risk-factor prevalence and impact,[4,8–10] socioeconomic status (SES),[11,12] access to care,[4,13,14] and health behavior.[12,15–19] However, these factors do not explain all the variability that exists between African Americans and Whites in CHD morbidity and mortality. A review of the medical literature reveals data suggestive of differential treatment practices by clinicians based on: 1) race/ethnicity; 2) patient gender; and 3) patient socioeconomic status. Physician bias is indirectly or directly evidenced in research on the management and quality of patient care, the use of pharmacological therapies and invasive procedures, physician attitudes and decision-making about patient care, and those suggesting patient perceptions of negative treatment.*

This work examines the literature suggestive of physician bias in the treatment of coronary heart disease (CHD). Figure 1 shows the complexity of the problem, and the role of physicians in CHD outcomes, thereby depicting the need to examine this phenomenon in sociological context from the macro to the micro levels. At the macro-level, American society is constructed of a social fabric of organizations and norms that determine gender, social class, and race-specific power and privileges.[20] As depicted in Figure 2, this socio-cultural system has, in turn, spawned a meso-level network of social institutions and organizations (such as the healthcare system) that functions as a group of agents of the larger socio-cultural system, thus institutionalizing and routinizing disparities in power and privilege, and, at the micro level, determines the socialization and experiential lifeworlds of individuals, including patients and physicians.

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* Throughout this work, the terms African-American and Black are used interchangeably and/or consistently with their uses in the literature.

*Physician bias is indirectly or directly evidenced in research on the management and quality of patient care, the use of pharmacological therapies and invasive procedures, physician attitudes and decision-making about patient care, and those suggesting patient perceptions of negative treatment.*

The term "race" is used by the authors as a social construct, referring to identity as perceived by others, and the ensuing distance between groups that restricts social and economic opportunities, and possibly shortens life expectancy.* Robert Hummer's work provides the sociological framework used to examine African-American and White differences in health and mortality.[24] According to Hummer, race determines health by means of 3 "pathways": socioeconomics, institutional racism, and individual racism. These pathways (as depicted in Figure 2) are used here to make sense of the body of empirical evidence related to differentials in CHD, and the potential influence of physician bias in those differentials.

Several reviews of patterns of racial disparity in health outcomes and health care exist in the literature.[25–29] Those addressing CHD primarily focus on the differential use of invasive cardiovascular procedures.[27,28] The present review focuses on studies that present direct or indirect evidence of physician bias in the management and treatment of CHD. The researchers attempted to sift through competing data to weigh evidence that: 1) isolates physician bias from other factors affecting differential outcomes; and 2) identifies types of research designs that test and ferret out racial bias as a source of differential health care. Additionally, this work will advance a more critical understanding of the literature through a synthesis and interpretation of physician bias from a sociological perspective.

| Level of Analysis | Doctor | Patient |
|---|---|---|
| *Sociocultural System* | Socially Constructed Belief Systems about Race or Ethnicity, SES, Gender | Societal Messages Received about Race or Ethnicity, SES, Gender |
| *Health Care System* | Culture of Professional Medicine<br><br>Systematic Treatment of Race or Ethnic, SES, Gender Groups | Health-Related and Group-specific Beliefs and Attitudes (Collective Trust / Distrust)<br><br>Systematic Experiences of Race or Ethnic, SES, Gender Groups |
| *Interpersonal System* | Perceptions of Illness and Health<br><br>Management of Care or Treatment<br><br>Communication with patient and Decision Making (Physician Bias) | Confidence or Distrust in Physicians and Medical System (Internalization of Health Beliefs and Health Knowledge)<br><br>Health Seeking Behavior/Compliance<br><br>Communication with physician, Health Knowledge and Decision to Seek or Accept Treatment (Trust/ Distrust) |

**Fig 1. Understanding racial health disparities in CHD outcomes**

* Consistent with a recent statement by the International Committee of Medical Journal Editors,[21] the authors of this work recognize that race is a socially constructed concept and that ethnicity is the preferred term to denote a group's unique identity. However, the term ''race'' cannot yet be discarded because ''. . . classification of race is a flawed fabrication on which the social condition of racism is based.'' [22] It is the perceived categorical differences, often associated with appearance, with group inferiority and superiority, and with what may be associated patterns of differential or discriminatory behavior that constitute the phenomenon of ''racism.'' Consequently, the terms ''race'' and ''racism'' or ''racial bias'' must be used cautiously and only to serve the purpose of furthering understanding of an extremely complex set of social dynamics. Such is the case with this work, in which race is conceptualized as that categorical grouping of people that takes form automatically and subconsciously when certain characteristics are observed and identified, and where certain accompanying behavioral manifestations are expected. Williams notes that, ''As long as being Black remains consequential for every aspect of life, and as long as racial status continues to reflect differences in power and desirable resources in society, it is important to assess race.'' [23] Because racial categories set up expectations that people are different, they may be treated as different, whether as patients in the healthcare system or as students in the educational system.

**Table 1. Evidence of physician bias in medical treatment of African Americans for CHD**

| Articles | Data Source | Major Findings | Limitations |
|---|---|---|---|
| | *Studies Showing Race Disparities in CHD Treatment and Interventions* | | |
| Maynard (1986) *Blacks in the coronary artery surgery study (CASS): race and clinical decision making* | Coronary Artery Surgery Study | Physicians less aggressive about risk-factor modification for African Americans than Whites (smoking cessation, exercise, diet) | Aggregate-level analyses obscure relationships between quality of care, race, and poverty status<br>Do not directly measure physician bias or method of decision-making<br>Typically do not directly measure patient preferences, knowledge, decision-making, or compliance with follow-up visits and referrals.<br>Sample selection bias; hospital records provide limited data on healthier persons more likely to present with symptoms<br>Nonprobability/randomization of samples |
| Johnson (1993) *Effect of race on the presentation and management of patients with acute chest pain* | Multicenter Chest Pain Study: prospective follow-up study of 3,031 ER consecutive patients, 30 years or older, from 2 medical centers presenting between 1984 to 1986 | African Americans less likely than Whites to be admitted, had lower coronary artery bypass procedures, were less likely to be triaged for CHD, and were more likely to delay seeking care | |
| Kahn (1994) *Health care for Black and poor hospitalized Medicare patients* | Hospital records: cross-sectional sample of 10,000 Medicare patients from 297 hospitals in 5 states. | African Americans received poorest quality of care and were less ready for discharge than other CHD patients | |
| Series of works on invasive procedures:<br>Ayanian (1993), Boutwell and Mitchell (1993); Carlisle (1995); Escarce (1993); Franks (1993); Giles (1995); Peterson (1994); Mitchell and Khandker (1995); Mirvis (1994); Udvarhelyi (1992); Sedlis (1997); Whittle (1993) | Hospital and medical records | Persistent racial differences and "underuse" of African Americans compared to Whites of invasive procedures: angiography, percutaneous transluminal angiography, and bypass graft surgery | |
| Series of works on revascularization, cardiac procedures, and surgery:<br>Gastonis (1995); Laouri (1997); Petersen (1997–1998); Hannan (1999) | Medical records with follow-up patient surveys or interviews | Patient refusals did not explain disparities in procedures used | See above |
| Series of works on pharmacological therapy: Pashos (1994); Allison (1996); Canto (2000); Taylor (1998) | Medical records | African Americans were less likely to receive thrombolysis for AMI when clinically indicated; no difference in the use of beta-blockers or aspirin; African-American women least likely to receive pharmacological treatments | |

**Table 1.** Continued

| Articles | Data Source | Major Findings | Limitations |
|---|---|---|---|
| | *Studies Showing Practitioner Perceptual Bias/Stereotyping of Patients* | | |
| Gregory (1987) *Medical students' expectations for encounters with minority and non-minority patients* | Survey of 145 first-year medical students at UCLA School of Medicine | Medical students of all backgrounds expected to be less comfortable with African-American patients than other patients and expected that Blacks would be less compliant with treatment | Several studies were based on respondents' expectations; not actual situations or practice<br>Nonrepresentative samples<br>Lack of replication across settings and specific to CHD |
| McKinlay (1996) *Non-medical influences on medical decision-making* | Videotaped medical scenarios of a patient complaint of chest pain or dyspnea presented to 12 Caucasian male internists for diagnosis | Decision-making by physicians for African Americans resulted in more psychogenic diagnoses than for Whites | |
| Van Ryn and Burke (2000) *The effect of patient race and socio-economic status on physicians' perceptions of patients* | Survey of 193 physician perceptions of 618 post-angiogram encounters | Physicians perceived African Americans and low and middle SES groups more negatively than Whites and upper SES groups on a number of measures<br>For African Americans, measures of intelligence, feelings of affiliation toward the patient, and beliefs about risk behavior and adherence with medical advice were more negative than for Whites | See above |
| Schulman (1999) *The effect of race and sex on physicians' recommendations for cardiac catheterization* | Video vignettes and survey used to assess physicians' recommendations for managing chest pain; 720 physicians attending professional meetings | Race and sex of the patient influenced recommendations of physicians independent of other factors<br>African-American women were least likely to receive recommendations for cardiac catheterization | |
| Yedidia (1992) *The impact of social factors on the content of care: treatment of ischemic heart disease at a public and a voluntary hospital* | Firsthand observation of rounds, chart review, and a 3-month patient follow-up survey | All patients from the voluntary hospital were catheterized and only 41% from the public institution were catheterized | |
| Finucane (1990) *Racial bias in presentation of cases* | Chief medical resident recorded oral case presentations presented during morning reports and rounds in a university hospital internal medicine residency program | Race and unfavorable characteristics were mentioned more frequently in presentations of Black compared to White patients | |
| Hughes (1996) *''But if you look at the coronary anatomy'' . . . and rationing in cardiac surgery* | Tape recorded data from cardiac catheterization conferences where cardiac surgeons decided who would receive surgery | The decision to give a patient surgery depended not only on technical assessments of feasibility and risk, but also on physician interpretation of social information about the patient | |
| Ferguson (1998) *Racial disparity in cardiac decision making: results from patient focus groups* | Focus group sessions were conducted with patients who received care for ischemic heart disease at 2 urban, university affiliated hospitals | Only Black patients addressed issues related to perceptions of racial and financial discrimination within the healthcare system<br>Black patients placed more importance on patient-physician camaraderie than White patients | Studies were rarely designed to directly measure or query about physician bias or unfair treatment.<br>Small sample, lacks generalizability<br>Self-reported data only<br>Sample selection bias (healthier patients more likely to present) |

**Table 1.** Continued

| Articles | Data Source | Major Findings | Limitations |
|---|---|---|---|
| | *Studies Showing Practitioner Perceptual Bias/Stereotyping of Patients* | | |
| Collins (2000) Racial differences in how patients perceive physician communication regarding cardiac testing | 4 focus groups with patients who had undergone cardiac stress testing | Black patients expressed a preference for building a relationship with the provider before undergoing a cardiac procedure | |
| Krieger (1990) *Racial and gender discrimination: risk factors for high blood pressure* | Phone interviews with African-American and White women ages 20–80 to assess reported unfair treatment and hypertension | An internalized response to unfair treatment and/or non-reporting of race and gender discrimination may constitute risk factors for high blood pressure among African-American women with hypertension<br>Black women more likely than White to report unfair treatment in accessing health care | |
| Strogatz (1990) *Use of medical care for chest pain: differences between Blacks and Whites* | 1980 baseline survey of the Edgecombe County High Blood Pressure Control Program (total sample size 2,029; 302 experiencing chest pain, included in follow-up analysis) | Among adults with chest pain, African Americans more often than Whites did not seek a physician following an episode, this was not explained by differences in demographics, health status, or (other) access to care variables<br>African Americans reported worse structural access and more dissatisfaction with care | |

AMI=acute myocardial infarction; CHD=coronary heart disease; ER=emergency room; SES=socioeconomic status.

## OVERVIEW OF LITERATURE

Using the electronic databases MEDLINE and *Sociological Abstracts,** we searched and reviewed medical and sociology articles published since 1980, which addressed race and ethnic disparities in CHD, with gender as an additional risk factor. References of all articles were reviewed for other citations of interest. Two of the researchers independently conducted literature searches and compared results. Articles that either directly measured physician bias, or provided prima facie evidence for the presence of physician bias, were included and reviewed. Table 1 provides a tabular summary of research suggesting evidence of physician bias in the treatment and management of CHD, along with sources of data, major findings, and major methodological limitations.**

Much of the discussion about racial differences in the treatment of CHD focuses on the differences in intensity of medical services provided for similar diagnoses in African Americans and Whites.[27,30,31] Upon initial contact and entry into the healthcare system, the literature suggests there are racial differences in quality of care,[32–34] in the use of invasive cardiac interventions,[35–40] and in pharmacological treatment.[41–43]

### Disparities in Intervention Strategies and Treatment

Maynard's Coronary Artery Surgery Study (CASS) suggests that physicians are less aggressive about risk-factor mod-

* Key terms included in the search were: discrimination, physician bias, race, ethnicity, ethnic, racism, gender, and sex, combined with the key words coronary heart disease or CHD, myocardial infarction, invasive cardiovascular procedures, pharmacological therapy, and cardiovascular procedure.

** Key medical abbreviations are defined (Table 1). For purposes of brevity, only the names of first authors are used in the table and text when there are more than 2 authors. Full authorship listings are included in the references.

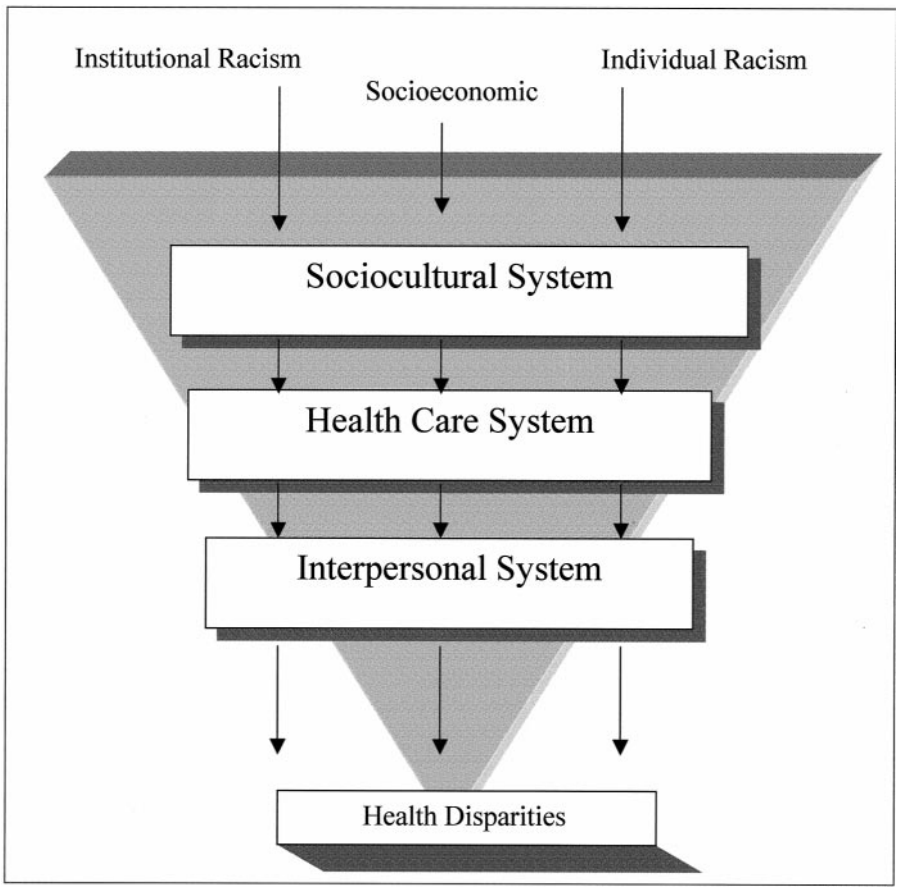


**Fig 2. Pathways to health disparities**

ification, such as diet or smoking, for African Americans compared to Whites.[15] Johnson[44] noted that, compared to Whites, African Americans presenting themselves in the emergency room with acute chest pain were less likely to be admitted, and less likely to be triaged to the coronary care unit. The differences persisted even after adjustment for clinical events and probability of acute myocardial infarction (AMI). Kahn[32] examined the quality of care for a cross-sectional sample of 10,000 Medicare patients admitted to 297 hospitals in 5 states. After stratification by hospital type, African Americans were found to receive the poorest quality of care and to be less ready for discharge than other patients hospitalized for congestive heart failure, AMI, pneumonia, or stroke. Aggregate-level analyses obscured the relationships among quality of care, race, and poverty, because African Americans tend to be seen in large, urban teaching hospitals where quality of care tends to be superior.

Studies over the past 15 years have consistently shown less use of invasive cardiac procedures, such as angiography, percutaneous transluminal coronary angioplasty (PTCA), and coronary artery bypass graft surgery (CABG) among African Americans, compared to Whites.[14,35–40,45] A review of the literature by Kressin and Petersen,[28] for example, found racial differences in the use of invasive procedures persisting in studies using administrative, clinical, and survey data. While disparate methodologies prohibited causal conclusions, physician bias could not be eliminated as a potential source of differential treatment. Using detailed clinical data, other researchers found that African Americans were less likely than Whites to undergo angioplasty and bypass surgery.[33,46–47] Follow-up inquiries found patient refusals of treatment did not fully account for variations in procedures used.[47–50]

Few studies have examined pharmacological treatment patterns for physician bias, but disparities have been documented for AMI patients. Studies are limited to thrombolytic agents, beta-blockers, and aspirin, because of these drugs' demonstrated ability to decrease mortality in the setting of AMI, and due to the availability of data comparing their use by race or ethnicity. Maynard[41] found no difference in use of angiography or thrombolysis by ethnicity, using the clinically rich Myocardial Infarction Triage and Intervention (MITI) Registry database. However, Pashos[42] found African Americans to be less likely to receive thrombolysis for AMI, even after controlling for patient demographics, co-morbidity, and hospital characteristics.

Allison[43] analyzed the 1992–1993 Pilot Cooperative Cardiovascular Project (CCP) data, and found that African-American patients were less likely than Whites to receive thrombolysis when clinically indicated. There was no gender difference in the use of beta-blockers. Canto reported that African Americans received the poorest care of all ethnic groups, especially African-American women.[34] Taylor[33] found similar results from the 1994–1996 National Registry of Myocardial Infarction data.

## Practitioner Perceptual Bias/ Stereotyping of Patients

Using a computerized survey instrument (videotaped vignettes) to elicit physician recommendations for managing chest pain, Schulman and colleagues[51] attempted to provide a direct measure of race or gender discrimination (holding other variables constant) as risk factors in CHD. The clinical presentation of patient symptoms was sim-

ilar, but gender and ethnicity varied. Males and Whites were referred more often for catheterization than were women and African Americans, suggesting that, even when controlling for socioeconomic status and insurance, race and gender did enter into physician decision-making. The Schulman study reported that physicians were less likely to recommend intervention treatments for African-American women, compared to all other patients. McKinlay[52] and colleagues examined physician decision-making among 192 Caucasian male internists viewing videotaped medical scenarios of individuals experiencing chest pain. African Americans were more likely than Whites to receive psychogenic diagnoses.

Van Ryn and Burke[53] surveyed 193 physicians concerning 618 post-angiogram encounters to assess the effects of patient race and SES on the physicians' perceptions. Physicians exhibited more negative perceptions of African Americans in low and middle SES groups than of Whites and upper SES groups on several measures. Specifically, for African Americans, measures of intelligence, feelings of affiliation toward the patient, and beliefs about risk behavior and adherence to medical advice were perceived more negatively than were those same measures for Whites. Based on recorded case reports in a university hospital residency program, Finucane and Carrese[54] found race mentioned more frequently in the presentations of Black patients, compared to Whites. Unfavorable characteristics, such as low intelligence, uncooperativeness, and anger, were used to describe Black patients more frequently than White patients.

Physicians' potentially biasing perceptions of patients do not always focus on ethnicity, but on other known patient information, such as insurance status, or the hospital setting to which the patient will be transferred. Yedidia[55] found that only 41% of the patients who were judged by a cardiology fellow to be appropriate for catheterization received the procedure at a public hospital, compared to 100% of the patients who were treated at a neighboring private hospital. Consequently, it is important to note that physicians found transfers to public institutions difficult to arrange for patients without insurance. In addition, completion of the medical workup and integrating inpatient and outpatient procedures at public institutions were more difficult for physicians than were those same processes at private hospitals.

A study by Hughes and Griffiths[56] found subtle forms of physician bias during tape-recorded conferences during which cardiologists presented potential surgery candidates. Physicians' discussions included not only the technical feasibility of surgery (angiograms) for each patient, but also the risk factors for CHD, such as smoking or obesity. Authors concluded that although doctors articulated their statements cautiously, they engaged in discourse about what is assumed to be willful behavior on the part of patients, along with the technical discourse about prognosis and risk of surgery. When it was difficult to identify candidates for surgery on clinical grounds, the physicians exhibited a tendency to move beyond technical calculations of risk to consider patient "deservedness." [56]

Studies not specific to CHD have also examined physician biases within the field of psychotherapy, and documented that racial stereotyping leads to mismanagement of some patients.[57–60] Gregory's[61] work revealed that medical students expected to be less comfortable interviewing African-American patients than patients from other ethnic groups. In addition, 70% of these medical students reported that they expected African Americans to be less compliant with medications. Another study examined patients' appearance and ethnicity and found that physicians spent more office time with patients as their rating for appearance improved, and spent less time with Hispanic patients compared to Whites.[62] Shabazz and Carter[63] noted cultural differences that may cause physicians or residents to think African-American patients are not listening to their recommendations. For example, African-American patients looked at their physicians when speaking to them but turned away when they listened to their doctors; Whites typically exhibit the opposite behavior.[63] The Council of Ethics of the American Medical Association editorialized about the possibility of physician decisions being influenced by ethnicity in a way not justified by pathophysiology.[64] Patients who were (comparatively) wealthy, productively employed, and assertive, were reportedly viewed as more likely to respond to therapy, and more valuable to society than were patients less representative of these characteristics.

## Patient Perceptions of Practitioner Bias in Treatment

Additional research studies suggesting physician bias in patient treatment used interview or survey designs to measure patient perceptions of medical treatment. Krieger found that the experience of being Black and receiving (and accepting) discriminatory treatment in the United States carries a risk for high blood pressure that is directly related to the race and gender of the patient. Unfair treatment had similar effects on Blacks and Whites, but African-American women reported higher rates of unfair treatment.[65] Ferguson[66] and Collins[67] used focus groups to interview Black and White patients about physician care for ischemic heart disease or cardiac stress testing. Only Black patients reported discrimination within the healthcare system related to racial and financial perceptions.[66] Establishing trust before accepting recommended care was found to be more important to Black patients than to Whites.[67]

Strogatz[16] conducted a follow-up survey with 302 of 2,029 participants experiencing chest pain, who had participated in a 1980 community base-line

survey. Among adults with chest pain, African Americans reported less access to care compared to Whites; they also assigned lower scores on measures of "how well respondents get along with providers."[16] Although Black patients were less likely than Whites to seek a physician following an initial episode, differential use patterns were not explained by health status, other demographics, or access to care variables.

### Summary

A major limitation to the studies on patient perceptions is that they were not specifically designed to ascertain physician bias, or fair vs unfair treatment. The small non-representative samples based on self-reported perceptions also severely limit the generalizability of the findings. It is equally difficult to determine the extent to which differences in intervention treatments (as documented in the literature) represent under-use in African-American patients,[48,68] over-use in White patients,[69] or appropriate rates of use for each group, with relatively fewer African Americans being good candidates for the procedures.[65–66] Allison analyzed the CCP data and found equal refusal rates for thrombolysis among Blacks and Whites.[43] Using medical records and physician queries, some studies similarly indicated that patient refusals do not account for disparities in procedures,[47,49–50] while others found the opposite.[66,69] In addition, many studies continue to find disparate medical management, even after adjustment for considerable clinical detail. Both Ayanian and Whittle list cultural influences as a possible reason for disparities contributing to physician bias, including differences in communication styles and negative attitudes about African Americans.[35,40] Gregory's[61] study of medical students, Van Ryn and Burke's analysis of physicians' perceptions of post-angiogram encounters,[53] and McKinlay and Schulman's studies of physician recommendations based on videotaped vignettes, provide the most direct suggestions of physician bias.[51–52]

## DISCUSSION: A SOCIOLOGICAL PERSPECTIVE

The research studies reviewed above do not unequivocally indicate physician bias in treatment for CHD. Nonetheless, a growing body of evidence strongly suggests a medical system that works more effectively for Whites than for Blacks, and is least effective for Black females, who experience the highest rates of chest pain, but often with atypical symptoms, making it difficult for physicians to diagnose the seriousness of their cardiac conditions.[34,70]

Given the complexity of racial disparities in CHD outcomes and probable physician bias, as shown in Figure 1, it is impossible to measure what each system contributes to an overall problem, or even to an individual case. Both physicians and patients are products of a social and cultural system that has shaped (based on who they are) their varying beliefs, attitudes, and expectations. Both physicians and patients are "actors" in a common healthcare system; however, one is the gatekeeper, acting on patients who are often uninformed recipients of health care. Levy's work points to some of the possible implications of widespread stereotyping by predominantly White physicians in large urban hospitals where patients are predominantly African-American.[71] Each of the systems depicted in Figure 1 is made more complex by the contextual overlays of social class, institutional racism, and individual racism, as demonstrated in Figure 2, or by what Hummer calls pathways to health disparities.[24] As suggested by the following discussion, it is these pathways that require further investigation, informed by both the medical and the sociological perspectives.

### Socioeconomic Variables/Social Class

Socioeconomic stressors for African Americans are the same as for any population of poor people: 1) lack of medical care; 2) lack of health insurance; 3) greater exposure to crime victimization, and to work-related accidents and environmental hazards; 4) poor diet; and 5) poor living conditions. But for African Americans, there is the added stressor of being Black. As Williams and Jackson report, the mortality rate for Blacks was 1.6 times higher than for Whites in 1950, and this disparity had not changed by 1995.[23]

Although the prevalence of low SES leads to poorer health outcomes for many Blacks, SES alone does not fully explain health disparities.[25,72–77] Research by Van Ryn and Burke examined the relationship between patient race and income and physicians' perceptions of patients. Their findings suggest that physicians hold negative, preconceived ideas about African-American patients, and that SES, alone, does not explain these biases.[53] Yedidia found that physicians incorrectly assumed 5 out of 8 patients at the public hospital did not have health insurance.[55]

Works, such as those of Thomas,[18] Kahn,[32] Raczynski,[78] Peterson,[79] and Mirvis,[80] contribute to the virtual elimination of such SES variables as education and insurance in accounting for differences in knowledge of CHD risk factors, in quality of care, in access to certain treatment procedures, and in seeking the care of a physician.

### Institutional Racism

Institutional racism involves not the conscious intent of individuals to discriminate, but rather, a structure of discrimination embedded in social institutions (such as the economy, the medical profession, corporations, and government) that negatively affects certain historically subordinated groups, their life chances, and even their lives.[24,81–82] Comparing Black and White differences in seeking medical care for chest pain, Strogatz documented "structural access" issues for Blacks, such as affordability and accommodation.[16] Racist beliefs embedded in an institution also present

barriers. For example, as late as the 1950s, the medical community believed the myth that myocardial infarction and the presence of angina were rare among African Americans.

Watson described the extent of institutional control of medicine during the years 1896 to 1965, when only a small group of Black physicians practiced, primarily in Black communities, often lacking even hospital access.[83] Beginning with admission to medical schools, continuing through the training of physicians, and the delivery of health care, institutional patterns of White preference and decision-making continue to be supported and reinforced.[84] The medical establishment and its related institutions, including physicians, HMOs, clinics, and hospitals represent components of the structure of institutional racism. Ironically, Thomas found African-American physicians to have a shorter life expectancy, and to be less likely than their White peers to seek medical treatment.[18] The failure to seek medical care, as well as the prevalence of certain diseases, should be investigated by social scientists as products of institutional racism in a system where SES mediates the cost of being Black only slightly.[82] A recent (2003) survey from Harvard University reports that a majority of both Hispanics and African Americans believe that "minority patients are more likely than Whites to disregard medical advice or forego treatment because of distrust of the healthcare system. . . ." [85]

## Individual Racism

Hummer's third pathway to differential Black-White health is found in the various manifestations of individual racism. Since at least the 1950s, public polls show a consistent decline in racist or prejudicial attitudes held by individuals, although there is still relatively high adherence to certain racial stereotypes.[86–87] Physicians, apparently not unlike others, have been found to vary their behavior when dealing with different racial/ethnic groups. For example, Hooper observed that physicians perceived and communicated with Hispanic and White patients differently.[62] Although professional bias may not approach the level of conscious behavior, evidence suggests it exists in the physician-patient relationship. While acknowledging that physicians recruited at a national meeting might not be representative, Schulman, nevertheless, concluded: "Our findings indicate that the race and sex of patients independently influence physicians' recommendations for the management of chest pain." [51]

Several books written by or about the African-American elite repeat the theme: no matter how "successful," African Americans are still judged by the color of their skin.[88–90] It is this kind of experience with individual racism that Dressler associated with the problem of hypertension, more common among African Americans than other segments of the population.[91] Krieger found an association between risk of hypertension in Black women and their tendency to accept what they perceived as unfair or discriminatory treatment.[65]

## The Compounding Effects of Economics and Racism

To date, no work has operationalized and measured the interactive effects of economic forces, institutional racism, and individual racism, on any of the health-related variables with which this analysis deals; therefore, much of the evidence for the impact of these variables on African-American health, specifically heart diseases, is indirect or inferential. There are data, however, from 2 very different socioeconomic groups that suggest how the 3 pathways come together in shaping African-American health. The 2 groups are African Americans who live in low-income communities with a high density of female heads-of-families, and, in contrast, socioeconomically "successful" African Americans.

On the low-income side of the continuum, Leclere[92] studied racially segregated and economically isolated neighborhoods characterized by high rates of female single-parent households, with which they linked heart disease mortality. African-American women who live in census tracts where female head-of-household rates are high are more likely than other groups to die of heart disease. African-American female heads-of-families, especially if they are young and poor, are the targets of various race/class stereotypes (the best known being that of "unwed welfare mothers"). There is little doubt that both institutional and individual racism are experienced at all levels (as per Figure 1) of their life-worlds. The Leclere research represents a "worst-case scenario" for poor African-American women, and provides support for Hummer's model of pathways to mortality. However, some of these same forces interact and affect African Americans at the high end of the class continuum, as well. Books written by and about successful African Americans provide vivid accounts of the anger experienced by men and women who followed the American dream, and secured the outward appearance of success, only to encounter racism and discrimination on a daily basis.[88–90,93–95] Ernest Johnson maintains that the impact of stress and anger on the health of African Americans is "devastating." [96]

# CONCLUSIONS AND IMPLICATIONS FOR FUTURE RESEARCH

Few of the works reviewed directly measure physician bias in diagnoses and treatment, and lack of a common methodological framework makes it impossible to undertake a formal synthesis of the data. However, the empirical evidence suggests that it is incumbent on the medical system to build and maintain a sense of trust among patients who, historically, have experienced discrimination. The existing literature in-

*There is little doubt that both institutional and individual racism are experienced at all levels (as per Figure 1) of their lifeworlds.*

cludes various methodologies and data from clinical/hospital records, practitioner and client surveys, and from qualitative observations and focus groups, all providing substantial prima facie evidence of physician bias and differential treatment of patients. Several directions for future research are suggested:

• Study larger numbers of patients from diverse populations and identify patient decision-making, as well as physician recommendations, in the healthcare process. Studies exploring patient perceptions and preferences are scattered, and are often not designed to separate the effects of physician recommendations from those of patient decision-making in relation to specific CHD events. Physician recommendations and patient preferences should routinely be recorded in medical records.

• Correct for sampling procedures in some past research that tended to select out healthy populations, and exclude those individuals less likely to present and more likely to die suddenly outside of the clinical context.

• Include follow-up records of patient behavior (failure to keep appointments, change of physicians, or treatment in multiple medical facilities). Future research designs must address the full range of patient, physician, and healthcare system variables and their relative effects on health disparities in heart disease treatment.

Well-designed qualitative studies are needed to add depth and substance to quantitative data. Ethnographic studies using in-depth interviews will fill an obvious gap in research by exploring individual awareness of symptoms and decisions to seek, or accept, medical treatment. Similarly, observational studies that actually record patient-physician interactions and decision-making can illuminate the need for adjustments to alleviate negative encounters in the clinical setting.

Research using a quasi-experimental design will also aid in directly measuring physician bias in treatment. LaVeist recommends simulated research designs that can be altered to vary patients' levels of compliance, or resistance, to suggested treatment. The interactions and compounded effects of different patient characteristics, physician characteristics, and type of practice, can be assessed.[97] Ultimately, research designs that triangulate methods from clinical data and interactions in medical situations, and follow up with survey and interview data from clients, will yield a holistic understanding of medical treatment and patient decision-making, and will further the collaborative efforts of medical researchers, clinicians, social scientists, and policy makers.

Physicians and practitioners must accept responsibility for proactive measures that will reverse differential outcomes in health, health care, and mortality. Recognizing the seriousness of these problems, Congress recently funded the "Initiative to Eliminate Racial and Ethnic Disparities in Health" to be successful by 2010.[98] Although physicians have lost considerable autonomy to managed health care, few would dispute the fact that they remain the gatekeepers to quality health care. Physicians make treatment recommendations prior to their patients' decisions to accept or refuse treatment, or even before economic factors are taken into account. However, education and increased public awareness are needed to improve the physician-patient relationship, to improve patient confidence in the medical system, and to empower patients.

This work has attempted to ferret out of existing literature the impact of race or ethnicity on the conscious or subconscious choices that both physicians and patients make. Research on racial disparity is only beginning to distinguish between inappropriate underutilization in the setting of clear clinical indication for therapy, and underutilization in the absence of clinical indication. All too little direct evidence exists concerning either physician or patient perceptions, or biases leading to disparate health outcomes. Physician bias, as manifested directly or indirectly in health care, access, and outcome, is a disturbing possibility for its impact on the lives and deaths of African-American patients. Such a bias, however, is a possibility that future researchers must pursue, and that the medical community must confront.

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