

Does Racism Harm Health? Did Child Abuse Exist Before 1962? On Explicit Questions, Critical Science, and Current Controversies: An Ecosocial Perspective

Research on racism as a harmful determinant of population health is in its infancy. Explicitly naming a long-standing problem long recognized by those affected, this work has the potential to galvanize inquiry and action, much as the 1962 publication of the Kempe et al. scientific article on the “battered child syndrome” dramatically increased attention to—and prompted new research on—the myriad consequences of child abuse, a known yet neglected social phenomenon. To further work on connections between racism and health, the author addresses 3 interrelated issues: (1) links between racism, biology, and health; (2) methodological controversies over how to study the impact of racism on health; and (3) debates over whether racism or class underlies racial/ethnic disparities in health. (*Am J Public Health*. 2003;93:194–199)

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DID CHILD ABUSE EXIST

before 1962, when C. Henry Kempe and coauthors published the now classic article “The Battered-Child Syndrome”?¹ Certainly.^{2–5} Did it harm health? Yes, if current research is any guide.^{2–7} Before the Kempe et al. article catapulted the issue onto the mainstream US medical and public health agenda, had anyone previously raised concerns about child abuse? Absolutely. Since the early 1800s, numerous individuals and organizations—many in fields that came to be known as public health, medicine, social work, philanthropy, and criminal justice—had attempted to investigate, raise public awareness about, and ameliorate problems of family violence.^{2,3,5} Public and scientific attention to the issue, however, waxed and waned in concert with broader societal concerns.^{2,3}

Kempe’s article in a prominent scientific journal nevertheless was and remains enormously influential. Why? In part, because it explicitly named—and simultaneously highlighted the health consequences of—a volatile societal problem then hidden from view by dominant beliefs about the sanctity of family life. The unnamable problem, once named, became less nebulous and more tangible, something that could

be more rigorously documented, monitored, and analyzed, bolstered by the belief that—with adequate will and resources—it could ultimately be rectified.^{4–7}

Forty years later, in 2002, we are reaching a similar juncture: the unnamable is again becoming named, and explicit investigation of racism as a harmful determinant of population health is gaining entry into mainstream public health and medical discourse. At issue are the myriad ways in which racism—and other forms of social inequality and discrimination—can adversely affect health across the life course via varied, intertwined economic, environmental, psychosocial, and iatrogenic pathways.^{8–12} The scientific question “Does racism harm health?” prompts a plentitude of hypotheses, each meriting serious scientific attention and resources.

Is it, however, novel to posit that racial/ethnic disparities in health arise from inequitable race relations? Surely not.^{13,14} Are we the first to suggest that health is harmed not only by heinous crimes against humanity, such as slavery, lynching, and genocide, but also by the grinding economic and social realities of what Essed has aptly termed “everyday racism”?¹⁵ Once again, no. In the mid-1800s, leading US abolitionists

and physicians, Black and White alike, challenged convention by arguing that the poorer health of the Black relative to the White population resulted not from innate inferiority but rather White privilege, enforced via slavery in the South and legal racial discrimination in the North.^{13,14}

The Choctaw and Cherokee nations, forcibly evicted from their homelands after the US Congress passed the Indian Removal Act in 1830, likewise understood that their health was being decimated by not only territorial but also cultural dispossession, justified in the name of White supremacy.^{16–18} Concerns about health consequences of racism clearly are not new; to suggest otherwise is to misstate the historical record. Rather, reflecting the historical impact of racial inequality on not only health but also health sciences, the stark reality is that, despite long-standing awareness of the problem, the serious scientific study of racism as a determinant of population health remains in its infancy.

One way to move to the next stage is to consider current conceptual issues in the field, given that scientific knowledge is more often spurred by clarification of our thinking than by technological breakthroughs.^{19,20} In this spirit, I address 3 interrelated issues from the vantage of an

epidemiologist guided by an ecosocial perspective^{21–23}: (1) links between racism, biology, and health, including recognition of biological expressions of race relations and racialized expressions of biology; (2) methodological controversies over how to study the impact of racism on health; and (3) debates over whether racism or class underlies racial/ethnic disparities in health.

RACISM, BIOLOGY, AND HEALTH

Clarity of terminology is critical for any science. A first step for analyzing the contribution of racism to racial/ethnic disparities in health is being explicit about definitions of racism, race/ethnicity, and the link between these concepts.^{8,23} In essence, both are interdependent expressions of inequitable and institutionalized societal race relations.^{24–26} More specifically, *racism* refers to institutional and individual practices that create and reinforce oppressive systems of race relations whereby people and institutions engaging in discrimination adversely restrict, by judgment and action, the lives of those against whom they discriminate.^{8,15}

Race/ethnicity, in turn, is a social rather than a biological category, referring to social groups, often sharing cultural heritage and ancestry, that are forged by oppressive systems of race relations justified by ideology. One group benefits from dominating other groups and defines itself and others through this domination and the possession of selective and arbitrary physical characteristics (e.g., skin color).^{8,9} Although

once trumpeted as scientific “fact,” the notion that “race” is a valid, biologically meaningful a priori category has long been—and continues to be—refuted by work in population genetics, anthropology, and sociology.^{26–34} The fact that we know what “race” we are says more about our society than it does our biology.³⁵

Why do these sorts of explicit definitions matter? Because they provide a conceptual foundation for integrating thinking about racism *and* biology as a means of understanding and investigating the impact of racism on health. Both matter. Two diametrically opposed constructs are at issue, constructs that nevertheless are routinely conflated in the scientific literature. The first is *biological expressions of race relations*; the second is *racialized expressions of biology*.^{8,23,36} The former draws attention to how harmful physical and psychosocial exposures due to racism adversely affect our biology, in ways that ultimately are embodied and manifested in racial/ethnic disparities in health. The latter refers to how arbitrary biological traits are erroneously construed as markers of innate “racial” distinctions.

Consider skin color. The biology of pigmentation and its direct relationship to certain skin-related disorders is real.^{37,38} Whether or not racism existed, people with lighter vs darker skin (i.e., less vs more dispersed melanosomes) would be at higher risk of malignant melanoma, given sufficient exposure to sunlight (and especially bad sunburns before puberty).^{38,39} By contrast, damage resulting from adverse use of skin lightening products,³⁸ as prompted by

the ideology that lighter is better, would constitute a biological expression of race relations.

Skin color, in turn, would become a racialized expression of biology if, absent any evidence, it were treated as a valid marker for other unspecified genetic traits, reflecting a presumption that the biology of “race” equals the biology of gene frequencies. This was the logic of the flawed research agenda egregiously exemplified by the Tuskegee syphilis study, unnaturally intended to determine whether the “natural history” of untreated syphilis in Blacks was the same as that previously observed in Whites, in light of hypothesized differences in their nervous systems.^{40,41}

As Cruickshank⁴² has recently pointed out, however, drawing on lessons from the Human Genome Project and systems biology,^{43,44} it is a logical and biological fallacy to assume that gene expression is equivalent to gene frequency. Consider the recent, rapid secular changes in obesity, hypertension, and diabetes among populations of West African descent living in the United Kingdom, the Caribbean, and the United States, as well as in West Africa,^{45–51} to use but one diasporic example. Only changes in gene expression, not gene frequency, can explain the speed of these trends. Even so, myriad epidemiological studies continue to treat “race” as a purely biological (i.e., genetic) variable or seek to explain racial/ethnic disparities in health absent consideration of the effects of racism on health.^{8–11,52}

By clearly distinguishing between and emphasizing the importance of taking into account

both racism and biology, these 2 constructs make clear that we can never study human biology—or behavior—in the abstract. Exemplifying that we instead study people in context is Sapolsky’s cautionary tale⁵³: If adrenal glands are studied only among cadavers of the poor, long since hypertrophied as a result of excess excretion of cortisol, then—as occurred in the early 20th century—the wealthy will be diagnosed with adrenal deficiency disorders. Simplistic divisions of the social and biological will not suffice.⁵⁴ The interpretations we offer of observed average differences in health status across socially delimited groups reflect our theoretical frameworks, not ineluctable facts of nature.

METHODOLOGICAL CONTROVERSIES

How then, methodologically, can we test the hypothesis that racism harms health? Addressing this scientific question raises several critical questions and controversies. At issue is the need for—and strengths and limitations of—studies that directly and indirectly assess the impact of racism on health, whether employing quantitative or qualitative methods.^{8–12,55} By direct, I mean health studies explicitly obtaining information on people’s self-reported experiences of—and observing people’s physiological and psychological responses to—real-life or experimental situations involving racial discrimination.⁸ By indirect, I mean studies that investigate racial/ethnic disparities in distributions of deleterious exposures or health outcomes and explicitly infer that racism underlies these disparities.⁸ Each

approach has its flaws, and both are necessary, addressing questions the other cannot.

Highlighting why both direct and indirect approaches are necessary are 5 key pathways through which racism can harm health, by shaping exposure and vulnerability to the following: (1) economic and social deprivation; (2) toxic substances and hazardous conditions; (3) socially inflicted trauma (mental, physical, and sexual, directly experienced or witnessed, from verbal threats to violent acts); (4) targeted marketing of commodities that can harm health, such as junk food and psychoactive substances (alcohol, tobacco, and other licit and illicit drugs); and (5) inadequate or degrading medical care.⁸ Also relevant are health consequences of people's responses to discrimination. These responses—each with its own set of potential health impacts—can range from internalized oppression and harmful use of psychoactive substances to reflective coping, active resistance, and community organizing to end discrimination and promote human rights and social justice.^{8–12,15,26,55}

From this perspective, the direct approach is necessary for investigating pathways pertaining to socially inflicted trauma. There is no substitute. The caveat, well recognized in the enormous body of literature on “stress” and health, is that such research must reckon with not only exposures but perceptions of these exposures, as well as cognitive issues pertaining to memory and disclosure.^{8,12,55–57} The scientific task is therefore to understand how various threats to validity can affect investigations relying on self-report

data. Potential solutions include the following: research on what constitutes valid self-report measures of racial discrimination^{8,58}; experimental studies (as conducted in the areas of housing and job discrimination) that employ “testers” of the same age, gender, and physical size, equipped with identical resumes but differing in terms of their race/ethnicity^{59,60}; or psychological and criminal justice studies investigating differences in perception of and responses to designated scenarios.^{61–63}

Notably, conduct of such studies requires appraisal of participants' racial/ethnic identity. Recent suggestions, however well intentioned, to “abandon” use of racial/ethnic categories in public health research, on grounds that “race” is not a valid scientific concept,^{64,65} err on 2 accounts.^{36,66,67} First, such an argument implies that only biological, and not social, variables are “real” and can be studied scientifically. Second, it presumes that the race/ethnicity of persons reporting experiences of racial discrimination is irrelevant, thereby rendering it impossible to distinguish between—or evaluate the health effects of—racial discrimination reported by people of color and that reported by White people.

The indirect approach, in turn, is necessary for most of the other pathways listed, precisely because they involve exposures that extend beyond individual perception.^{8,9} Knowledge of racial discrimination in wages, for example, can be obtained only if one knows what others are paid.⁵⁹ Similarly, knowledge of racial inequality in the provision of medical care, above and beyond disrespectful

interpersonal interactions, can be obtained only by comparing the types of treatment offered to groups that exhibit equivalent morbidity rates but differ in regard to their race/ethnicity.^{68,69}

Herein lies the rub. A claim recently advanced by some social epidemiologists, notably Cooper and Kaufman, is that we cannot make causal inferences based on studies comparing health outcomes across different racial/ethnic groups.^{70–72} Why? Because, they argue, such studies violate the counterfactual criterion of exchangeability. That is, people who are “exposed” should, in principle, be capable of being “unexposed.” Using this logic, their debatable example is that smokers differ from nonsmokers only because they smoke⁷²; in principle, the “treatment” of smoking could be randomized.

By contrast, according to Cooper and Kaufman, there is no way a White person could ever be or become a Black person or have the lifetime set of related experiences contingent upon being Black. The exposure of “race” is thus nonexchangeable and also, in their examples, uniform.⁷² Because commonly used statistical tests presume exchangeability, they assert that parameter estimates for racial/ethnic contrasts have no valid causal interpretation, including in relation to racial discrimination.

The fallacy of their argument is contained within their counterfactual propositions. Cooper and Kaufman in effect relegate “race” to an intrinsic trait.^{73–75} They confuse the fact that people cannot simply “choose” their race/ethnicity, in that it is conditioned by the racial/ethnic

relations of the society into which they are born, with the consequences of experiencing differential—and variable—treatment by virtue of inequitable race relations. The appropriate counterfactual is thus as follows: What would happen if people were randomized to discriminatory treatment, as occurs with racial discrimination? As is often the case in epidemiology, we cannot perform such an experiment to test this hypothesis regarding racial/ethnic disparities in health across the life course and instead must rely on observational studies.

More broadly, the counterfactual contrast is of a world with and without racism.⁷⁴ In the latter, people with darker vs lighter skin would in fact be “exchangeable”—as human beings—and thus equally at risk for all ailments other than those directly involving skin color (e.g., melanoma, vitiligo^{38,39}). This contrast, premised upon a common humanity, underlies the “tester” studies alluded to earlier regarding housing and job discrimination. It also underlies inferences made comparing health outcomes across birth cohorts; obviously, someone born in 1910 cannot be “exchanged” with or have the same set of experiences as a person born in 1940 or in 1970.⁷⁴ Birth cohort comparisons of both rates of disease and exposures, however, are critical for assessing whether cross-sectional associations—even those derived from randomized clinical trials—can in fact explain secular changes in health.^{22,76}

As with any scientific research, poorly specified counterfactuals are what threaten causal interpretation,^{77–80} and

all observational studies—not only those concerned with social determinants of health—must consider carefully their motivating counterfactuals.^{77–79} Even the smokers and non-smokers of Cooper and Kaufman’s example would, after all, violate a strict “exchangeability” criterion, because the fact and process of being a smoker brings with it an array of other correlated exposures and life histories.^{81,82}

RACISM OR SOCIAL CLASS: THE LIMITS OF “EITHER/OR” LOGIC

The third and final conceptual controversy builds on the first and second. It is the debate over whether “racism” or “social class” explains racial/ethnic disparities in health and, relatedly, which is causally prior.^{8–14,52,65,67,70–75,83,84} Typically argued with reference to the Euro-American legacy of colonization and the slave trade, the logical and historical fallacy is to frame this debate as “either/or” rather than as “both/and.” As attested to by reams of sociological and historical research, class and race relations are in fact intertwined.^{26,33,34,85–88} Since the global expansion of European power and economies in the mid-15th century and contingent territorial conquest and intercontinental slave trade, people have lived in a world of racialized class relations and class-contingent race relations.^{26,33,34,85–88} It logically follows that racial/ethnic inequalities are shaped and fostered by class inequalities, and vice versa.

The same holds for other types of discrimination that render people socially and economically

vulnerable (e.g., discrimination based on gender or sexuality).^{8,88–90} Translated to health research, it is therefore an empirical question, not a philosophical principle, whether pathways involving economic deprivation and/or noneconomic manifestations of racial discrimination contribute to racial/ethnic disparities in health. Or, put simply, the answer to the crude question “Which matters—race or class?” can be one, the other, neither, or both. This is why we need scientific research: to test competing hypotheses.

BEING EXPLICIT ABOUT RACISM: A SCIENTIFIC NECESSITY

In conclusion, recalling the example of child abuse, the point of explicitly naming and scientifically investigating racism as a determinant of population health is to generate valid knowledge to guide actions designed to improve public health. It is not to imply that racism is solely a public health or medical problem or that solutions will come primarily from public health or medical initiatives.^{91,92} Nor is health research required to “prove” that racism is “bad”; it is, by definition, and in many instances it is illegal as well.⁸ Rather, the point is that neglecting study of the health impact of racism means that explanations for and interventions to alter population distributions of health, disease, and well-being will be incomplete and potentially misleading, if not outright harmful.^{93,94} Of course, work in this field will, inevitably, be fraught with controversy, because the exposure raises important themes of

accountability, agency, and human rights.^{8,95–98}

That there are legal, political, and economic consequences of attributing disparities in health status to racial discrimination is, however, no more or less germane than it is for research on any other determinant of societal health, whether child abuse,^{1–7} ambient air pollution,^{99,100} tobacco,^{101,102} or food.^{46,103} The canard that research on health consequences of racism is “political” rather than “scientific”¹⁰⁴ is blatantly incorrect: it is in fact political and unscientific to exclude the topic from the domain of legitimate scientific inquiry and discourse.^{92,94,105} Nor is this insight new: James McCune Smith and John Rock, 2 of the first credentialed African American physicians in the United States, said as much a century and a half ago.^{13,14,106,107} Rather, the task at hand is to bring the knowledge and methods available in our generation to the pressing public health problem of persistent racial/ethnic disparities in health. ■

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References

1. Kempe CH, Silverman FN, Steele BF, Droegemueller W, Silver HK. The battered-child syndrome. *JAMA*. 1962;181:17–24.
2. Gordon L. *Heroes Of Their Own Lives: The Politics and History of Family Violence, Boston, 1880–1960*. New York, NY: Viking; 1988.

3. Asbhy L. *Endangered Children: Dependency, Neglect and Abuse in American History*. New York, NY: Twayne Publishers; 1997.
4. Merrick J, Browne KD. Child abuse and neglect—a public health concern. *Public Health Rev*. 1999;27:279–293.
5. Lynch MA. Child abuse before Kempe: an historical literature review. *Child Abuse Negl*. 1985;9:7–15.
6. Margolin G, Gordis EB. The effects of family and community violence on children. *Annu Rev Psychol*. 2000;51:445–479.
7. MacMillan HL. Child maltreatment: what we know in the year 2000. *Can J Psychiatry*. 2000;45:702–709.
8. Krieger N. Discrimination and health. In: Berkman L, Kawachi I, eds. *Social Epidemiology*. Oxford, England: Oxford University Press Inc; 2000:36–75.
9. Krieger N, Rowley DL, Herman AA, Avery B, Phillips MT. Racism, sexism, and social class: implications for studies of health, disease, and well-being. *Am J Prev Med*. 1993;9(suppl):82–122.
10. Williams DR. Race, socioeconomic status, and health: the added effects of racism and discrimination. *Ann N Y Acad Sci*. 1999;896:173–188.
11. Lillie-Blanton M, LaVeist T. Race/ethnicity, the social environment, and health. *Soc Sci Med*. 1996;43:83–92.
12. Clark R, Anderson NB, Clark VR, Williams DR. Racism as a stressor for African Americans: a biopsychosocial model. *Am Psychol*. 1999;54:805–816.
13. Krieger N. Shades of difference: theoretical underpinnings of the medical controversy on black-white differences, 1830–1870. *Int J Health Serv*. 1987;17:258–279.
14. Byrd WM, Clayton LA. *An American Health Dilemma: The Medical History of African Americans and the Problem of Race*. Vol 1. New York, NY: Routledge; 2000.
15. Essed P. *Understanding Everyday Racism: An Interdisciplinary Theory*. Newbury Park, Calif: Sage Publications; 1991.
16. Akers DL. Removing the heart of the Choctaw people: Indian removal from a native perspective. In: Trafzer CD, Weiner D, eds. *Medicine Ways: Disease, Health and Survival Among Native Americans*. Walnut Creek, Calif: Altamira Press; 2001:1–15.
17. Nabovok P, ed. *Native American*

Testimony: A Chronicle of Indian-White Relations From Prophecy to the Present, 1492–1992. New York: Viking; 1991.

18. Zinn H. *A People's History of the United States, 1492–Present.* New York, NY: HarperPerennial; 1995:124–146.

19. Fleck L. *Genesis and Development of a Scientific Fact.* Chicago, Ill: University of Chicago Press; 1979.

20. Ziman JM. *Real Science: What It Is, and What It Means.* Cambridge, England: Cambridge University Press; 2000.

21. Krieger N. Epidemiology and the web of causation: has anyone seen the spider? *Soc Sci Med.* 1994;39:887–903.

22. Krieger N. Theories for social epidemiology in the 21st century: an ecosocial perspective. *Int J Epidemiol.* 2001;30:668–677.

23. Krieger N. A glossary for social epidemiology. *J Epidemiol Community Health.* 2001;55:693–700.

24. Marshall G, ed. *The Concise Oxford Dictionary of Sociology.* Oxford, England: Oxford University Press Inc; 1994:125–126.

25. Jary D, Jary J, eds. *Collins Dictionary of Sociology.* 2nd ed. Glasgow, Scotland: HarperCollins Publishers; 1995:169.

26. Winant H. Race and race theory. *Annu Rev Sociol.* 2000;26:169–185.

27. Graves JL Jr. *The Emperor's New Clothes: Biological Theories of Race at the Millennium.* New Brunswick, NJ: Rutgers University Press; 2001.

28. Cavalli-Sforza LL, Menozzi P, Piazza A. *The History and Geography of Human Genes.* Princeton, NJ: Princeton University Press; 1994.

29. Harris B, Ernst W, eds. *Race, Science, and Medicine, 1700–1960.* London, England: Routledge; 1999.

30. American Association of Physical Anthropology. AAPA statement on biological aspects of race. *Am J Phys Anthropol.* 1996;101:569–570.

31. American Association of Anthropology. AAA statement on race. *Am Anthropologist.* 1999;100:712–713.

32. Armelagos GJ, Goodman AH. Race, racism, and biology. In: Goodman AH, Leatherman TL, eds. *Building a New Biocultural Synthesis: Political-Economic Perspectives on Human Biology.* Ann Arbor, Mich: University of Michigan Press; 1998:359–377.

33. Banton MP. *Racial Theories.* 2nd ed. Cambridge, England: Cambridge University Press; 1998.

34. Cox OC. *Race: A Study in Social Dynamics. 50th Anniversary Edition of*

“Caste, Class, and Race.” New York, NY: Monthly Review Press; 2000.

35. Krieger N, Bassett M. The health of black folk: disease, class and ideology in science. *Monthly Rev.* 1986;38:74–85.

36. Krieger N. Refiguring “race”: epidemiology, racialized biology, and biological expressions of race relations. *Int J Health Serv.* 2000;30:211–216.

37. Sturm RA, Box NF, Ramsay M. Human pigmentation genetics: the difference is only skin deep. *Bioessays.* 1998;20:712–721.

38. Taylor SC. Skin of color: biology, structure, function, and implications for dermatologic disease. *J Am Acad Dermatol.* 2002;45(suppl 2):S41–S62.

39. Armstrong BK, Krickler A. The epidemiology of UV induced skin cancer. *J Photochem Photobiol B.* 2001;63:8–18.

40. Jones JH. *Bad Blood: The Tuskegee Syphilis Experiment.* New York, NY: Free Press; 1993.

41. Reverby SM, ed. *Tuskegee's Truths: Rethinking the Tuskegee Syphilis Study.* Chapel Hill, NC: University of North Carolina Press; 2000.

42. Cruickshank JK. Ethnic health, “ecological balance,” the environment, and genes. *Ethn Dis.* 2001;11:378–384.

43. Kitano H. Systems biology: a brief overview. *Science.* 2002;295:1662–1664.

44. Keller EF. *The Century of the Gene.* Cambridge, Mass: Harvard University Press; 2000.

45. Cruickshank JK, Mbanya JC, Wilks R, Balkas B, McFarlane-Anderson N, Forrester T. Sick genes, sick individuals or sick populations with chronic disease? The emergence of diabetes and high blood pressure in African-origin populations. *Int J Epidemiol.* 2001;30:111–117.

46. Luke A, Cooper RS, Prewitt TE, Adeyemo AA, Forrester TE. Nutritional consequences of the African diaspora. *Annu Rev Nutr.* 2001;21:47–71.

47. James PT, Leach R, Kalamara E, Shayeghi M. The worldwide obesity epidemic. *Obes Res.* 2001;9(suppl 4):228S–233S.

48. Seidell JC. Obesity, insulin resistance and diabetes—a worldwide epidemic. *Br J Nutr.* 2000;83(suppl 1):S5–S8.

49. Cooper R, Rotimi C, Ataman S, et al. The prevalence of hypertension in seven populations of West African origin. *Am J Public Health.* 1997;87:160–168.

50. Rosenthal T, Shamiss A. Migration,

acculturation and hypertension. In: Bulpitt CJ, ed. *Handbook of Hypertension: Vol. 20, Epidemiology of Hypertension.* Amsterdam, the Netherlands: Elsevier; 2000:230–248.

51. Cooper RS, Rotimi CN, Kaufman JS, et al. Prevalence of NIDDM among populations of the African diaspora. *Diabetes Care.* 1997;20:343–348.

52. Muntaner C, Nieto FJ, O'Campo P. The bell curve—on race, social class, and epidemiologic research. *Am J Epidemiol.* 1996;144:531–536.

53. Sapolsky RM. Poverty's remains. *Sciences.* 1991;31:8–10.

54. Krieger N. Commentary: society, biology, and the logic of social epidemiology. *Int J Epidemiol.* 2001;30:44–46.

55. Williams DR, Neighbors H. Racism, discrimination and hypertension: evidence and needed research. *Ethn Dis.* 2001;11:800–816.

56. Stone AA, Turkan JS, Bachrach CA, Jobe JB, Kurtzman HS, Cain VS, eds. *The Science of Self-Report: Implications for Research and Practice.* Mahwah, NJ: Lawrence Erlbaum Associates; 2000.

57. Cohen S, Kessler RC, Gordon LU. *Measuring Stress: A Guide for Health and Social Scientists.* New York, NY: Oxford University Press Inc; 1995.

58. Utsey SO. Assessing the stressful effects of racism: a review of instrumentation. *J Black Psychol.* 1998;24:269–288.

59. Fix M, Struyk R, eds. *Clear and Convincing Evidence: Measurement of Discrimination in America.* Washington, DC: Urban Institutes Press; 1993.

60. Ayers I. *Pervasive Prejudice? Unconventional Evidence of Race and Gender Discrimination.* Chicago, Ill: University of Chicago Press; 2001.

61. Guyll M, Matthews KA, Bromberger JT. Discrimination and unfair treatment: relationship to cardiovascular reactivity among African American and European American women. *Health Psychol.* 2001;20:315–325.

62. Lynch M, Haney C. Discrimination and instructional comprehension: guided discretion, racial bias, and the death penalty. *Law Hum Behav.* 2000;24:337–358.

63. McConnell AR, Leibold JM. Relations among the Implicit Association Test, discriminatory behavior, and explicit measures of racial attitudes. *J Exp Soc Psychol.* 2001;37:435–442.

64. Fullilove MT. Comment: abandoning “race” as a variable in public health research—an idea whose time has come. *Am J Public Health.* 1998;88:1297–1298.

65. Stolley PD. Race in epidemiology. *Int J Health Serv.* 1999;29:905–909.

66. Krieger N, Williams D, Zierler S. Whiting-out white privilege will not advance studying how racism harms health [letter]. *Am J Public Health.* 1999;89:782–783.

67. LaVeist TA. On the study of race, racism, and health: a shift from description to explanation. *Int J Health Serv.* 2000;30:217–219.

68. van Ryn M. Research on the provider contribution to race/ethnicity disparities in medical care. *Med Care.* 2002;40:140–151.

69. Smedley BG, Stith AY, Nelson AR, eds. *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care.* Washington, DC: National Academy Press; 2002.

70. Kaufman JS, Cooper RS, McGee DL. Socioeconomic status and health in blacks and whites: the problem of residual confounding and the resiliency of race. *Epidemiology.* 1997;8:621–628.

71. Kaufman JS, Cooper RS. Seeking causal explanations in social epidemiology. *Am J Epidemiol.* 1999;150:113–120.

72. Kaufman JS, Cooper RS. Commentary: considerations for the use of racial/ethnic classification in etiologic research. *Am J Epidemiol.* 2001;154:291–298.

73. Muntaner C. Invited commentary: social mechanisms, race, and social epidemiology. *Am J Epidemiol.* 1999;150:121–126.

74. Krieger N, Davey Smith G. Re: “Seeking causal explanations in social epidemiology” [letter]. *Am J Epidemiol.* 2000;151:831–832.

75. Jones CP. Invited commentary: “race,” racism, and the practice of epidemiology. *Am J Epidemiol.* 2001;154:299–304.

76. Davey Smith G, Gunnell D, Ben-Shlomo Y. Life-course approaches to socio-economic differentials in cause-specific adult mortality. In: Leon D, Walt G, eds. *Poverty, Inequality, and Health: An International Perspective.* Oxford, England: Oxford University Press Inc; 2001:88–124.

77. Robins JM, Greenland S. Comment on Dawid. *J Am Stat Assoc.* 2000;95:431–435.

78. Winship C, Morgan SL. The estimation of causal effects from observational data. *Annu Rev Sociol.* 1999;25:659–707.

79. Little RJ, Rubin DB. Causal effects in clinical and epidemiological studies via potential outcomes: concepts and

- analytic approaches. *Annu Rev Public Health*. 2000;21:121–145.
80. Victora CG, Hutty SR, Fuchs SC, Olinto MTA. The role of conceptual frameworks in epidemiologic analysis: a hierarchical approach. *Int J Epidemiol*. 1997;26:224–227.
81. Graham H. Smoking prevalence among women in the European community 1950–1990. *Soc Sci Med*. 1996;43:243–254.
82. Heslop P, Smith GD, Macleod J, Hart C. The socioeconomic position of employed women, risk factors and mortality. *Soc Sci Med*. 2001;53:477–485.
83. Navarro V. Race or class versus race and class: mortality differentials in the United States. *Lancet*. 1990;336:1238–1240.
84. Davey Smith G. Learning to live with complexity: ethnicity, socioeconomic position, and health in Britain and the United States. *Am J Public Health*. 2000;90:1694–1698.
85. Williams E. *Capitalism and Slavery*. New York, NY: Capricorn Books; 1944.
86. Marable M. *How Capitalism Underdeveloped Black America: Problems in Race, Political Economy, and Society*. Boston, Mass: South End Press; 1983.
87. Cooper F. Back to work: categories, boundaries and connections in the study of labor. In: Alexander P, Halpern R, eds. *Racializing Class, Classifying Race: Labour and Difference in Britain, the USA, and Africa*. New York, NY: St. Martin's Press; 2000.
88. Rothenberg PS, ed. *Race, Class, and Gender in the United States: An Integrated Study*. 5th ed. New York, NY: WH Freeman; 2001.
89. Rives JM, Yousefi M, eds. *Economic Dimensions of Gender Inequality: A Global Perspective*. Westport, Conn: Praeger; 1997.
90. Badgett LMV. *Money, Myths, and Change: The Economic Lives of Lesbians and Gay Men*. Chicago, Ill: University of Chicago Press; 2001.
91. Meyer IH, Schwartz S. Social issues as public health: promise and peril. *Am J Public Health*. 2000;90:1189–1191.
92. Krieger N. The ostrich, the albatross, and public health: an ecosocial perspective—or why an explicit focus on health consequences of discrimination and deprivation is vital for good science and public health practice. *Public Health Rep*. 2001;116:419–423.
93. Schwartz S, Carpenter KM. The right answer for the wrong question: consequences of type III error for public health research. *Am J Public Health*. 1999;89:1175–1180.
94. Krieger N. Questioning epidemiology: objectivity, advocacy, and socially responsible science. *Am J Public Health*. 1999;89:1151–1153.
95. Gruskin S, Tarantola D. Health and human rights. In: Detels R, McEwen J, Beaglehole R, Tanaka K, eds. *The Oxford Textbook of Public Health*. 4th ed. New York, NY: Oxford University Press Inc. 2001;311–335.
96. *Universal Declaration of Human Rights*. New York, NY: United Nations; 1948.
97. United Nations International Convention on the Elimination of all Forms of Racial Discrimination. Available at: http://www.unhchr.ch/html/menu3/b/d_icerd.htm. Accessed April 21, 2002.
98. United Nations General Assembly. Report of the World Conference against Racism, Racial Discrimination, Xenophobia and Related Intolerance, Durban, 31 August–8 September 2001. Available at: [http://www.unhchr.ch/huridoca/huridoca.nsf/\(Symbol\)/A.Conf.189.12.En?Opendocument](http://www.unhchr.ch/huridoca/huridoca.nsf/(Symbol)/A.Conf.189.12.En?Opendocument). Accessed March 11, 2002.
99. McNeill JR. *Something New Under the Sun: An Environmental History of the Twentieth-Century World*. New York, NY: WW Norton & Co; 2000.
100. Dewey SH. *Don't Breathe the Air: Air Pollution and U.S. Environmental Politics, 1945–1970*. College Station, Tex: Texas A&M University Press; 2000.
101. Wellcome Institute for the History of Medicine, History of Twentieth Century Medicine Group. *Ashes to Ashes: The History of Smoking and Health*. Amsterdam, the Netherlands: Rodopi; 1998.
102. Kluger R. *Ashes to Ashes: America's Hundred-Year Cigarette War, the Public Health, and the Unabashed Triumph of Philip Morris*. New York, NY: Vintage Books; 1997.
103. Schlosser E. *Fast Food Nation: The Dark Side of the All-American Meal*. Boston, Mass: Houghton Mifflin Co; 2001.
104. Satel SL. *PC, M.D.: How Political Correctness Is Corrupting Medicine*. New York, NY: Basic Books; 2000.
105. Muntaner C, Gomez MB. Anti-egalitarianism, legitimizing myths, racism, and “neo-McCarthyism” in social epidemiology and public health: a review of Sally Satel's *PC, M.D.: How Political Correctness Is Corrupting Medicine*. *Int J Health Serv*. 2002;32:1–17.
106. Levesque GA. Boston's Black Brahmin: Dr. John S. Rock. *Civil War Hist*. 1980;54:326–346.
107. Smith JM. On the fourteenth query of Thomas Jefferson's notes on Virginia. *Anglo-African Magazine*. 1859;1:225–238.