Health Disparities Based on Socioeconomic Inequities: Implications for Urban Health Care

Kevin Fiscella, MD, MPH, and David R. Williams, PhD, MPH

ABSTRACT

Health is unevenly distributed across socioeconomic status. Persons of lower income, education, or occupational status experience worse health and die earlier than do their better-off counterparts. This article discusses these disparities in the context of urban medical practice. The article begins with a discussion of the complex relationship among socioeconomic status, race, and health in the United States. It highlights the effects of institutional, individual, and internalized racism on the health of African Americans, including the insidious consequences of residential segregation and concentrated poverty. Next, the article reviews health disparities based on socioeconomic status across the life cycle, beginning in fetal health and ending with disparities among the elderly. Potential explanations for these socioeconomic-based disparities are addressed, including reverse causality (e.g., being poor causes lower socioeconomic status) and confounding by genetic factors. The article underscores social causation as the primary explanation for health disparities and highlights the cumulative effects of social disadvantage across stages of the life cycle and across environments (e.g., fetal, family, educational, occupational, and neighborhood). The article concludes with a discussion of the implications of health disparities for the practice of urban medicine, including the role that concentration of disadvantage plays among patients and practice sites and the need for quality improvement to mitigate these disparities.

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Differences in socioeconomic status, whether measured by income, educational achievement, or occupation, are associated with large disparities in health status.[1] This association persists across the life cycle[2,3] and across measures of health, including health status,[4] morbidity,[5] and mortality.[6] Although effects are largest for those living in poverty, gradients of disparity are seen across the socioeconomic spectrum.[7]

This article discusses health disparities based on socioeconomic status in the context of urban health care. We begin by discussing the relationships among race, socioeconomic status, and health. We trace disparities in health based on socioeconomic status throughout the course of an individual's life and review potential explanations for this relationship. We conclude by discussing the implications of these disparities for the provision of health care to urban, low-income, and minority patients. Studies for this review were identified through selected Medline searches, bibliographic searches of key articles, and the authors' knowledge of the literature. The size of the literature on health disparities precluded a complete, systematic literature search.

Dr. Fiscella *is associate professor, Departments of Family Medicine and Community Preventive Medicine, University of Rochester School of Medicine and Dentistry, New York.* ***Dr. Williams*** *is professor, Department of Sociology, University of Michigan, Institute for Social Research, Ann Arbor.*

Correspondence should be addressed to Dr. Fiscella, 1381 South Avenue, Rochester, NY 14620; telephone: (585) 506-9484 ext. 106; e-mail: ⟨Kevin_Fiscella@urmc.rochester.edu⟩.

THE INTERRELATION OF RACE, SOCIOECONOMIC STATUS, AND HEALTH

Race, socioeconomic status, and health have historically been inextricably intertwined in the United States. Unlike most countries, however, the United States collects national health data primarily by race and not by socioeconomic status.[8] African Americans have experienced varying levels of social, economic, and political exclusion that have resulted in poorer health since their arrival on this continent as slaves several hundred years ago.[9] Historically, slavery in the United States was rationalized on the basis of racism—an ideology of oppression based on a belief in the inherent racial

biological inferiority of one race and the superiority of another.[10] The construct of race, however, is socially derived with limited biological basis.[11]

To this day, as a legacy of this oppression, African Americans experience dramatically worse health across the age spectrum, including higher adult and infant mortality.[12,13] They have significantly higher mortality rates from cardiovascular and cerebrovascular disease, most cancers, diabetes, HIV, unintentional injuries, pregnancy, sudden infant death syndrome, and homicide than do whites.[14] These health disparities have been rationalized on the basis of genetic "differences" despite evidence that genetics does not contribute significantly to these disparities.[15,16] Racial differences in socioeconomic status, not genetics, are the most important cause of these health disparities.[6]

Racism perpetuates these health disparities by operating at three distinct levels: institutionalized policies and practices that maintain racial disadvantage, individual racial discrimination and biased treatment, and internalized cognitive processes.[17] Each reinforces the others. Institutionalized racism, manifested through long-standing racial inequities in employment, housing, education, health care, income, wealth, and criminal justice, is reinforced through racist beliefs.[18] Individual racism, including unconscious bias, is manifested through discrimination in housing, banking and employment, racial profiling by police, harsher sentencing for minority defendants, lower educational expectations for minority students, and unequal medical treatment.[19] Racial stereotypes contribute to voting patterns and public policies that, in turn, reinforce institutionalized racism. Internalized racism refers to introjection of racial stereotypes by the minority group members. Internalized racism may contribute to self doubts, lower school performance, depressive symptoms, substance abuse, dropouts, and other risk behaviors.[20–22]

Residential segregation, a product of long-standing institutional and individual racism,[23] represents a fundamental cause of racial disparities in health because it perpetuates racial disparities in poverty, education, and economic opportunity that, in turn, drive disparities in health.[24] The social and spatial marginalization associated with segregation reinforces substandard housing, underfunded public schools, employment disadvantages, exposure to crime, environmental hazards, and loss of hope, thus powerfully concentrating disadvantage.[25]

HEALTH DISPARITIES ACROSS THE LIFE CYCLE

Fetal and Neonatal Health

Health disparities resulting from socioeconomic status begin early in life, but have potential for lasting effects.[26] Disparities in health potentially begin in utero because the health of the fetus is so closely linked to the health of the mother. A mother's low socioeconomic status is associated with multiple risk factors for adverse birth outcomes, including unplanned and unwanted pregnancy,[27] single and/or adolescent motherhood,[27] smoking,[28] urogenital tract infections,[29] chronic illness in the mother, and inadequate prenatal care.[30] Not surprisingly, a mother's low socioeconomic status, and to some extent the low socioeconomic status of the father, are associated with low birth weight[31]and infant mortality.[32]

Child Health

Socioeconomic disparities continue into childhood.[33] Children of low socioeconomic status have greater risks of death from infectious disease,[34] sudden infant death,[35] accidents,[36] and child abuse.[37] They have higher rates of exposure to lead poisoning[38] and household smoke.[39] They have higher rates of asthma,[40] developmental delay and learning disabilities,[41] conduct disturbances,[42] and avoidable hospitalizations.[43] They more often reside in families with marital conflict[44] and are more often exposed to intimate-partner[45] and community violence.[45] Low socioeconomic status and overcrowding are associated with infectious disease including tuberculosis[34] and *Helicobacter pylori* infection.[46] By their preteen years, children of low socioeconomic status report lower health status and more risk behaviors.[2]

Adolescent Health

Low socioeconomic status affects adolescents as well. Low socioeconomic adolescents report worse health; they have higher rates of pregnancy,[47] sexually transmitted disease,[48] depression, obesity,[49] and suicide.[50] They are more likely to be sexually abused,[51] drop out of high school,[52] or be killed.[53] Satisfaction with health, better family involvement, better problem solving, more physical activity, better home safety, having higher school achievement, and being in the best health profiles are all positively related to parental socioeconomic status during adolescence.[54]

Adult Health

By adulthood, health disparities related to socioeconomic status are striking. Compared with persons who have a college education, those with less than a high school education have life expectancies that are six years shorter.[6] People with low socioeconomic status experience higher rates of death across the spectrum of causes.[55] They experience

premature chronic morbidity and disability including the onset of hypertension at an earlier age,[56] diabetes,[57] cardiovascular disease,[58] obesity,[59] osteoarthritis,[60] depression,[61] oral pathology,[62] many cancers,[63] and cardiovascular disease.[64]

Elderly Health

Health disparities among the elderly that are related to socioeconomic status begin to narrow slightly, perhaps due to healthy survivor effects.[65] Nonetheless, elderly people of low socioeconomic status experience greater disability,[66] more limitations in activities in daily living,[67] and more frequent and rapid cognitive decline.[68] Having achieved higher educational levels tends to be associated with the prevention of functional limitations, while a higher income level is associated with both prevention and delayed progression of functional decline.[69]

EXPLANATIONS

The relationship between socioeconomic status and health is complex. Socioeconomic status has been defined as potential or realized access to resources in three major domains: material, human, and social capital.[70] Thus, it is not surprising that a relationship between socioeconomic status and health has persisted across time, place, and changes in epidemiology. Socioeconomic status represents a fundamental cause of health.[71]

Reverse Causality

Undoubtedly, poor health can result in low socioeconomic status. Persons with disabilities, whether physical or psychiatric, often achieve lower educational, occupational, and income outcomes than do persons without such disabilities. Similarly, persons who experience serious illness or disability often face unemployment or downward mobility. While health status can affect socioeconomic status, there is compelling evidence that socioeconomic status strongly affects health. Longitudinal studies have documented that low education usually predicts a decline in health.[72] Education is typically achieved during early adulthood when morbidity is relatively uncommon.[73] Furthermore, disparities have been demonstrated among the fully employed.[7] Thus, although poor health contributes to low socioeconomic status, there is convincing evidence that low socioeconomic status also causes poor health.

Genetic Confounding

Genetic factors may partly confound the relationship between health and socioeconomic status, but socioeconomic status clearly affects health independently of genetic factors. Cognitive ability[74] and personality[75] are partly genetically determined; childhood IQ[76] predicts adult survival; and personality is associated with educational attainment.[77] However, socioeconomic status in childhood has been shown to predict adult health independent of childhood IQ,[78] and quantitative genetic studies show that the effects of the level of educational attainment are independent of genetic confounding.[79] Twin studies[80] and natural experiments[42] show that neighborhood environment and the socioeconomic status of parents affect children's health outcomes. Disparities in cognitive performance related to socioeconomic status tend to diverge as children progress through school, suggesting that the detrimental effects of low socioeconomic status on cognitive ability are cumulative.[81] The available evidence shows that postneonatal-, preschool-, and school-age interventions can reduce disparities in cognitive and socioemotional development based on socioeconomic status.[82]

Social Causation

The available evidence suggests that socioeconomic status affects health through myriad pathways. As illustrated earlier, disparities in health begin early in life. There is growing evidence to support the Barker hypothesis that fetal growth restriction is associated with higher rates of obesity, hypertension, diabetes, and cardiovascular disease.[83] If this hypothesis is correct, then disparities in fetal health based on socioeconomic status likely predispose a person to disparities in adult health. Similarly, fetal exposure to the effects of maternal smoking have been linked to behavioral disorders in childhood.[84] Multiple risk factors likely combine in complex ways to affect subsequent health. One recent study found that, at 24 months, low-income children exposed to both prenatal tobacco smoke and material hardship had the highest cognitive deficits.[85]

The level of socioeconomic status during childhood independently predicts educational attainment and adult mortality.[86] The pathways through which socioeconomic status of children affects adult health include cognitive stimulation,[82] family conflict,[44] childhood abuse,[87] exposure to environmental toxins,[88] family structure,[89] divorce,[90] and autonomy support.[86] These risks appear to be additive, if not multiplicative.[91]

Inadequate cognitive stimulation, child abuse, and neglect can have lasting effects on emotional development, psychiatric health, and risk-taking behavior.[92,93] Thus, early childhood effects may affect mental functioning of adults, which

in turn can affect their physical health.[94] People with lower socioeconomic status are also at higher risk for exposure to environmental toxins including lead,[38] passive smoke,[39] air pollution,[95] cockroach excrement,[96] violent crime, alcohol stores,[97] and cigarette and smoking advertising.[98] The built environment in inner cities also adversely affects mental health.[99] Presumably, as a consequence of repeated exposure to stress and psychological trauma, children of low socioeconomic status show heightened cardiovascular response to psychological stress.[100]

Rates of unhealthy behavior, including inadequate physical activity, smoking, and poor diet, are more prevalent among persons of low socioeconomic status, but differences in these behaviors explain a relatively small portion of disparities in mortality.[101] Furthermore, disparities in these behaviors are largely socially determined.[102] They likely represent a combination of differences in the built and social environments, self-efficacy, and maladaptive responses to stress.

Lack of resources—whether financial hardship, low literacy, limited access to health care, or social marginalization—is associated with chronic stress. Exposure to chronic stress is detrimental to health because it results in continued "wear and tear," termed "allostastic load."[103] Available evidence suggests that the stress associated with low socioeconomic status has cumulative physiological effects,[104] including adverse metabolic, autonomic, and brain effects such as hippocampal atrophy.[105] Conversely, high socioeconomic status is associated with improved psychological coping, including self-efficacy and perceived control, which in turn is associated with improved health and reduced mortality.[106]

Notably, low socioeconomic status is consistently related to reduced access to quality health care.[107] Low income is associated with higher rates of reduced access to health care, higher rates of uninsurance, and absence of a regular source of care.[108] Low income and type of insurance are associated with less preventative care for children or adults[109]; lower-intensity hospital care,[110] including fewer cardiac or vascular procedures; and worse outcomes following these procedures.[111,112] Low-income persons receive lower quality ambulatory[113] and hospital care,[114] including fewer prescriptions for aspirin and/or provision of thrombolysis for myocardial infarction.[115] Absence of insurance has been consistently related to a range of adverse outcomes, including higher mortality.[116]

THE CONCENTRATION OF RISK

The effects of socioeconomic status on health are amplified because risk factors associated with low socioeconomic status tend to cluster within individuals, families, and communities. Risk factors are further concentrated by racial and socioeconomic residential segregation.[117] Moreover, each of the three domains of socioeconomic status (material, human, and social capital) are correlated with each other. Consequently, a person with little education is at risk for being low income and jobless. People of low socioeconomic status likely share a household with others of the same status and reside in a low-socioeconomic-status community. Although there are more poor white than black persons in the United States, one reason for the greater adverse impact of poverty on African Americans is that poor blacks are markedly more likely than are their white peers to reside in high-poverty residential areas.[25] Even if the health of a person of low socioeconomic status has not yet been affected, there is greater risk for ill health among his or her family members. Furthermore, living in a community of low socioeconomic status is associated with higher cardiovascular mortality independent of the socioeconomic characteristics of the individual.[118] Low-income children, particularly those living in racially segregated communities, typically attend schools where risk factors are further concentrated. Given these contextual effects, persons with low socioeconomic status are more likely to be exposed to crime, violence, and drug trafficking, and they are less likely to be exposed to successful role models[119] or social networks that facilitate upward mobility.[120] The cumulative toll from these concentrated risk factors can be devastating to individual, families, and communities.

IMPLICATIONS FOR URBAN MEDICINE

Most health care provided to the urban poor is delivered by safety-net providers,[121] including hospital outpatient clinics, community health centers, and other not-for-profit organizations. However, this safety net of providers is endangered.[122] Half of all community health centers have endured financial crises,[123] and many struggle to retain physicians.[124]

Unique Challenges

Providers serving urban, low-socioeconomic-status, minority patients will be confronted with clinical, logistical, paperwork, and administrative challenges. Their work is more clinically challenging not simply because patients suffer greater levels of biomedical morbidity, but also because this morbidity is embedded within a complex web of psychosocial morbidity. Physicians are likely to confront problems in communication and shared understanding that are related to differences in language, culture, and health literacy.[125] Unlike suburban practices where patients often present with single problems, patients in low-income, urban practices often present with a complex array of problems.[126] For

example, it is not uncommon to see low-income minority women with diabetes, hypertension, hyperlipidemia, obesity, arthritis, depression, and low levels of health literacy who are overwhelmed by financial hardships and family problems. Working with the urban poor means working with patients who not only have greater biopsychosocial morbidity and risk factors,[4] but also have far fewer resources at their disposal to cope with these problems.[127]

The number of patients presenting with complex biopsychosocial problems can be overwhelming to urban health care providers. Patients with low levels of health literacy require more time, not less, to explain treatment.[128] Posttraumatic stress management among refugees requires working across differences in language and cultural beliefs.[125,129] Specialty services are often not easily available for the uninsured.[130] Caring for a handful of such patients is challenging. Caring for multiple patients with complex needs can be overwhelming in the absence of adequate systems of care. Preventive care services may be neglected in the face of multiple and competing providers' demands.[131] Access to specialist, diagnostic, and behavioral health services may be limited.[132]

Providing medical care to urban low-income populations also poses administrative challenges. Appointment-time scheduling can be problematic. Missed appointments are significantly higher at practices with patients from low socioeconomic status.[133] A patient coming in for a routine diabetes checkup might suddenly disclose that she is homeless or that her son has been murdered. Practices frequently compensate for missed appointments by overbooking patients, which results in long wait times for patients.

Paperwork demands are considerable. These include certification of employability for welfare, assessment of temporary or long-term disability, worker's compensation, disabled parking permits, case management, job training, childcare certification, school enrollment, Medicaid preauthorization for medications, transportation services, increase in Medicaid visit or medication thresholds, and medication refills. Although completing paperwork has become routine in primary care, the volume is magnified in practices with patients of low socioeconomic status who often lack adequate ancillary support.

Despite the greater amount of time and expense required to work with low-income patients, reimbursement is significantly lower. Medicaid reimburses physicians at significantly lower rates than does other insurance.[134] Moreover, most persons living at or below federal poverty are not eligible for Medicaid[135,136]; many have no health insurance or have health care coverage that fails to cover needed prescriptions, and high prescription costs deter adherence.[137] Even among patients with private insurance, reimbursement may be lower. Existing billing codes do not adequately capture the complexity, time, and expense involved in caring for patients in low-socioeconomic-status urban areas. For example, use of language interpreters can add from six to nine minutes to office visits.[138] Given these challenges, it is hardly surprising that many physicians eschew working with poor[139] or uninsured patients.[140]

Health Care Quality

Despite these challenges, providing quality health care in urban practices is feasible.[141] Community health centers in particular have been shown to provide care comparable to that provided to more advantaged populations.[142] Providing quality care requires not only sound clinical skills, but also the ability to effectively integrate biomedical, psychological, and social factors; cultural competency; and patient-centered care.[143] It also requires the presence of systems designed to promote quality.[144] Reminder systems for busy health care providers can mitigate the effects of competing demands, tracking systems help ensure follow-up on abnormal results, chronic disease registries can be used to promote adherence to treatment guidelines, and outreach can be extended to hard-to-reach patients.[145] Electronic technology systems can facilitate these tasks.[146] Same-day appointment scheduling can improve access and reduce no-show rates.[147] On-site interpretation services are critical.[148]

Implementation of these measures should reduce disparities in health care quality based on patients' racial, ethnic, or socioeconomic status and facilitate progress towards the Healthy People 2010 goal of eliminating disparities in health. However, achieving this goal will likely require more than the elimination of disparities in health care; it will require a sustained national commitment to addressing the fundamental causes of disparities in health.

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From the Archives

THE EMERGENCY ROOM IN THE TEACHING HOSPITAL

1966

Visits to the emergency rooms, including those of metropolitan teaching hospitals, have increased fourfold or more over the past fifteen years. This coupled with the fact that modern medicine permits us to expend more effort on each patient, particularly in resuscitation procedures, has resulted in a critical situation; and the question which must be answered is how the teaching hospital can cope with this fantastic work-load and, at the same time, provide a suitable learning environment for medical students and housestaff.

. . . The first step is to study the emergency room in its present situation to find out who the patients are, where they originate, why they come, to which socioeconomic and cultural groups they belong, what their problems are, which other sources of medical care they use, and the like. This will permit the hospital and the emergency room to understand better the role they play and to become oriented toward community needs.

The second step is to set up a multidisciplinary diagnostic clinic where the representatives from medicine, surgery, psychiatry, and obstetrics and gynecology can work with ancillary medical personnel to determine what each patient's needs are. Then an orderly program of care must be set in motion with the aid of social workers, family counselors, welfare officers, public health nurses, rehabilitation experts, physical and occupational therapists, and others. The teaching hospital's clinic then becomes a base from which radiates out into the community a coordinated plan of health care.

GABRIEL HILKOVITZ, MD
Medical College of Virginia

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