



CHAPTER TWO

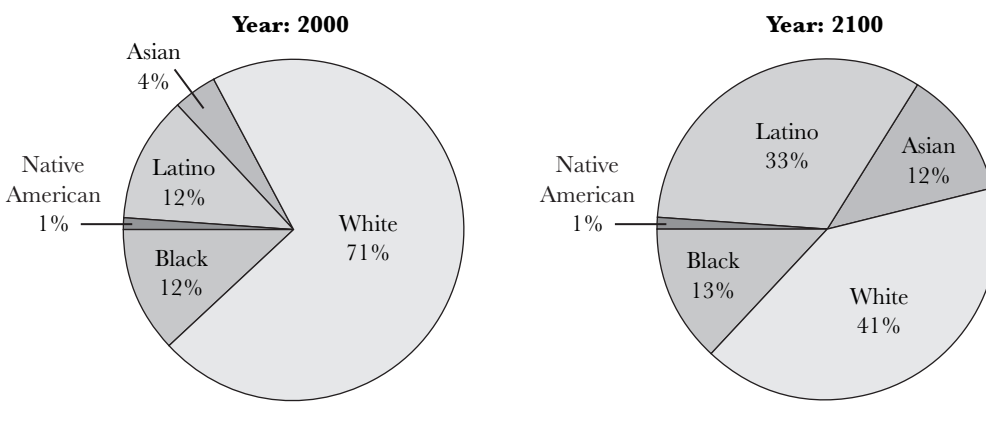
ETHNIC DISPARITIES IN HEALTH STATUS

Antronette K. Yancey
Roshan Bastani
Beth A. Glenn

During the past one hundred years, dramatic gains have been made in the overall health of the U.S. population. One common, albeit gross, indicator of the general health of a population is life expectancy, which increased by thirty years during the twentieth century.¹ Because of the adverse social conditions attendant to slavery, Reconstruction, and the Jim Crow legislation of that era, it is understandable that the life expectancy of blacks lagged substantially behind that of whites in 1900. It is unconscionable that, although the gap has narrowed in some areas, ethnic disparities in health status that existed at the turn of the twentieth century persist as we enter the twenty-first century.

There is ample evidence that ethnic minorities experience higher rates of morbidity and mortality across many disease states.² Historically, the ideals of social justice and equality have served as the impetus for eliminating health disparities.³ Although these factors remain compelling, the growing diversification of the U.S. population is an additional rationale for eliminating inequity. Figure 2.1 presents data on the ethnic distribution of the U.S. population in 2000 and projections for 2100. According to the 2000 census, slightly more than 70 percent of the population was white, with the remaining 30 percent made up of ethnic minorities (less than 5 percent Asian, more than 10 percent African American, more than 10 percent Latino/Latina). Ethnic minorities are projected to constitute more than 50 percent of the total population by 2060, with the largest growth expected to occur among Latinos and Asians. In addition, the relative youth of

**FIGURE 2.1. U.S. POPULATION (2000 CENSUS)
AND PROJECTIONS FOR 2100.**



ethnic minority populations currently will magnify existing disparities in the future, as the average age of the entire population advances, particularly among minority groups. Therefore today, and increasingly in the future, the overall health and economic well-being of the U.S. population can be maintained and enhanced only by addressing ethnic disparities in health status and their determinants.

Because the disease burden over the past century has shifted from communicable to chronic diseases, inequality in chronic disease burden represents one of the most critical areas of health disparities today. Chronic diseases account for more than 75 percent of health care expenditures and deaths annually.⁴ This is in contrast to the early 1900s, when chronic disease accounted for less than one-quarter of all deaths.⁵ Despite steady improvement in the health of all Americans, ethnic minorities continue to experience poorer health status, especially with regard to chronic disease. In fact, the current obesity epidemic threatens to end the steady rise in overall life expectancy of the past two centuries and contributes disproportionately to chronic disease disparities. Therefore this chapter describes current health status disparities, reviews the potential determinants of observed disparities, and outlines future directions for policy and practice, with specific emphasis on the contribution of chronic disease.

Epidemiology of Health Disparities

In this section, we review the evidence related to ethnic disparities in major health indicators.

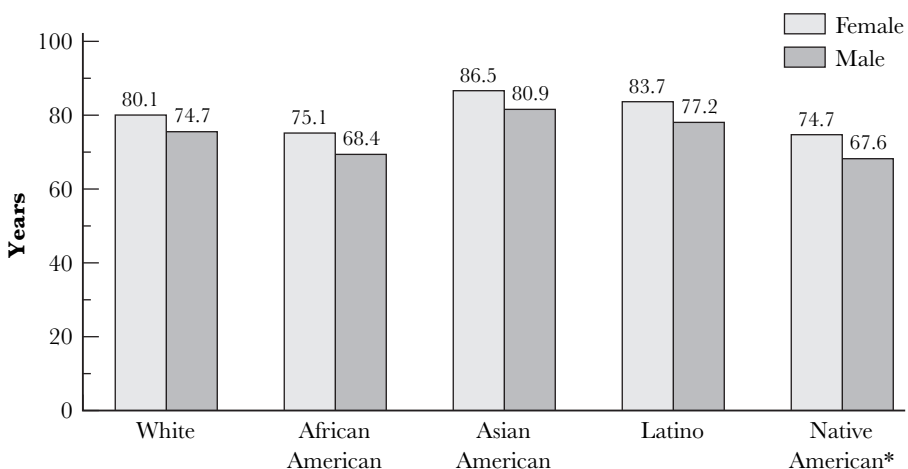
Life Expectancy

Life expectancy is one of the summary statistics most commonly used to describe the health of a population. During the past century, we have seen a dramatic increase in life expectancy, from less than forty-seven years in the early 1900s to more than seventy-seven by the year 2002.⁶ Although increased life expectancy has been observed for all ethnic groups, ethnic disparities in life expectancy remain fairly constant. Figure 2.2 shows the average life expectancy by ethnicity and gender according to population-based data from 1999.⁷ Within each ethnic group, women have a higher life expectancy than men. However, substantial differences are found among ethnic groups regardless of gender. The longest average life expectancy is seen among Asian women (86.5 years) and the shortest among American Indian and Alaska Native men (67.6), a difference of more than eighteen years. In general, Asians have the longest life expectancy of any ethnic group, followed by Latinos, whites, African Americans, and American Indians.

Major Causes of Mortality

Although life expectancy provides global information about disparities, it does not inform us about the underlying causes. Table 2.1 shows the top ten causes of mortality for all adults living in the United States in 2002, the relative rank of each cause within ethnic groups, and age-adjusted death rate. For the overall population, chronic diseases comprise six of the top ten causes of death. Heart disease

FIGURE 2.2. LIFE EXPECTANCY BY ETHNICITY AND GENDER.

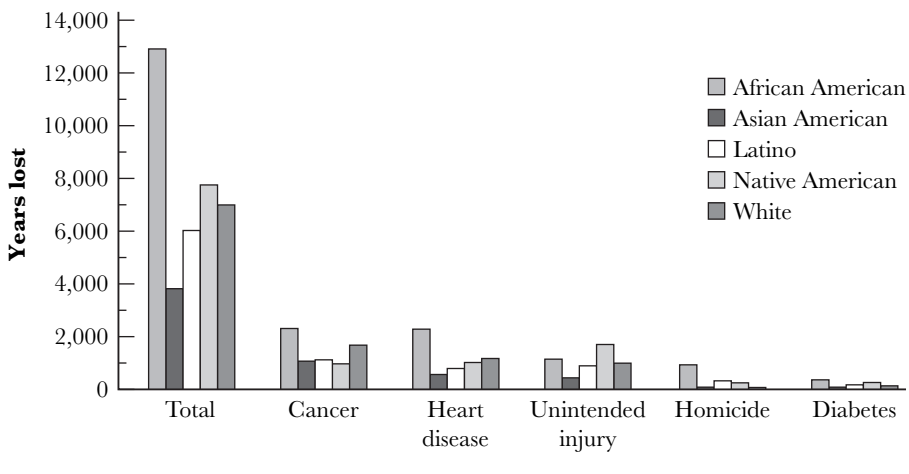


ranks number one for all ethnic groups except Asian Americans. However, the mortality rate from heart disease is not equal among the groups. African Americans rank highest, followed by whites, Latinos, American Indians, and Asian Americans. Cancer is the second leading cause of death for all groups except Asian Americans, for whom it ranks first. Cancer mortality rate is highest among African Americans, followed by whites, Latinos, American Indians, and Asian Americans and Pacific Islanders. The death rate for the most common cancers (breast, lung, prostate, colorectal) varies by ethnicity in a pattern similar to overall cancer mortality. African Americans and whites are most likely to die of these cancers, followed by Latinos and Asian Americans and Pacific Islanders. However, for some less common cancers, such as stomach and liver, Asian Americans and Latinos have the highest observed death rate. Cerebrovascular diseases constitute the third leading cause of death overall. African Americans are most likely to die of cerebrovascular disease, followed by whites, Asian Americans and Pacific Islanders, Latinos, and American Indians. The death rate for chronic lower respiratory disease, the fourth leading cause overall, is highest among whites and lowest among Asian Americans and Pacific Islanders. Unintentional injuries are the fifth leading cause of death overall but third for American Indians and Latinos. American Indians have a substantially higher frequency of death from unintentional injury than all other groups. Several causes of death, although not among the top ten for the overall population or whites, pose a significant health risk to ethnic minorities. For example, African Americans, Latinos, and American Indians have substantially higher death rates from homicide than whites and Asian Americans. Similarly, HIV/AIDS ranks higher among African Americans and Latinos than for the other ethnic groups.

Years of Potential Life Lost

Examining the years of potential life lost from specific causes of death is another way of assessing health status. Figure 2.3 presents data regarding the years of potential life lost for all ethnic groups 2000.⁸ YPLL-75, or the years of potential life lost before age seventy-five, indicates the average per 100,000 persons, assuming that each person would otherwise live to age seventy-five. Similar to the pattern observed for life expectancy, significant health disparities remain, despite improvement in this health indicator across all ethnic groups during the past twenty years. Across all causes of death, African Americans have the highest average YPLL, followed by American Indians and Alaskan Natives, whites, Latinos, and Asian Americans and Pacific Islanders. The YPLL for African Americans is more than three times that of Asian Americans and Pacific Islanders, and nearly twice as high as the YPLL for whites. The two largest contributors to the disproportionately high YPLL rate among African Americans are cancer (17.8 percent of

FIGURE 2.3. YEARS OF POTENTIAL LIFE LOST BY ETHNICITY (PER 100,000).



all YPLL) and heart disease (17.6 percent). Among American Indians and Alaskan Natives, the most important contributors to YPLL are unintentional injury (21.9 percent) and heart disease (13.3 percent). For whites, cancer (24 percent) and heart disease (16.9 percent) account for the highest proportion of YPLL. Cancer is the most important contributor to YPLL among Latinos, accounting for 18 percent of all YPLL, followed by unintentional injury (15.2 percent).

Morbidity

It is important to examine morbidity, in addition to mortality, as an indicator of health status. This indicator incorporates the observation that some common diseases markedly impairing quality of life often do not result in shortened life span or in death. Arthritis and rheumatism are a common cause of disability in the United States, accounting for 17 percent of cases of disability among individuals fifteen years or older.⁹ The second most common cause of disability is back or spinal problems (13.5 percent). It should be noted that neither disability appears as a common cause of death. Five of the remaining leading causes of disability can be considered chronic diseases: heart problems (11.1 percent), lung or respiratory problems (6.8 percent), hypertension (5.1 percent), diabetes (3.9 percent), and stroke (2.5 percent).

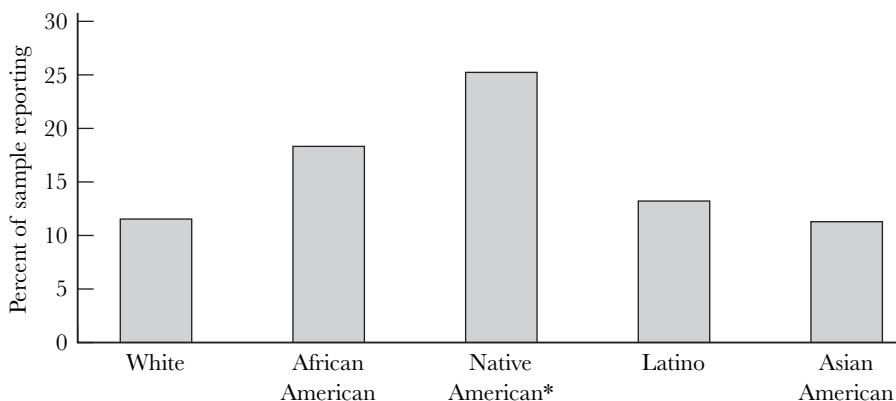
Another method of assessing ethnic differences in disability is to calculate the disability-free life expectancy or to assess the limitation of activity that is due to

chronic conditions. Disability-free life expectancy is the percentage of the life span an individual can expect to live free of major disability. Whites and Asian Americans and Pacific Islanders enjoy the longest life expectancy free of disability (82 percent), followed by Latinos (78 percent), African Americans (74 percent), and American Indians and Alaskan Natives (69 percent). Figure 2.4 presents data regarding limitation of activity caused by chronic conditions, by ethnicity.¹⁰ Approximately 25 percent of American Indians and Alaskan Natives report experiencing a limitation in instrumental activities of daily living (IADL), or activities related to independent living such as preparing meals, managing money, personal shopping, and housework. African Americans have the second highest rate, with 18 percent reporting such limitation. More than 13 percent of Latinos report an IADL limitation. Asian Americans and whites have the lowest rate of limitation in IADL (fewer than 12 percent). Of note, this indicator is one of the few that finds Latinos to have slightly poorer health than whites.

Epidemiology of Health Disparities: Summary

Across all the indicators of health status mentioned here, African Americans are the most disadvantaged. This is a reflection of four centuries of exploitation and oppression—forced immigration, enslavement, and brutal subjugation during the majority of their tenure in the United States. The advances of the civil rights movement, heralding greater (but far from equal) educational, housing, and employment opportunities, encompass less than 10 percent of their history in this

FIGURE 2.4. LIMITATION IN INSTRUMENTAL ACTIVITIES OF DAILY LIVING, UNITED STATES, 2002.



country. They experience the highest mortality rates for heart disease, cancer, type 2 diabetes mellitus, and cerebrovascular disease. In addition, homicide and HIV/AIDS emerge as leading causes of death among African Americans, but not for the overall population. Other significant health issues that affect African Americans in particular are high incidence rates of obesity, infant and maternal mortality, and smoking among middle-aged men. Infant mortality is a particularly critical health concern for African Americans. In 2002, the African American infant mortality rate (13.9 infant deaths per thousand live births) was more than two times the rate for Latinos, whites, and Asian Americans and Pacific Islanders (each fewer than 6 per thousand live births),¹¹ and the gap has widened appreciably during the past two decades.¹² Although the infant mortality rate decreases with higher education, the rate for African Americans exceeds that for all other ethnic groups at every level of education.¹³ The African American infant mortality rate for women with the highest level of education is higher than that for women with the lowest level of education from other ethnic groups.

Latinos as a group have lower mortality rates from most of the leading causes of death. This is despite the fact that they exhibit many of the socioeconomic characteristics consistently associated with poor health status, such as lower income and level of education. This phenomenon has been labeled the “Latino or Hispanic Paradox,”¹⁴ and it is far more pronounced for mortality than morbidity statistics (for example, type 2 diabetes mellitus). Several hypotheses have been advanced to explain this paradox, although the root causes remain unknown. Among the explanations for the paradox are lack of reliable data, the possibility that many older Latinos return to their native country when they become ill or are close to death, difference in risk factors for the major causes of death, cultural factors, and the suggestion that migration to the United States occurs principally among the healthiest individuals from the home country. It is also important to note that data on Latinos are often aggregated across a diverse group of people of differing nationalities, ethnicities, and races as well as varying migration history (which may mask disparities among subgroups). For example, although Latinos experience a lower death rate from all cancers combined as well as for the most common cancers (lung, colon, prostate), they have higher incidence rates of stomach, liver, gallbladder, and cervical cancer than whites and the general population.¹⁵ Finally, Latinos are the fastest-growing population in the United States, amplifying the importance of more fully understanding the health of this group. Recent data on the effect of acculturation on health status among Latinos indicate that health status declines with increasing acculturation,¹⁶ as is seen for example in the rise of obesity and type 2 diabetes mellitus in this group.¹⁷

In terms of overall mortality, the rate for American Indians is lower than for African Americans but higher than for whites, Latinos, and Asian Americans.¹⁸

However, they are the most disadvantaged with respect to disability-free life expectancy, and the second most disadvantaged when health status is measured by potential years of life lost. Research on the health of American Indians and Alaskan Natives has been hampered by lack of data. When data are collected on race and ethnicity, American Indians and Alaskan Natives are often coded as “other” and combined with other groups. Even when studies specifically recruit samples of American Indians, as in the Behavioral Risk Factor Surveillance System, small sample size can make a population estimate unreliable and unstable, and the methods used to collect data (such as telephone interviews) often fail to reach a representative sample of this small and unique population.¹⁹ The health of American Indians was negatively affected originally when European settlers brought diseases that were previously unknown to native populations. Since that time, American Indians have endured substantial hardship and oppression, negatively affecting their health status. Three of the top ten health threats for American Indians are not among the top ten for the total U.S. population: chronic liver disease (sixth), suicide (eighth), and homicide (tenth). In addition, unintentional injury ranks third as a cause of death in this group.²⁰ Alcohol abuse is considered a key underlying cause for the higher mortality from these four causes of death. Data from the Behavioral Risk Factor Surveillance System found that binge drinking (consuming five or more drinks on one occasion in the past month) among American Indians or Alaskan Natives was quite prevalent. The rate within the American Indian and Alaskan Native sample was 18.9 percent, compared to 14.3 percent for whites, 8.7 percent for African Americans, 16.2 percent for Latinos, and 6.7 percent for Asians.²¹ Type 2 diabetes mellitus also ranks relatively high as a cause of death within this ethnic group (third) compared to the overall population (sixth), and it is pervasive among such tribes as the Pima and Zuni.²²

The Asian American and Pacific Islander population has been referred to as the “model minority,” given their wealth and better health status as reflected in a variety of indicators. However, there are a number of critical issues to consider in understanding the health of this population. As with Latinos, immigration may select for the healthiest individuals. The category Asian American and Pacific Islander encompasses an extraordinarily diverse group of people originating from many countries with widely varying socioeconomic characteristics, immigration history, culture, and social standing in the United States. Unfortunately, the majority of research studies to date have collapsed all individuals of Asian descent into one category. This aggregation masks considerable subgroup differences for general indicators such as mortality as well as for incidence of particular diseases. For example, Asian Indian women have the highest life expectancy (88.1 years), whereas Pacific Islander men have a life expectancy among the lowest at 70.5 years.²³ Vietnamese have the highest mortality rates for cervix and liver cancers

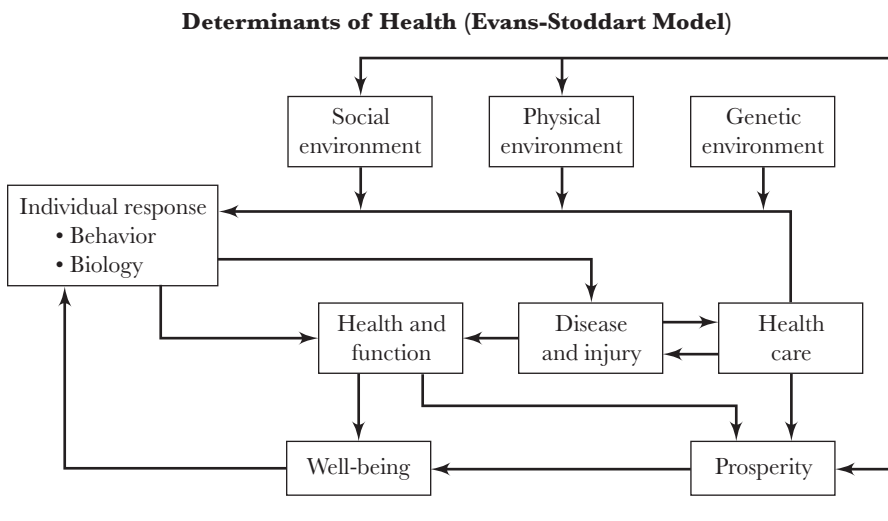
while the Japanese have the lowest.²⁴ In addition, as among all immigrant groups, increasing acculturation is often linked to diminished health status.²⁵ Asian Americans as a group present a unique opportunity to examine the effect of acculturation by examining the incidence of certain conditions across groups with more recent immigration history (for example, Koreans) compared to those who have lived in the United States for many generations (Japanese). An illustration of this effect can be found in recent data showing that although Japanese women residing in Japan have one of the lowest rates of breast cancer in the world, Japanese women residing in Los Angeles County have overtaken white women with respect to breast cancer incidence.²⁶

Factors Underlying Chronic Disease-Related Disparities

Paralleling our focus on the major disease states compromising health in describing the epidemiology of ethnic disparities in health status, in this section we emphasize the underlying factors responsible for the majority of morbidity, disability, and mortality. McGinnis and Foege's classic article²⁷ identified the *actual* causes of more than 80 percent of "preventable" mortality as diet, physical inactivity, tobacco, and alcohol. Thus we highlight these behavioral risk factors in presenting the underlying contributors to a broad spectrum of health status disparities. It is important to keep in mind that the actual cause of more than half of all deaths is not known, and thus identified determinants or risk factors generally explain only a modest amount of the variance in most disease processes.

Of the many theoretical models of determinants of health, we have elected to use the Evans-Stoddart model to depict the broad categories of variables contributing to health (see Figure 2.5) and as an organizing framework for our discussion of those most closely linked to disparities.²⁸ We have selected several categories of determinants to be highlighted in detail, on the basis of the malleability of the determinant and the availability of data.

Specifically, we discuss behavioral, socioeconomic, and physical and social environmental factors that influence individual response, focusing especially on current areas of scientific investigation in public health. Although we recognize that behavioral and biological responses often overlap, we focus on the behavioral variables. The genetic contribution to observed racial and ethnic variation in health is considered minor, and consequently is not examined here. Race and ethnicity are essentially a sociocultural and ideological construct, as reflected in the considerable genetic variation within racial groups and relatively little consistent between-group variation (consider the general failure of efforts to link racial phenotypes to biological typologies).²⁹ Disparities in health care access and utilization

FIGURE 2.5. THEORETICAL FRAMEWORK.

are also associated with health disparities but are not discussed in this chapter; they are the subject of Chapter Three, by Morales and Ortega.

Behavioral Risk Factors

Individual behaviors are the final common pathway through which genetic, economic, physical, and social environmental factors influence health. They are symptomatic of the major contributors to health disparities to be discussed later. Public health surveillance of these behaviors or conditions allows quantification of adverse exposure and disease as a bellwether of future disease incidence, providing an opportunity for targeted intervention.

Obesity is increasingly recognized as a major driver of chronic disease disparities.³⁰ Rates of being overweight and of obesity (defined as a body mass index [BMI] at or greater than 25 kg/m² and 30 kg/m², respectively) are increasing across the population but even more rapidly in certain ethnic groups: including African Americans, Latinos, American Indians, and Pacific Islanders.³¹ Physical inactivity and poor dietary quality—the antecedents of obesity—are commensurately more common in ethnic minority groups in general except Asian Americans, though certain healthful dietary components are more often consumed in these groups (legumes among African Americans and Latinos, fruits and vegetables among Latinos).³² Asian Americans as a group have lower incidence of being

overweight or obese.³³ However, the negative health effects of being overweight begin to occur at a lower BMI among Asian Americans compared to individuals of other ethnicities. Lower socioeconomic status is associated with obesity, but higher socioeconomic status is less protective against obesity for African Americans than for Latinos and whites.³⁴

Tobacco use varies in form and prevalence among ethnic groups. Twenty-two percent of American adults are currently smokers, 25.2 percent of men and 20 percent of women.³⁵ The overall rate of tobacco use among African Americans is similar to the overall population (22.4 percent). However, among African American women it is 18.7 percent, slightly lower than the national average for women.³⁶ Compared to whites, African Americans tend to start smoking at a later age and are more inclined to attempt to quit smoking but less likely to succeed. The later age at initiation of smoking among African American women is reflected in a lower relative risk of obstructive lung disease compared to white women.³⁷ The smoking rate among Latinos (16.7 percent) is lower than for the general population and is especially low among Latinas (10.8 percent).³⁸ American Indian and Alaskan natives have the highest tobacco use of all ethnic groups at 40.8 percent overall, equal among men and women. A higher proportion of American Indian and American Indian tobacco users use smokeless tobacco products compared to the general population. Asian Americans and Pacific Islanders smoke at the lowest rate (13.3 percent overall), although it has been observed that use for Asians varies widely among Asian subgroups and between genders, and it may increase with acculturation. Tobacco consumption among adolescents from all ethnic minority groups appears to be on the rise.

Alcohol use patterns also vary considerably across ethnic groups. In general, men have a higher rate of alcohol use and heavy drinking than women. Whites have more alcohol use across all age groups; however, problem-related drinking and the negative consequences of alcohol are more prevalent among African Americans, American Indians and Alaskan Natives, and Latinos than whites. Several studies have found that American Indians and Latinos of Mexican origin may be particularly likely to be dependent on alcohol.³⁹ Alcohol use among Asians, although lower than for other ethnic groups, has been found to vary widely within ethnic groups and a higher rate is seen among U.S.-born people than in immigrant populations.

Ethnic disparities in health status have traditionally been ascribed to poor health behaviors, primarily those described here, and to limited access to health care. It has become increasingly clear, however, that individual-level behavioral variables are closely linked with environmental-level variables that govern the ease or difficulty of access to healthy or unhealthy options and choices. These environmental exposures are further examined in the later discussion of socioeconomic, physical, and social environmental influences.

Socioeconomic Status

Poverty is the most powerful determinant of health,⁴⁰ with African Americans and Latinos substantially overrepresented among households in poverty.⁴¹ Children of color are even more impoverished—for example, in Los Angeles County 21 percent of Asian Americans and Pacific Islanders, 37 percent of African Americans, and 46 percent of Latino children live at or below the poverty level, compared with 9 percent of whites.⁴²

However, higher income inequality, rather than absolute deprivation, may also have an adverse influence on health.⁴³ Several theories have been advanced to explain the relationship between income inequality and adverse health outcomes.⁴⁴ The psychosocial pathway theory postulates that inequality affects health through individual perceptions of low position in the social hierarchy, which in turn can have an effect on biological response (for instance, blood pressure) or maladaptive behavior (smoking, homicide). The material deprivation pathway theory proposes that inequality affects health through an accumulation of negative exposures and lack of resources held by individuals at the bottom of a social hierarchy. There is evidence that income inequality is growing in the United States, with the income of the upper 1 percent of the population growing 139 percent between 1979 and 2001 to more than \$700,000, while the income of the middle fifth rose by just 17 percent (to \$43,700) and the income of the poorest fifth rose only 9 percent.⁴⁵

Researchers often use singular indicators of SES such as income, education, or occupational attainment interchangeably. However, the interaction among these indicators may differ by ethnic group. For example, formal education does not have the same socioeconomic return for blacks as for whites.⁴⁶ At the same level of education, research has found, whites have higher income and occupational attainment as compared to blacks. Furthermore, there is evidence to indicate that, at an individual level, increasing SES does not have the same benefits on the health of blacks compared to whites.⁴⁷ Data indicate that even at a higher level of education, blacks experience poorer physical health outcomes such as increased infant mortality compared to whites.⁴⁸

Finally, community-level socioeconomic measures have not been adequately captured in most analyses examining the effect of SES on health. Research has shown that socioeconomic characteristics of the neighborhood in which an individual lives (average income, percentage of unemployment) predict morbidity and mortality above and beyond individual characteristics.⁴⁹ Ethnic minorities are significantly more likely to live in disadvantaged or resource-poor communities relative to whites. A study by Jargowsky⁵⁰ found that though only 6 percent of poor whites lived in a high-poverty area in 1990, 34 percent of poor blacks and 22 percent of poor Latinos lived in such areas. A recent analysis of a fairly socioeconomically

homogeneous multiethnic sample controlled for twelve community-level variables (among them robbery arrests and income inequality). However, disparities persisted in coronary heart disease risk, obesity, and hypertension among black women compared to white women.⁵¹ Pathways by which these community-level variables influence health are elaborated later in this section.

Physical Environmental Influences

Many tobacco control efforts implemented over the past two decades have focused on creating changes in the physical environment. The success of these efforts in reducing smoking speaks to the powerful influence of the physical environment on health behaviors. Some of the most effective tobacco control efforts have included federal laws prohibiting tobacco sales to minors, state smoking bans in public places, and federal and state policies that encourage a smoke-free workplace among grant recipients. Although many policies and laws have been enacted, adherence to and enforcement of these controls is lower in communities of color. In addition, the shift in focus of tobacco marketing to the developing world, where few such controls have been implemented, results in the addiction of many Asian American and Latino men who later immigrate to the United States.

Researchers are now beginning to elucidate the link between ecological factors, such as access to high-quality or poor-quality food, and the onset of such conditions as cardiovascular disease and diabetes.⁵² Studies show that minority neighborhoods have fewer supermarkets and fewer high-quality food options.⁵³ Other studies demonstrate that African American neighborhoods have a disproportionate number of fast food restaurants.⁵⁴ In addition, diners in lower-income, minority neighborhoods have fewer healthy options available to them in restaurants, in both food selection and preparation.⁵⁵ These areas have been termed “food deserts” by English researchers.⁵⁶ Numerous studies demonstrate that regular consumption of fast food can lead to higher BMI, contributing to obesity and related illnesses.⁵⁷ Recent studies also link periodic food insecurity to overconsumption, obesity, and poor mental health.⁵⁸

Product consumption preferences and purchasing behaviors are also influenced by commercial advertising, marketing, and promotion. There is increasing evidence of concentrated media marketing and advertising of a range of commercial products targeted to specific ethnic groups that may contribute to health risk behavior disparities, especially tobacco, alcohol, and nutrient-poor food consumption.⁵⁹ Severely constraining billboard and television advertising and counteradvertising campaigns (adolescent-targeted social marketing to counter the claims of tobacco industry advertising) are credited with contributing to decreased tobacco use. However, the decrease in, for example, tobacco billboard advertising has been accom-

panied by more advertising of other unhealthy products. For example, billboards in predominantly African American and Latino neighborhoods in Chicago were found to advertise alcohol five times as frequently as those in predominantly white areas.⁶⁰ Similarly, fewer advertisements for healthier food and beverage products are found in magazines and television shows targeting African Americans compared to those targeting “general audiences,” and a significantly greater number of advertisements for unhealthy products.⁶¹ In addition, Lewis and her colleagues⁶² have recently identified substantially more point-of-sale advertising and promotions, with many more for unhealthy than healthy foods, in restaurants in lower-income African American and Latino communities in Los Angeles County than in its more affluent white communities. This commercial marketing is also likely to influence physical activity and sedentary behavior patterns (automobile and other private transportation usage, audiovisual electronic media consumption), and work is beginning in this area to elucidate these relationships.

Though less studied than its influence on nutritional intake, the influence of physical surroundings on physical activity patterns has recently received much attention. Lower-income and minority neighborhoods have fewer recreational facilities, private or community gardens, less safety (perceived and actual), insufficient lighting, and urban design with few concessions to pedestrians.⁶³ Interestingly, the major difference is that lower-income neighborhoods have fewer free recreational facilities (such as parks) compared to higher-income neighborhoods, although no differences are observed for frequency of paid usage facilities (such as gyms). In addition to these environmental stressors or disincentives (which also include noise, traffic congestion, and information overload), environmental psychologists point to neighborhood disorder (less “defensible space,” incivility) exerting a negative influence on physical activity and restorative features such as foliage, water, and spatial vistas that reduce stress positively influencing physical activity.⁶⁴

Health-compromising physical characteristics of workplace and residential environments are well characterized elsewhere and are only summarized here. Workplace and residential environmental characteristics have been found to influence multiple health outcomes, in particular intentional and unintentional injury, disability, chronic disease morbidity, and mortality. Potential exposures occurring in these environments include noise, toxic chemical or biological hazards (tobacco smoke, lead, asbestos, dioxin, tuberculosis, vehicle emissions), hazardous equipment, hazardous natural elements (ionizing and nonionizing radiation, heights, bodies of water, heat), poor ergonomic design of equipment, lack of adherence to safety protocols or safety equipment usage, traffic hazards, poorly maintained streets and sidewalks, and firearms. People of ethnic minority background are more likely to work and live in an environment that can have a detrimental effect on health.

Social Environmental Influences

As has been illustrated here, socioeconomic position explains many, but not all, of the ethnic differences in health status. For example, 1979–1989 life-expectancy differentials between white men earning less than \$10,000 and those earning more than \$25,000 were less than those for black men in similar economic circumstances (-6.6 years vs. -7.4 years, respectively).⁶⁵ This might be interpreted to indicate that poverty exerts a greater negative influence on mortality among blacks than whites. Recent evidence points to additional explanations for the more adverse effect of poverty on the health of people of color:

- Cumulative effects of prolonged exposure to individual stressors
- Long-term effects of an early childhood or prenatal environment of deprivation⁶⁶
- Reaction to macrosocial factors. In today's world, social comparisons extend beyond what was formerly possible only at the neighborhood level. Marketing by mass media to children and adolescents fosters a desire for goods and services (enjoyed by affluent whites) that are beyond the means of working and middle-class families.

Racial and ethnic discrimination is the primary social environmental influence cited, given that negative attitudes toward individuals from ethnic minority groups are still commonplace⁶⁷; racism may also interact with other forms of discrimination, based on gender, sexual orientation, disability, or age.⁶⁸ Social experiences are translated and transformed into biological responses (“embodied”), enhancing or eroding health.⁶⁹ Thus social disparities mediate gene expression, which is the greater contributor to health disparities than gene frequency (genotype).⁷⁰ A full explication of this topic is beyond the scope of this chapter. Here we briefly summarize the major issues attendant to investigation of the association between discrimination and health outcomes.

Epidemiological investigation of the health effects of discrimination has used three main approaches⁷¹:

1. *Indirect, individual-level*, inferring discrimination when established risk factors do not fully explain ethnic differences in health outcomes; for example, formal education does not produce the same returns in improved health for blacks as whites, similar to its lesser return in wealth and income.⁷²
2. *Direct, individual-level*, examining association between self-reported discrimination and particular individual health outcomes (blood pressure, peptic ulcer disease).
3. *Institutional, population-level*, examining association between group-level measures of discrimination and population health outcomes

The major mediators of the relationship between discrimination and health are:⁷³ economic and social deprivation (for instance, diminished access to goods and services, substandard education, poor health care); exposure to hazardous physical, chemical, and biological agents (lead-based paint, parasites); socially inflicted trauma (mental, physical, or sexual abuse or neglect); and targeted marketing of legal and illegal health-compromising substances (tobacco, energy-dense but nutrient-poor foods). These mediators exert their influence through psychological and physiological responses to perceived or internalized discrimination among those discriminated against, and individual and institutional policies and practices by those perpetrating discrimination that produce socioeconomic disadvantage or personal injury. One common example of the latter is work-related stress. Relegation to a position not commensurate with one's talents, or to certain types of lower-status job, increases the likelihood of an individual being subjected to high psychological demands with little decisional latitude or control or social support, an independent contributor to coronary heart disease risk.⁷⁴ Another example is reflected in the political expedience of the generalized stigmatization of people of Middle Eastern and South Asian descent following the 2001 terrorist attacks in the United States carried out by Islamic radicals—presenting an interesting parallel to the stigmatization of Asians following the Japanese attack on Pearl Harbor.

Factors and Influences: Summary

Socioeconomic status (SES) is a major contributor to ethnic disparities in health. In fact, ethnicity is frequently a proxy for SES in public health research and surveillance, because the dramatic skew in the income distribution of African Americans and Latinos compared to whites and acculturated subgroups of Asian Americans precludes appropriate SES matching. Lower SES is responsible for increased exposure to many of the physical and sociocultural environmental conditions contributing to health risk behaviors and compromising health status, among them long-term effects of the early childhood or prenatal environment.

However, income inequality may also be an important contributor to poorer health, and economic indicators demonstrate that the gap between rich and poor is increasing dramatically while opportunities for upward social mobility are declining.⁷⁵ This disproportionately disadvantages ethnic minority populations and likely contributes to ethnic health disparities. In addition to absolute or relative economic deprivation, recent evidence suggests that the health of ethnic minorities may be negatively affected by macrosocial factors such as the mass media's promotion of social comparisons beyond what can be observed at the neighborhood level.

Racial and ethnic discrimination is the primary social environmental contributor to health disparities, exerting both acute or immediate effects (anger, hostility)

and cumulative effects of prolonged exposure to individual stressors. Discrimination also influences the physical environment, through institutional policies and practices on the part of those perpetrating discrimination that produce socioeconomic disadvantage or personal injury.

Future Directions and Policy Implications

Population demographic shifts, including both aging and ethnic diversification, will further increase attention to and need for programmatic and policy intervention to eliminate health disparities. In particular, as the obesity epidemic strains the health care system and otherwise increases societal economic burden, there is clearly a need for a shift in health policy focus, and ultimately the health services funding focus, from treatment to disease prevention and health promotion. The increasing contribution of obesity-related disparities to overall health disparities and burden of disease will also drive this necessary shift; a range of sectors must engage in structural and systemic change to stem the epidemic.

The paucity of data, from public health practice surveillance, observational epidemiological research, and in particular policy and programmatic intervention evaluation or research, constitutes a major concern in this or any discussion of disparities. Our ability to identify, understand, and monitor progress in addressing disparities is severely limited by the underrepresentation of people of ethnic minority and low-income backgrounds in surveillance and research.⁷⁶ In both surveillance and research, data must be disaggregated and sufficiently “local” (beyond city or county to zip code and census tract, to really reach communities or neighborhoods) if we are to accurately capture and monitor disparities and assess and refine intervention efforts.

The existence of positive ethnic disparities (rate of disease and risk behavior in ethnic minority populations lower than for whites) or attenuation of disparities in relation to the severity of socioeconomic disadvantage is noteworthy. A number of sociocultural protective factors create resilience and mitigate the effects of adversity. Such factors within the Mexican and Central American Latino communities may include the effect of strong identification with the culture of origin on healthy food choices,⁷⁷ and family and neighborhood cohesion creating optimal birth outcomes.⁷⁸ The lower level of nonmalignant lung disease among African American women and lower smoking rate among African American adolescents may reflect a protective response to discrimination manifested in active resistance to tobacco company exploitation of the black community, as in organizing to prevent introduction of the Uptown cigarette brand. Having role models and mentors has been associated with such positive outcomes as ethnic identity,

academic achievement, physical activity, and self-esteem in adolescence.⁷⁹ Also, a lower level of overweight self-perception may protect against eating disorders, poor body image, and sedentary behavior in Latinos, Pacific Islanders, and African Americans.⁸⁰ The sociocultural environment may in fact be as important as the physical environment in supporting physical activity participation,⁸¹ as reflected in the comparable physical activity of Pacific Islanders and whites.⁸² The fact that, for example, dancing or movement to music is normative throughout adulthood in African American, Latino, and other communities of color along with their collectivist rather than individualist values are cultural assets that may increase receptivity to intervention approaches reintegrating brief bouts of physical activity into organizational (that is, workplace) routines.⁸³

In addition, the relative health advantages observed for Asian Americans and Latinos are likely to dissipate over time, given the negative effect of acculturation on health status. Also, the health indicators that show the greatest benefit for Latinos and Asian Americans—life expectancy and death rate—do not yet reflect significant changes in risk factor status occurring over the past ten years. For example, among immigrants obesity and tobacco use, poorer dietary quality, and lower level of physical activity have been correlated with increased length of stay in the United States.⁸⁴ “Softer” measures, such as self-reported disability and lower perceived health status, are already more common in these groups than among whites, a harbinger of excess future disease and death.

For all these reasons, health services policy and health care organizations must extend beyond their accustomed boundaries of medical care delivery to address the physical, social, and economic environmental conditions undergirding health disparities. Changes in the health care system will have a diminishing influence on the health status of the population without immediate, careful, and considerable attention to eliminating health disparities.

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