

Socioeconomic Status and Health

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As early as the twelfth century, it was recognized that people at the lowest socioeconomic levels in the community have higher death and illness rates. This pattern has been observed throughout the world, regardless of whether the major causes of death and disability were from infectious or noninfectious diseases and regardless of how socioeconomic position was measured.¹⁻¹⁶ Certainly the overwhelming majority of diseases addressed by *Closing the Gap* fit this pattern.

A study we conducted in Alameda County, California,¹⁷ demonstrated a difference in survival over an 18-year period for people with various levels of family income.¹⁸ As shown in Figure 1, improved survival was associated with higher socioeconomic position. Those who had higher incomes at the beginning of the study survived better. At the end of the 18-year period, the death rate for persons with inadequate income was twice that for those with adequate income. Data for the United States show similar results. For example, in one analysis of a sample of 340,000 deaths in 1960,¹⁶ it was found that in every age group white men with incomes below \$2,000 had mortality rates approximately 50 percent higher than all other men.

The prevalence of specific diseases among lower socioeconomic groups is also higher.¹⁹ For example, in 1972 people with incomes less than \$3,000 had three times the rate of heart disease as those with incomes greater than \$15,000. The burden of diabetes was almost 3.5 times greater in the poorest group. Similarly, rates of anemia and arthritis were 2.5 times higher for the poor.

Table 1 lists other health problems that are more severe in the lower socioeconomic levels. The most obvious explanations are inadequate medical care,

low income, poor nutrition, unemployment, race, and hazardous living circumstances. However, these possible explanations are inadequate for two reasons. First, although it is true that higher rates of morbidity and mortality occur among those in the lowest socioeconomic group, high rates are not exclusive to that group. Instead, a gradation of rates is often seen, increasing from the highest socioeconomic level to the lowest. It is difficult to argue that those at level 2 or 3 have inadequate medical care or nutrition or that they live in hazardous circumstances, and yet those at levels 2 and 3 have higher rates of disease than those at levels 1 and 2, respectively. The issue posed by the observation of higher disease rates relative to socioeconomic position is not simply that of position based on the subject's amount of money or of poverty compared with near-poverty or affluence, but of other factors as well.

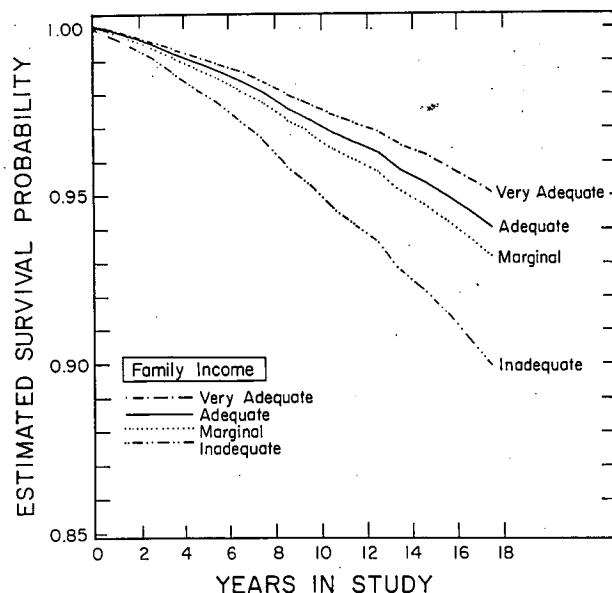


Figure 1. Eighteen-year survival of Alameda County, California, residents by family income.¹⁷ Family income was adjusted for family size compared with federal standards.¹⁸

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Table 1. Health problems that are more frequent at lower socioeconomic levels in the United States

Total mortality
Heart disease
Arthritis
Diabetes
Hypertension
Angina
Epilepsy
Rheumatic fever
Respiratory infections
Anemia
Lung cancer
Esophageal cancer
Sino-nasal cancer
Infant and child mortality
Neural tube defects
Tuberculosis
Unintentional injury
Low birth weight
Decreased survival from cancer
Decreased survival from heart attack
Restricted activity and bed days
Days in short-term hospitals
Number of hospital discharges

The second reason for doubting the most obvious explanations for the observed gradient is that so many organ systems are affected. Although one could understand how poor nutrition, inadequate medical care, or a hazardous environment might explain higher rates of one or even several diseases and conditions, the gradients by socioeconomic position involve virtually every disease of almost every organ system and also include such causes of death as accidents, suicide, and murder.

Furthermore, even within specific organ systems, the gradients of disease are not easily explained. In one study of cardiovascular disease among 18,000 British civil servants, it was possible to examine the contribution of serum cholesterol, smoking, and blood pressure to this gradient of cardiovascular disease.²⁰ Those in administrative classifications had the lowest death rates from coronary heart disease, followed by those in professional/executive positions, clerical, and other occupations. However, even when an adjustment for the major cardiovascular risk factors was made, the gradient of disease associated with socioeconomic position persisted. Other investigators of cardiovascular disease^{6,21} have arrived at similar conclusions. Similarly, the differences in survival of breast cancer associated with socioeconomic position remain even when the stage of disease at diagnosis is taken into account.²²

Because socioeconomic position and race are re-

lated, racial differences in risk factors or medical care are often proposed as explanations for gradients of disease associated with socioeconomic position.²³ However, socioeconomic gradients are found within racial and ethnic groups,^{24,25} and, in some cases, socioeconomic position may actually account for what appear to be racial differences in health.²⁶

A recent study²⁷ that we carried out in Oakland, California, further illustrates our difficulty in providing a simple explanation for the observed differentials in mortality from all causes among different socioeconomic groups. The mortality rates of people who resided in a federally designated poverty area of Oakland were compared with those who resided in other areas of Oakland. The poverty area was defined on the basis of census data on unemployment, income, and other markers of disadvantage. This area is a ten-mile-long strip on the western side of Oakland that is divided from the remainder of the city by an interstate highway and composed of residences alongside warehouses, manufacturing industries, and railways. During the years 1965-1974 the mortality rates in this population were considerably higher than for persons living in nonpoverty areas. Many factors that might have explained this difference in mortality were examined, but none could account for it. After adjustment for interarea differences in income, baseline health status, lack of medical care, unemployment, race, smoking, alcohol consumption, relative weight, physical activity, and several psychological factors, mortality rates in the poverty area were still 47 percent higher than in the nonpoverty area. Given these findings and others, it seems important to identify other risk factors that might account for a generalized vulnerability to many diseases among persons in lower socioeconomic positions.

The consistent evidence for socioeconomic position as a generic risk factor is overwhelming, and it is surprising that so little attention has been given to this factor in health promotion and disease prevention efforts. Perhaps one reason is the presumed impossibility of altering socioeconomic position. Socioeconomic position is often conceptualized as an amalgam of financial, educational, and occupational influences, but this does not necessarily help us understand why it exerts an influence on health. However, there is an underlying framework that can both help us understand socioeconomic position and develop interventions to reduce the associated health risks.

We believe that the important underlying characteristics of socioeconomic position relate to demands and resources. Specifically, those at low so-

cioeconomic levels face greater environmental demands, both physical and social, and have fewer resources to deal with these demands. By resources, we include system resources such as money and access to medical care, interpersonal resources such as social support, and personal resources such as coping styles.

This conceptualization, which combines demands and resources, may help to explain why not all persons of low socioeconomic position become ill. For example, a person living in a high crime area on a fixed income may have better health if she or he has friends and neighbors on whom to rely for help than another person who lives in the same circumstances but has fewer social connections.

Furthermore, the balance between demands and resources changes as one moves up the socioeconomic ladder. Although demands may increase, resources increase even faster. Such a view of socioeconomic position is important because it suggests that changes in demands and resources may help to alleviate the burden of illness associated with lower socioeconomic status.

There are examples of interventions that help overcome socioeconomic risks. It has been shown in several studies that high physical and psychological demands and factors such as monotonous and repetitive work lead to higher rates of cardiovascular disease, especially in workers who have little control over the pace and timing of work or contact with coworkers.²⁸⁻³⁰ Job design interventions such as those related to flextime or autonomous work units change the balance of demands and resources, and the evidence suggests a resultant lowering of rates of disease.³¹⁻³³ High demands and low resources in the work environment have also been shown to be associated with higher rates of risk behaviors such as smoking. Because of this, workplace smoking cessation programs are unlikely to be effective unless they also direct attention to reduction of demands and increase of resources.

Changes in the balance of demands and resources are also possible in maternal and child health. Educational interventions provide children with additional resources in the form of cognitive and social skills, which counteract some of their environmental demands. Interestingly, a recent 22-year follow-up study of Head Start enrollees reported significant gains in health for those enrolled compared with others not enrolled.³⁴ Prenatal programs have demonstrated lowered rates of low-birth-weight infants and perinatal mortality in association with increases in medical, behavioral, and social resources, which favorably affect the balance of demands and resources.^{35,36}

Finally, in poor neighborhoods, intervention efforts that have focused on demands and resources appear to be associated with improved health among residents. A program now under way in the Tenderloin area of San Francisco³⁷ is aimed at increasing social ties among isolated, elderly, and poor residents of this area. Reductions in neighborhood crime and improved food access have already been accomplished, and there are some indications of improved health. Bringing residents of these areas together to work on common problems has allowed them to develop social resources that have reduced some of the environmental demands in these locations. These heightened social resources in combination with system resources such as Meals on Wheels, home health aides, and other services show real promise in improving the health of residents in these areas.

It is possible to estimate the impact on health of changes in socioeconomic position. For example, the nationwide indirect and direct costs associated with cardiovascular diseases were over \$25 billion in 1977.³⁸ If the bottom 25 percent of the socioeconomic distribution had had the same disease rates as the median income category, there would have been a quarter of a million fewer cases of heart disease in 1972. This would have resulted in a savings of \$3.3 billion annually. Of course, these figures do not include the costs of pain, suffering, and family disruption associated with cardiovascular disease.

Similar estimates for lung cancer lead us to equally striking conclusions. If white men and women with 1970 incomes less than \$6,000 had had the same rates of lung cancer as those with incomes of \$8,000-\$13,000, there would have been approximately 12,000 fewer cases of lung cancer, a reduction of approximately 13 percent.²⁶ This decrease in the incidence of lung cancer would have resulted in a savings of \$661 million in 1977 dollars.³⁹

In 1980, those in the lowest 20 percent of the income distribution had more than twice the number of disability days per person than those at the median income level.⁴⁰ If this lowest group had had the same number of disability days as the average group, there would have been a net savings of over 194 million disability days. Looking only at savings for those who were working full time or keeping house, and using conventional cost-of-illness techniques, we translate this to an annual savings of \$5.75 billion.⁴¹

In summary, we believe that socioeconomic position represents a true generic risk factor worthy of consideration in *Closing the Gap*. A substantial burden of illness is associated with lower socioeconomic position in the United States. Socioeconomic

position also exerts an influence on the acquisition and maintenance of other generic risk factors. Interventions that focus on demands and resources can reduce the substantial toll of socioeconomic position on medical costs, lost productivity, and human suffering.

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