SOCIOECONOMIC CONSIDERATIONS IN THE HEALTH OF URBAN AREAS

GEORGE A. KAPLAN, PhD

INTRODUCTION

The United States is an increasingly urban country. According to the 1990 census, over 75% of Americans live in urban areas, compared with just over 50% in 1920 and approximately 40% in 1900. Indeed, in 1990, almost one-third of the population lived in the central cities of metropolitan areas.[1] While there has been much discussion of the political and social consequences of urbanization, there has been relatively little examination of the overall health status of urban areas or the reasons for variations in health status between areas, which are substantial. For example, Fig. 1 summarizes data on the 50 largest metropolitan areas; the data are taken from a study of the mortality experience of over 260,000 persons who participated in the Current Population Survey.[2] Figure 1 shows the areas with the lowest and highest standardized mortality ratios and positions the New York City data for white and African-American males and females. A level of 100 represents the average level of age-adjusted mortality; values over 100 represent excess mortality beyond what would be expected from the age distribution of the area given the overall experience among these areas. As can be seen, there is substantial variation. However, the reasons for these variations are unknown.

It is a plausible hypothesis that socioeconomic factors account for a good deal of this variation in the health status of urban areas. A massive body of evidence indicates that the socioeconomic position of individuals is strongly associated with their health; that there is a relationship between the socioeconomic level of communities and areas and the health of populations who live in these areas; that income and wealth distribution in communities are determinants of health

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Dr. Kaplan is Professor and Chair, Department of Epidemiology, School of Public Health, University of Michigan, 109 South Observatory Street, Ann Arbor, MI 48109–2029.
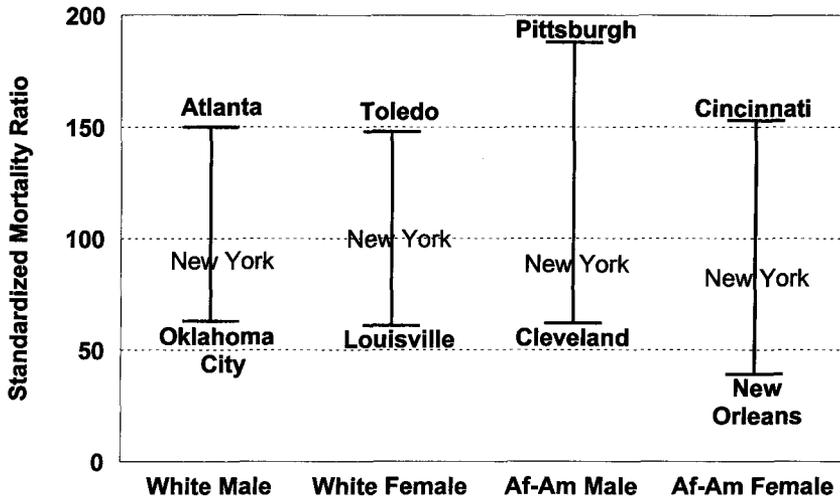
FIG. 1 Relative mortality in the 50 largest metropolitan statistical areas (100 = average), National Longitudinal Mortality Study, of those aged 45–64 years (n = 262,811). Adapted from Rogot et al., 1992.[2]

even beyond average levels of income and wealth; and that spatial inequalities in income and wealth distribution are also important determinants of the health of urban areas.

SOCIOECONOMIC POSITION OF INDIVIDUALS AND THEIR HEALTH

The observation that the socioeconomic level of individuals is associated with their present and future health goes back hundreds of years; a voluminous body of evidence elaborates on these early observations. This literature has been reviewed in a number of sources.[3-9] The overall picture is of an inverse relationship: health risks increase with decreasing socioeconomic position. This pattern generally holds regardless of era, geographical location, measure of social position, or health outcome. For the outcomes for which a direct association is not found (e.g., incidence of breast cancer), survival is worse among those with lower socioeconomic position. The graded nature of the inverse association indicates that it is not determined solely by the worse health of those at the bottom of the economic ladder.

As judged by a count of published articles, there has been a dramatic increase in the amount of research devoted to studies of socioeconomic effects on health.[10] After a decline from the late 1960s to early 1980s, there was a 58% increase during the last decade in the number of articles published per month and listed in MEDLINE that listed as descriptors "social class, socioeconomic factors, income, or poverty." For the 1993–1996 period, this resulted in over 170 articles per month. Informal inspection suggests that the number increased to over 190 articles per month in 1997. Much of this recent literature continues to document in

increasing detail the nature of the association between socioeconomic position and health,[11] the impact of socioeconomic changes on health status,[12,13] life-span issues,[14-16] and the behavioral, social, psychologic, and biologic pathways that connect socioeconomic position with health risks and trajectories.[17-19]

The health status of the population in an area is related to the average level of income in that area. For example, in analyses of the mortality experience of 239,187 persons in the National Longitudinal Mortality Study, Anderson et al.[20] found that median census tract income was associated with the age-adjusted risk of death. White males aged 25 to 64 years who lived in census tracts with a median income less than $16,200 had, during the period 1979 to 1989, a risk of death that was 60% higher than those who lived in census tracts where the median income was $22,900 or higher. The risk of death was elevated 36% for white women and 83% and 63% for African-American males and females, respectively. Diez-Roux and colleagues[21] found that the age-adjusted prevalence of coronary heart disease was generally associated with the median housing values of the census block groups where study participants lived, although the magnitude of the effect varied somewhat by community of residence. For example, among female study participants who lived in Washington County, Maryland, those who lived in block groups with median housing values of approximately $60,000 or less had four times the prevalence of coronary heart disease compared with those living in areas with median housing values greater than approximately $120,000.

At larger levels of geographic aggregation, the associations between average level of socioeconomic position, measured by median income, and health status are significant, but weaker. For example, among the 50 largest cities, per capita income has a −0.38 correlation with age-adjusted mortality rates before age 75.[1] Examining the 282 US metropolitan areas, the correlation between per capita income and age-adjusted mortality rates was found to be −0.28[22] Finally, the correlation between age-adjusted 1990 mortality rates for states and median state income levels is also −0.28.[23] While these correlations are all statistically significant and may be associated with substantial excess mortality, their modest strength indicates that it may be necessary to look elsewhere for additional factors to explain the health status of urban areas.

SOCIOECONOMIC STATUS OF COMMUNITIES AND THE HEALTH OF POPULATIONS

Communities, like individuals, vary in many aspects of socioeconomic status. In some studies, aggregate measures of socioeconomic status are simply taken as substitutes for individual measures. While this method has methodologic problems,[24] it may still be profitable to use aggregate measures. The critical issue

is that they should not be interpreted as "proxies" for individual status, but instead as indicators of the impact of contextual factors associated with the geographic unit of aggregation.[25-27]

During the last decade, there has been increasing interest in such analyses, and there is now considerable support for the assertion that socioeconomic characteristics of places have an impact on individual health above and beyond individual socioeconomic position. One such study used data collected as part of the Alameda County Study, an ongoing longitudinal study being conducted in northern California.[28] The nine-year risk of death was found to be increased approximately 50% in residents of a federally designated poverty area compared with those who did not live in the poverty area. This increased risk of death persisted when statistical adjustments for individual income, education, race, occupation, and a wide range of behavioral, social, and psychologic covariates were made. In the same way, Anderson and colleagues[20] and Diez-Roux and colleagues[21] found that area socioeconomic characteristics were strong predictors of health status independent of individual socioeconomic measures. While the exact pathways that link characteristics of places, health risks of individuals, and the health status of populations remain to be discovered, these studies strongly indicate that this is a fertile area for further investigation of the causes of variations in urban health profiles.

INCOME DISTRIBUTION AND THE HEALTH OF URBAN POPULATIONS

In addition to the impact of the average level of socioeconomic well-being on individual and population health, an increasing body of evidence now indicates that the relative equity of income distribution may also be an important determinant. Much of the evidence for this at an international level is eloquently summarized in a recent book by Wilkinson.[29] In a number of analyses, Wilkinson finds a strong association between the equity of income distribution and life expectancy for countries: countries that distribute income more equitably have citizens with a greater life expectancy. This relationship also holds among US states.[23] There is a strong correlation ($r = -0.62$) between age-adjusted mortality rates for the states and the share of total household income received by the population in each state that is the least financially well off. Similar results were found by another group of investigators using a different measure of equity of income distribution.[30] Importantly, these results were all found to be independent of state differences in median income levels or poverty rates. Moreover, equity of income distribution predicted 1980–1990 mortality trends, and changes in the equity of income distribution also predicted mortality trends (Fig. 2).[23]

In addition to mortality rates, equity of income distribution, independent of
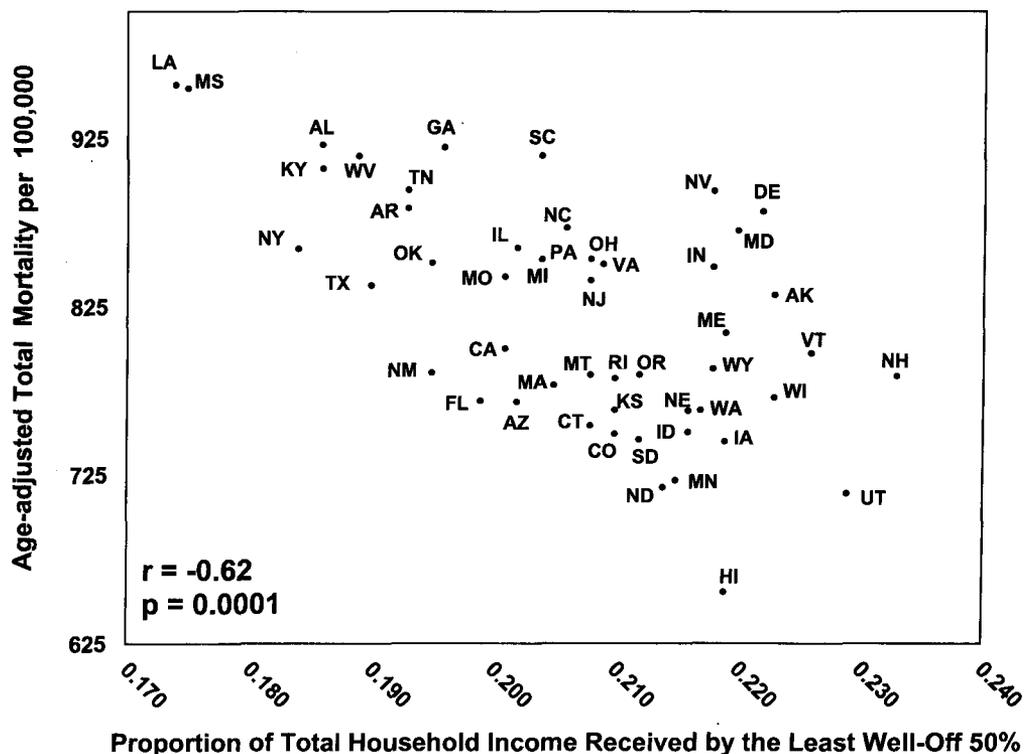
FIG. 2 Income inequality and age-adjusted mortality, US states, 1990. Adapted from Kaplan et al., 1996.[23]

median income, was also found to be associated with state rates of low birth weight, disability, violent crime, homicide, costs of medical expenditures, unemployment, incarceration, food stamp and Aid to Families with Dependent Children (AFDC) recipients, high school dropouts, fourth-grade reading and math scores, state investments in education, and books per capita in public libraries. In subsequent analyses, the relationship between equity of income distribution in metropolitan areas and mortality was also found to be strong.

When this association was examined for metropolitan areas in the United States, income inequality continued to have a strong association with mortality, stronger, in fact, than the association with per capita income levels.[22] In this case, when the influences of per capita income and income inequality were combined, the effects were substantial. There was an excess mortality rate of 140 deaths per 100,000 when comparing metropolitan areas in the lowest quartile of equity of income distribution and per capita income with those in the highest quartile. This excess mortality burden is equivalent to the total burden in 1995 from lung cancer, diabetes, motor vehicle accidents, human immunodeficiency virus (HIV) infection, suicide, and homicide.

These initial studies suggest that the nature of income distribution may affect

urban health well above and beyond the effect associated with differences in average income or wealth. However, the findings are still too recent to identify pathways or interventions that would be critical to investigate. The data are consistent with a basic hypothesis that has two intertwining strands.[31] Inequitable income distribution may be associated with social processes and policies that systematically underinvest in human, physical, health, and social infrastructures. In addition, the perception of this may result in a series of processes that have direct physiologic consequences. Both strands may then come together to produce and support the decline in civic society and social capital, which has been of recent concern.[29]

SPATIAL INEQUALITIES IN THE DISTRIBUTION OF INCOME AND POPULATION HEALTH

Areas differ with respect to average levels of income, the equity with which that income is distributed, and the associated material, social, and symbolic processes. New evidence suggests that inequalities within and between areas may have major health significance. Pamuk and colleagues studied the determinants of the 1989–1991 mortality levels of the 50 largest US cities (E. R. Pamuk, K. E. Heck, G. A. Kaplan, and J. W. Lynch, unpublished data). They included in their analyses city measures of per capita income, income inequality (defined by the ratio of the share of income held by the top quintile to that held by the bottom quintile in each city), segregation, and housing values as a proxy for wealth measures. Most important, they also included the same measures for the portions of the metropolitan areas that surrounded each city. In multivariate models, the strongest predictors of the city mortality levels were both income inequality within the cities and inequality between the city and the surrounding areas. Thus, the health of the residents of urban areas is determined by the equity of income distribution within the city, as well as by the economic disparities between the city and the surrounding areas. These results suggest a pervasive health effect of development forces, which peripheralize services and wealth outside urban centers.

CONCLUSION

An overwhelming body of evidence, only a small part of which could be reviewed in this paper, supports the following:

- Socioeconomic factors are strongly associated with health and trends in health in both individuals and populations.
- Both average levels of income and wealth and their distribution are important.
- In effect, economic policy is an important component of health policy.

• We still know relatively little about the ways in which socioeconomic forces influence both the material and symbolic lives of communities.

Given that socioeconomic factors causally precede the risk factors that are so often the focus of public health interventions, they should be considered within the armamentarium of public health. The available evidence suggests that such an approach might well provide the foundation for a 21st century urban health agenda.

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