

# Comment: Income, Inequality, and Social Cohesion

Putting together a coherent picture of how income and mortality are and are not related may provide unexpected insights into the socioeconomic determinants of health. In this issue of the *Journal* McDonough et al. make a valuable addition to the growing body of evidence that suggests that substantial increases in mortality are associated with persistent low income and with income insecurity.<sup>1</sup> But are relationships between mortality and income variables really relationships with income and what it buys? Or are they relationships with relative income and social position, or with underlying personal characteristics that lead to both high income and better health? No single study can remove all grounds for doubt, and we will not proceed if we wait for one that does. Instead, scientific progress depends on putting together a coherent picture from a wider research front and testing it.

## *Social Cohesion*

A major new perspective on the income and health relationship is provided by the evidence that population mortality rates are strongly related to the degree of income inequality in a population. This has been demonstrated repeatedly with international data and has most recently been reported among the 50 states of the United States: more egalitarian countries and states have lower mortality rates.<sup>2-5</sup>

It has been suggested that the reason more egalitarian societies have better health may be that they tend to be more socially cohesive.<sup>2</sup> There are a number of examples of egalitarian, healthy, and cohesive societies, ranging from Roseto in Pennsylvania to Japan and to Britain during the two world wars.<sup>2</sup> In each, unusually cohesive social relations may have been protective of health. But given the qualitative and circumstantial nature of this evidence, the paper by Kawachi

and colleagues in this issue<sup>6</sup> is particularly exciting. It provides the first quantitative evidence that aspects of social cohesion may indeed link smaller income differences to lower mortality rates. The results of Kawachi et al. seem to suggest that where income differences are smaller, people experience their social environment as less hostile and more hospitable.

That income inequality is related particularly closely to deaths from homicide, accidents (unintentional injuries), and alcohol-related causes also points toward pathways mediated by failing social cohesion.<sup>3,7</sup> Work on social support and social affiliations has shown the importance of the social environment to health.<sup>8,9</sup> As other human beings have always had the potential to be our most feared adversaries and competitors as well as our greatest source of comfort and solace, it would be understandable if the nature of the social environment were crucial to our psychosocial welfare and the prevalence of chronic stress in populations.

But what social cohesion means and involves is far from clear, and Kaplan et al. have shown that wider income differences are associated with numerous social variables likely to affect health, including poorer educational attainment, violent crime, welfare dependency, and unemployment.<sup>3</sup> However, controlling for the proportion of families below the federal poverty level does not remove the relationship between mortality and either income distribution or measures of social cohesion.<sup>4</sup>

## *Relative Income*

The contrasting relationship between income and mortality within and

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**Editor's Note.** See related articles by McDonough et al. (p 1476), Kawachi et al. (p 1491), and Power et al. (p 1499) in this issue.

between societies is informative. Within societies, income differences are closely associated with social stratification and hierarchy. But this is not true of income differences between societies, whether countries or US states. Kaplan et al. reported that the correlation between mortality and median state income is only  $-.28$  and that when income inequality is controlled it disappears altogether ( $r = -.06$ ).<sup>3</sup> The relationship between per capita gross domestic product and life expectancy is similarly weak ( $r = .08$ ) among developed countries even when currencies are converted at purchasing-power parities.<sup>10</sup> This contrasts sharply with the strong relationship between income and mortality within societies. For instance, Davey Smith et al. showed almost perfectly rank-ordered relationships between mortality and as many as 14 categories of income among Black and White men screened for the Multiple Risk Factor Intervention Trial.<sup>11,12</sup> The vast international literature on socioeconomic gradients in health provides numerous examples of similar relationships elsewhere.<sup>13</sup>

The contrast between the strong association between income and health within societies and the weak associations between developed societies suggests that what makes a difference to health is more a matter of people's relative income and status in society than of their absolute material living standards. The declining importance of absolute standards may be marked by the epidemiological transition.<sup>2</sup> The significance of relative income is also suggested by the association between income inequality and population mortality.

Lest linking health to social position rather than to absolute material standards seems to provide new scope for explaining health gradients in terms of selective social mobility, it is worth noting that, like previous evidence, the relationship between income distribution and national mortality rates precludes explanation in terms of social mobility.<sup>14</sup>

The primary importance of relative income has profound implications. It suggests that the psychosocial causes of the health gradients within countries are more powerful than the direct physical effects of exposure to poorer material circumstances. Work on the health effects of social hierarchy among both humans and nonhuman primates suggests that in very different material environments low social status is associated with more frequent signs of chronic stress.<sup>15,16</sup> The

internal consistency of the emerging picture would be confirmed if wider income inequalities were accompanied by more pronounced processes of social stratification, differentiation, and discrimination, and so by bigger health differences. In short, is the social hierarchy more hierarchical in societies with bigger income differences?

The evidence on whether health differences are smaller in countries where income differences are smaller is contradictory: correlations range from  $.87$  to no relation.<sup>17-19</sup> This may be partly a reflection of whether the social classifications used map closely onto income differences. When health is classified directly by income the results are unambiguous.<sup>17</sup> But the problem may also reflect the difficulty of comparing income differences between societies. Surveys of household income in different countries have response rates that vary from over 90% to under 60%.<sup>7</sup> What evidence there is suggests that nonresponse occurs disproportionately among the rich and poor, so that low response rates lead to a loss of both tails of the income distribution and so to an artifactual narrowing of the reported income differences. Differences in response rates of 30% or 40% can easily lose the difference between the 1.5% of total income received by the poorest 10% of the population in an inegalitarian country and the 3.5% they might receive in a more egalitarian country. Indeed, there is a relationship between response rates and reported income distribution. Analyses of the relationship between income distribution and national mortality rates that fail to take this into account are in danger of producing false-negative results.<sup>7</sup>

### Reference Groups

Discussions of relative income raise the question, Relative to whom? What are the salient social comparisons? When asked, people tend to say that they compare themselves with people like themselves.<sup>20</sup> But to ask people "With whom do you compare yourself?" may be like asking whom they see as similar to themselves, thus avoiding the defining social contrasts. Social identity may be established in relation to those unlike ourselves with whom we avoid invidious social comparison.

It is easy to assume that if social cohesion provides the link between income distribution and mortality, then income differences must work by reduc-

ing cohesion and contact between rich and poor. However, the distribution of street crime and violence suggests that the poorest neighborhoods are least cohesive.<sup>21,22</sup> Because richer neighborhoods remain more cohesive, the rich are less likely than the poor to be victims of crime. The impression is that social cohesion deteriorates within neighborhoods according to their degree of relative deprivation, assessed not internally, in relation to local standards, but in relation to the wider society.

This view of the salient social comparisons finds support from another angle. As we have seen, between nations or US states (units within which social stratification is internal) average income is at most only weakly related to mortality. But mortality is related to income inequality within these units. However, among small areas such as residential neighborhoods, these relationships are probably reversed: differences in average income between small areas are closely related to mortality, but income inequality within each area seems only weakly related to mortality.<sup>23</sup> This may be because within a small area in which everyone was unemployed, for example, income inequality would be very small, but everyone would suffer relative deprivation compared with the larger society. The effects of that relative deprivation disappear when analysts control for average income among the small areas.

Inequality is important in areas large enough to contain the salient social heterogeneity, but in small residential neighborhoods composed largely of one social stratum, mortality is related to the average income: income differences within such neighborhoods matter much less because the comparisons between social strata are lost. At the other end of the scale, between whole societies average income does not matter, because the social comparisons are within them rather than between them. Income distribution within societies continues to matter because it measures the extent of relative deprivation between social strata within the society. If it is the loss of cohesion within poorer neighborhoods that affects health, the effect is driven by relative deprivation (inequalities) defined between rather than within communities. It is likely to hinge on how deprived a whole neighborhood is in relation to the standards of the wider society.

Attempts such as this to put together a broader picture of the socioeconomic determinants of health necessarily assume

that a unified theory is possible. If such a theory is not possible, if there are quite different underlying processes at work, these attempts will be misleading. However, a consistent interpretation of a number of different parts of the picture is coming into view, which is worth trying to test. This interpretation suggests that what matters most is the extent of inequality, not so much between the uniformly impoverished residents of the same neighborhood as between the different strata into which inequality divides the whole society.

However, Power et al.<sup>24</sup> provide a timely reminder of the treacherous ground those searching for consistency must cross. They looked at changes in the health experience of a British cohort during the period 1981 to 1991, a time when—as the authors point out—cross-sectional studies had shown a widening of both income and mortality differentials. But unlike McDonough et al., who reported close to the expected effects on mortality of low income levels and income insecurity measured earlier among the same individuals in their US cohort, Power et al. found no evidence in their cohort of a general steepening of the social gradient in half a dozen different measures of morbidity. Whether this is a matter of morbidity vs mortality, different socioeconomic classifications, differences between life-cycle and period effects, or something else remains to be seen. □

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