

Where Do Shared Pathways Lead? Some Reflections on a Research Agenda

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A substantial body of research relates socioeconomic, behavioral, social, and psychological factors to the development and progression of a wide variety of diseases. The search for shared pathways that link these factors leads to the investigation of upstream determinants, as opposed to biologic pathways, but these have been little studied by biobehavioral researchers. Available data suggest that socioeconomic factors structure the development and maintenance of behavioral, social, and psychological factors; however, we know little of how this takes place. A consideration of the ways in which socioeconomic position influences the everyday texture of people's lives could advance our understanding of both macroeconomic and microeconomic influences on health, and lead to new, community-centric approaches to intervention. Such a research agenda would help to advance the scientific foundations for reducing the primary origins of disease, which are social and economic.

Key words: Socioeconomic status, community interventions, social factors, psychological factors.

As indicated by the preceding articles, a substantial body of evidence implicates socioeconomic factors, social support and social networks, and measures of personality and affect as shared factors in the development and progression of many diseases. Furthermore, these factors may play a major role in interventions and health care. In considering the implications of these shared determinants of health for research policy, it is important to follow a path that is guided more by social medicine than by clinical medicine, i.e., a public health approach in which prevention holds the highest value. From such a viewpoint, the major determinants of the public's health are not what happens in physician's offices or hospitals—after all, for the most part, people are already sick when they arrive in these locations—but instead are events that occur long before people become ill. If sickness is prevented, individual-based, "high-tech" approaches and their costly and potentially iatrogenic consequences are all prevented.

However, population-based approaches that are targeted only at high-risk populations or subpopulations may be inadequate. As Geoffrey Rose (1) points out in his book *The Strategy of Preventive Medicine*, most cases of most chronic diseases do not actually occur in the high-risk segment of the population. For

example, in one set of analyses of the risk of myocardial infarction, he reports that only one-third of the events that occurred over a 5-year period were actually found in those with high levels of risk factors; two-thirds of the events occurred in those at "low" risk. Thus, broad, community-based approaches that address the entire population may be most efficacious in reducing the population burden from many diseases.

What is particularly needed is a population-based focus on the upstream determinants of health and disease. Such an approach, although it does not reject the tremendous value of basic biologic research, whether it be about neurotransmitters, cardiovascular reactivity, or the human genome, recognizes that it is often not necessary to understand the biology of a public health problem fully to do something about reducing it.

For example, intriguing recent research on the biobehavioral mechanisms of hypertension might lead to large-scale pharmacological interventions, but such interventions may be much less practical, cost effective, and efficacious than rather simple environmental manipulations that promote physical activity, thereby lessening obesity. It is well to remember that the tremendous success of tobacco control efforts, which are largely based on increased taxes, environmental restrictions, and health education, was not predicated on a complete understanding of the toxicology of the hundreds of toxic substances in tobacco.

Socioeconomic position, social connections, personality, and emotional states are shared determinants of disease, and there may be some common pathophysiologic disturbances that allow these factors to get inside the body. As impressive as this evidence is, much more needs to be learned. For

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example, are there critical elements that are primarily associated with increased risk of poor health. Do these elements differ for specific health outcomes, or are they generic? Do they differ by gender, race, or ethnicity? Are they independent of each other?

This last question is particularly interesting because much research has proceeded as if health outcomes are determined by a set of separate inputs that operate independently. Most statistical models are based on such an approach, which is the health sciences equivalent of Newtonian, billiard-ball physics.

Two examples suggest that the search for "independent" effects may obscure some very important phenomena. Figure 1 presents the results of analyses of the joint impact of low income, social isolation, and depression on the risk of death. The data come from the Alameda County Study (2-4), a study of almost 7000 adults who have been followed for the last 29 years. These results show the relative risk of death from all causes over 9 years, derived from a Cox proportional-hazards model (5), for various groups compared with the group that was *not* poor, socially isolated, or depressed. As you can see, those who were poor, isolated, and depressed had almost four times the risk of death as those in the comparison group. Furthermore, the pattern shows clearly that these factors do not act independently of each other. Rather, there is one subgroup, defined by being at risk on all three factors, that is at dramatically increased risk of death.

Another example (Figure 2) from a study being carried out in eastern Finland (6, 7) tells a similar story. In this example, low income, poor quality of relationships, and a component of hostility called cynical distrust are jointly considered. Each of these factors, by itself, is significantly associated with an

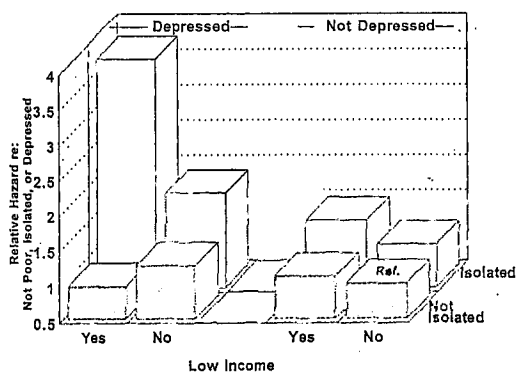


Fig. 1. Low income, social isolation, and depression and 9-year risk of death from all causes in those 65 years of age from the Alameda County Study.

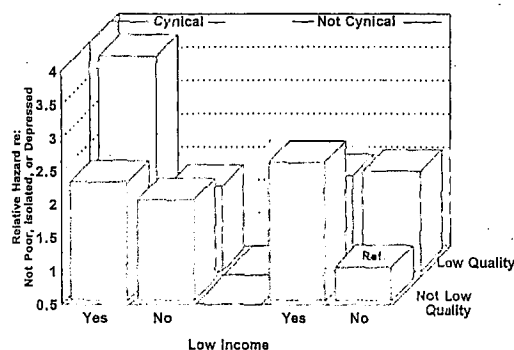


Fig. 2. Low income, poor quality of relationships, and cynical distrust and 5-year risk of death from all causes from the Kuopio Ischemic Heart Disease Risk Factor Study.

increased risk of death (6, 8, 9). When they are considered in combination, those who are poor and cynically distrustful and who do not feel cared about are at dramatically increased risk of death.

Much more work needs to be done on this clustering of risk in particular subgroups and the synergistic relationship between risk factors. As it stands, the current strategy of attempting to identify *independent* risk factors often leads to a "risk-factor-of-the-month club," which is widely covered in the press, confuses the public, and offers little guidance for public policy.

The most useful strategy to improve the public's health is undoubtedly to prevent the development of risk factors. If nobody smoked cigarettes, there would not be 400,000 deaths a year attributable to tobacco, an endless stream of smoking-cessation technologies, and frustrated smokers attempting to quit. How does this apply to the types of determinants of health that we have been discussing? The sad fact is that the upstream determinants have not been studied much by health researchers. By and large, discussion of the factors that are related to the development of feelings of control or hostility, of loneliness and isolation, or, even more surprisingly, of low socioeconomic position is largely absent from behavioral medicine and psychosomatic medicine journals. Instead, these feelings and attitudes are seen as properties of individuals, with little concern for their social or developmental roots. It would require too long a discourse to speculate on why this is so. However, some data suggest that low socioeconomic position, and what it represents, may actually be at the heart of the matter.

Table 1 indicates, as the result of a telephone survey conducted in Alameda County, California, the wide variety of risk factors that were more prevalent among those who were poorer (10). Figure

TABLE 1. Factors Associated with Low Income from the Alameda County Study, 1988 to 1990

Social isolation
Unmet needs for medical care
Unmet needs for food
Unemployed
Current smoking
Obesity
No social support
No instrumental support
Sedentary
Feel unappreciated
Functional problems
Unsafe neighborhood
Crime victim
Work hard and fast
No preventive care
No decision making

3 shows similar findings from a study in eastern Finland. Various psychological measures are arrayed by level of income. Those characteristics that are thought to increase risk of disease—cynical distrust, helplessness, and depression—decrease with increasing income. Self-confidence and the Sense of Coherence, thought to decrease the risk of disease, increase with increasing income.

There are also prospective data. For example, Figure 4 shows the relationship, in the Alameda County Study cohort, between baseline levels of education and income and the relative risk of high levels of depressive symptoms 9 years later among those not depressed at baseline (11). There are strong and ordered relationships; those who were poorly educated or had low incomes were at 50% to 80% increased risk of becoming depressed over the next 9 years. Similarly, in the same study population, finan-

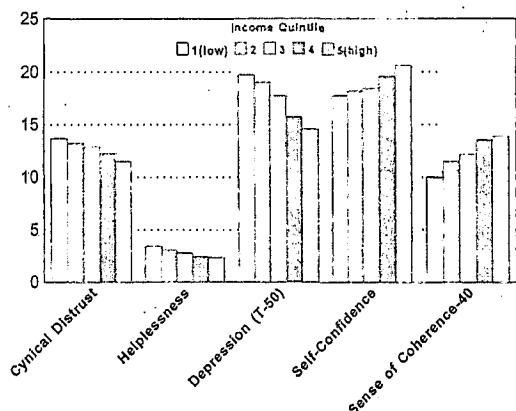


Fig. 3. Psychologic measures by income quintiles from the Kuopio Ischemic Heart Disease Risk Factor Study.

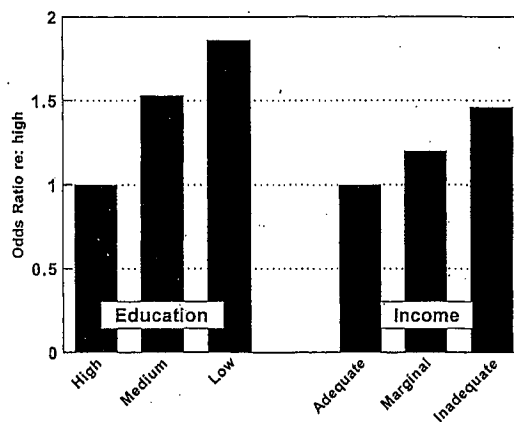


Fig. 4. Nine-year incidence of high levels of depressive symptoms by education and income from the Alameda County Study.

cial problems and job loss are prospectively associated with increased risk of becoming socially isolated.

A recent cartoon well summarizes the main point (Figure 5) (12). Such an approach, which represents a focus on individual owls and neglects the sources of socioenvironmental problems, clearly has its parallel in the present discussion of the social and psychological aspects of disease. It is an important parallel. If the matter of shared pathways is put on the policy agenda without recognizing the socioeconomic determinants of these pathways, there is a risk of disturbing public policy implications, reminiscent of the pillorying of the sick for their "bad" life-styles.

Perhaps it is not so surprising that the socioeconomic origins of the social and psychological determinants of disease have been so ignored. After all, everybody knows that it is better to be rich than poor. However, the effects are real, and there are



Fig. 5. (Jack Ohman: Oregonian, Portland) Upstream versus downstream approaches to prevention. Reprinted with permission.

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alarming trends. Although it is common knowledge that increasing rates of unemployment have characterized the last decade or so, it is less recognized that this trend has penetrated even the most privileged segments. For example, male college graduates, ages 40 to 50, saw their income fall by 17% between 1985 and 1992! For many other segments of the population, the situation is much worse.

The socioeconomic changes that have occurred in recent years in this country extend far beyond increased unemployment and reductions in real wages among the employed. Nearly 20% of those employed full-time now earn salaries that would place them below the poverty line if they were supporting a family of four. This is a 50% increase during the 1980s and early 1990s.

The dramatic restructuring of the American economy that took place during the last 10 to 15 years, involving a substantial loss of secure jobs with benefits, presages important effects on the social, psychological, and physical health of the population, and these should be studied by researchers in behavioral and psychosomatic medicine.

To understand these shared pathways of disease, it will be necessary to create a research agenda that examines in greater detail the links between wealth and health. Some of this examination must involve macroeconomic phenomena, including trends and economic equity. For example, Wilkinson (13) showed a relationship between the average life expectancy of countries and the relative equality with which income is distributed in these countries.

Recent data from the Health and Retirement Survey (14) looked more closely at wealth and its distribution in the United States. The distributions look very different by race/ethnicity, which contrasts most dramatically when liquid assets are considered. White families have, on average, a median of \$12,400 in liquid assets; for black families, median liquid assets are \$300; and for Hispanic families, the figure is \$32. One can only speculate as to the impact of these differences on social isolation, depression, sense of coherence, and optimism.

Although it is tremendously important to widen the usual approach to shared pathways to consider their socioeconomic origins, important questions remain as to how to proceed. Many will throw up their hands in frustration at this point. The problem looks so big and so inextricably enmeshed in the social and political fabric that no remedy seems possible. A starting point would be an effort devoted to understanding the ways in which socioeconomic factors structure the everyday lives of people, and the resultant connections with health and quality of

life. Such an approach would focus on the *everyday* texture of people's lives and how that texture is involved in patterns of behavior, social contact, personality, and feelings. Such an understanding would clarify how socioeconomic factors get inside the body and, perhaps more importantly, might suggest new areas of intervention.

Although understanding macroeconomic forces is important, there is also growing enthusiasm for studying the ways in which socioeconomic factors "hit the pavement" at the level of neighborhood and communities. For example, Consumers Union did an interesting study in which they compared housing, food supply, health care, banking, and other services in low- and middle-income neighborhoods (15). Middle-income neighborhoods had proportionally more pharmacies, restaurants, banks, and specialty and other stores. The low-income neighborhoods had more fast food restaurants, check cashing stores, liquor stores, and Laundromats.

There were four times as many people per food market in the poor neighborhood, and a typical market basket for a family of four cost almost 15% more in the poor neighborhoods, with produce costing 22% more. In addition, the quality of the food was on average poorer. As a result, people in low-income neighborhoods are able to meet far fewer of their basic needs in their own neighborhood and must shop elsewhere.

This example touches on only one of the ways in which aspects of neighborhoods might be related to health and well-being and raises more questions than it answers. It does not detail the many other ways in which poor and middle-class areas differ, for example, with respect to crime, education, recreation, access to medical care, and so forth. In general, poor neighborhoods and communities have high levels of socioenvironmental demands and few resources with which to meet these demands (10, 16).

Given the paucity of information in this area, one can only speculate on how these differences track into health-related social and psychological risk factors. It is certainly not hard to believe that patterns of hostility, distrust, isolation, and despair are born in such environments.

What are the implications of a research agenda oriented more toward social medicine and prevention than toward clinical medicine? One implication would be more of a focus on the impact on a community's health of community development and job creation than on the effectiveness of a particular clinical procedure or screening procedure.

The time is ripe for a new research agenda, oriented toward improvements in the population's

health, which recognizes the socioeconomic origins of health and disease. This approach demands new skills, sensitivities, and values on the part of researchers. To those who are skeptical or do not believe that such an approach is within the purview of the health sciences, consider two quotes, one from Virchow in 1848, "medicine is a social science, and politics is nothing but medicine on a grand scale" (17), and the other from Geoffrey Rose, almost a century and a half later,

"The primary determinants of disease are mainly economic and social, and therefore its remedies must also be economic and social. Medicine and politics cannot and should not be kept apart" (1).

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