



The Social Environment and Health

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Source: *Daedalus*, Fall, 1994, Vol. 123, No. 4, Health and Wealth (Fall, 1994), pp. 79-86

Published by: The MIT Press on behalf of American Academy of Arts & Sciences

Stable URL: <https://www.jstor.org/stable/20027268>

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The Social Environment and Health

CONSIDER THE ACHIEVEMENTS IN the area of coronary heart disease. For over forty years coronary heart disease has been studied more aggressively than any other disease with the highest level of financial support the world has ever seen. During this period of incredible worldwide effort three risk factors have been identified and universally agreed upon: cigarette smoking, high blood pressure, and high serum cholesterol. Dozens of other risk factors, such as obesity, physical inactivity, diabetes, blood lipid and clotting factors, stress, and various hormone factors, have also been identified but full agreement has not yet been reached. When *all* of these risk factors are considered together, they account for about 40 percent of occurrences of coronary heart disease.¹

How is this possible? Could one or two crucial risk factors have been overlooked? Certainly. But it should be noted that the relative danger of any new risk factors would have to be enormous to account for the remaining 60 percent of occurrences of coronary heart disease. It seems very unlikely that risk factors of such importance would have been simply missed.

Because of this lack of success in identifying risk factors at the individual level, interest in identifying factors in the social environment that may be important determinants of health and well-being is growing. I am not suggesting that the risk factors that *have* been identified are unimportant. On the contrary, they have been very useful in the prevention of coronary heart disease, but, clearly, there are other issues involved that epidemiologists, myself included, do not yet fully understand.

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Even when disease risk factors are identified, it is difficult for people to make appropriate behavioral changes. The Multiple Risk Factor Intervention Trial (MRFIT),² an experiment designed to reduce the death rate from coronary heart disease in the United States, is an example of this problem. It was to be the largest, most ambitious, and most expensive experiment ever designed to see if by getting people to change high risk behaviors, the coronary heart disease death rate could be reduced.

Five hundred thousand men in twenty-two cities across the United States were screened for their level of risk for coronary heart disease. Twelve thousand of these men were found to be in the top risk category by reason of their cigarette smoking, high blood pressure, and high serum cholesterol levels. Half of these men worked on lowering their risk in MRFIT clinics and half were sent back to their own doctors. After six years it was found that disappointingly few of the men in the special care group had changed their high risk behaviors.³ To be specific, 42 percent of the smokers stopped smoking, which is probably the best record ever achieved in a smoking cessation program, and about half of the men with hypertension had it under control at the end of the trial. The results in reducing serum cholesterol by dietary intervention are less noteworthy: there was an overall reduction in serum cholesterol levels of 6.7 percent.

While it is evident that some changes took place, the results were disappointing given that those selected were, by all indications, perfect compilers. The limited success that was achieved is, I argue, probably the best we can ever hope for in one-to-one intervention programs. It was the high-water mark. The message from this extreme example is clear and well-known: it is very difficult for people to change high risk behaviors even when they really want to and even when every effort is made to help them.

To make matters worse, there are always new people entering the at-risk population to take the place of those who have changed their high risk behaviors. It is, therefore, clearly evident that despite the efforts of such programs as MRFIT the distribution of disease in the population remains unchanged. This is not surprising considering that nothing is being done to alter the societal forces that caused the problem in the first place.

Epidemiologists tend to look at *individuals* in order to find possible causes of disease even though it is clear that this will not be

helpful in understanding the distribution of disease in the population. This point was forcefully made at the turn of the century by the French sociologist Emile Durkheim.⁴ In his studies of suicide, Durkheim noted that suicide rates exhibited a patterned regularity over time and place. He found that suicide rates are consistently higher in certain countries and in certain groups, even though individuals come and go from those groups. What is puzzling in this is that if the causes of suicide are rooted in the individual, as they are generally thought to be, how can there exist a patterned regularity in groups? Durkheim reasoned that there must be something about the group that promotes a higher or lower rate of suicide in the group as compared with other groups. This factor would not, of course, predict *which* individuals in the group may commit suicide but it would account for the consistency of the *rate*.

This is not to deny the importance of working with individuals, but it is also important to recognize that this approach can have only limited success because it does nothing to alter those forces in society that cause these problems and that continue to provide a fresh supply of at-risk people. The lesson learned from Durkheim is that if epidemiology is to be useful in developing methods of prevention, it will need to study the community and the population.

Almost all epidemiologists study large numbers of individuals in communities. This is not epidemiology. It is clinical medicine in large groups. It may be that the clinical tradition runs so strong that it has come to dominate not only clinical medicine but epidemiology and public health as well. Epidemiologists typically use a *clinical* classification of diseases in their research, studying such diseases as heart disease, cancer, and AIDS. But heart disease, cancer, and AIDS are not public health problems, they are clinical problems. Nevertheless, much of the funding of epidemiological studies and much of the way epidemiologists organize themselves are centered around these clinical disease categories.

Consider the approach that epidemiologists used in the control of infectious diseases. Conditions were divided into such diagnostic categories as waterborne, food-borne, airborne, and vector-borne. This diagnostic classification scheme is of little use in clinical practice since it does not give any insight into treatment possibilities. What this classification scheme *does* is target those aspects of our

environment that are generating disease and suggest at what points in the environment interventions might be deployed.

In short, epidemiologists have adopted a disease classification scheme from the clinical model that focuses attention on clinical states of health and that draws attention to the affected individual. When social, community, and environmental forces are considered—and, of course, they are—they are thought to shed light on the individual and his health. The focus, however, is not where it ought to be.

There are at least two reasons why it is so difficult to think in terms of the social environment. As indicated earlier, the clinical tradition in epidemiology is so pervasive that it overwhelms all other approaches. For example, one can apply for money from the National Institutes of Health (NIH) to study arthritis, metabolic disease, heart disease, cancer, and eye disease, but one cannot request funds to study health. Only the study of diseases of clinical relevance will be supported. While this categorical support concerns me, I realize that not having a well-reasoned and useful set of categories to offer hinders our progress.

The second reason that it is difficult to think about the social environment as a determinant of health is more subtle but perhaps even more important. It may be that a community approach to infectious disease is easier to develop because most of us are exposed to infectious agents whether or not we want to be. A contaminated water or food supply puts all of us at risk, as does toxic air or infected mosquitoes. These clearly are public health issues and should concern public health agencies. In contrast, the way we eat, drink, smoke, drive, sit, run, and work are private behaviors and as such are not in the jurisdiction of public health. In this view, each of us is responsible for the heart disease, cancer, and AIDS that we may develop.

As individuals, we *are* ultimately responsible for our own health and our own behavior. But it is naive to think that we are free agents in this. All of us are influenced by forces in the community that shape our choices and preferences. For example, in a project I am involved in that is being conducted in Richmond, California to encourage the cessation of cigarette smoking, we have been struck by the enormous pressures put on teenagers to smoke. The messages they receive from advertising and their peers vividly portray smok-

ing as positive and glamorous. As a result, many teenagers report that it is far easier to smoke than it is to refrain from smoking. Similar pressures exist for violent behavior, the use of alcohol and drugs, and casual sexual behavior. And the influence of such community forces is not limited to children and teens. In a study I am involved in with San Francisco bus drivers, dramatic differences have been observed between bus barns in the prevalence of alcohol abuse, obesity, cigarette smoking, and absenteeism. These differences are shaped more by community pressures in each barn than by individual differences between drivers.

Just as bad water and food may be harmful to our health, unhealthful forces in our society may be detrimental to our capacity to make choices and to form opinions. It makes no sense to ignore a contaminated water supply just as it makes no sense to urge people to change their unhealthful behaviors when we leave untouched those forces that prompted much of that behavior in the first place.

Following the work of Durkheim, it may be beneficial to take advantage of patterned regularities, particularly those of social class. We have known for hundreds of years that people in the lowest levels of the social class hierarchy have the highest rates of virtually every disease and condition.⁵ Despite universal recognition, epidemiologists have not studied the reasons for this phenomenon. The list of possible explanations is long: poverty, substandard housing, unemployment, poor nutrition, inadequate medical care, and limited education, to name only a few. Instead of studying social class epidemiologists typically “hold it constant” so that other things can be examined. If we did not, social class, with all its various components, would obscure the roles of all other factors. Consequently, we know little about the various subcomponents associated with social class.

But there is another, even more important, reason for our unwillingness to study social class: we do not feel that anything can be done about it. Social class is a product of vast historical, economic, and cultural forces, and, short of revolution, it is not something one targets for intervention. So we give up and instead urge people to lower their fat intake. But this view is not based on fact. For example, if research were to show that people in the lower social classes had higher rates of disease because they were poor, it might

be true that interventions would be difficult. In reality we have no evidence that lack of money is the major culprit. It seems premature to conclude that social class is too difficult to consider or deal with.

An interesting example of how we might better approach this issue is provided in the work by Marmot and his group on British civil servants.⁶ They show that those at the very bottom of the civil service hierarchy have heart disease rates four times higher than those at the top. After adjusting for such risk factors as blood pressure, serum cholesterol, smoking, and physical activity, the difference between these groups is still threefold. They also show that those one step down from the top of the hierarchy, civil servants who are professionals and executives, such as doctors and lawyers, have heart disease rates that are twice as high as those at the very top, the upper-class directors of agencies.

It is not surprising that those at the bottom would have higher rates of disease than those at the top. What is surprising is that doctors and lawyers, only one step removed from the top, also have higher rates. Marmot and his group found that there is a gradient of the rate of disease from the top of the British civil servant hierarchy to the bottom.

One might be inclined to think that this phenomenon is somehow unique to the British civil service. It is not. A similar gradient can be found almost everywhere in the world for virtually every disease that has been studied.⁷ The problem posed by this finding is this: We can imagine why those at the bottom have higher rates of disease but how can we explain a gradient? How is it that those one or two steps from the top have higher rates of disease than those at the top even though they do not suffer from the problems experienced by those at the bottom?

Perhaps it is because as one moves down the social class hierarchy, one has increasingly less control of one's destiny, less opportunity to influence the events that affect one's life.⁸ This hypothesis is general and unproved, and it does not specify whether control involves money, power, information, prestige, experience, or something else. Over the years many social scientists have studied other concepts related to the idea of the "control of destiny," including mastery, self-efficacy, locus of control, learned helplessness, ability to control, predictability, desire for control, sense of control, powerlessness, hardiness, and competence. It may be of value to look

for common denominators in that body of work. It has been shown repeatedly that the more effectively people deal with forces that affect life and living circumstances, the better their health and well-being. If this idea, or something like it, were supported by research, it might open an avenue for intervention.

In support of this notion, a group of epidemiologists led by Robert Karasek⁹ from the United States and Tores Theorell¹⁰ from Sweden has shown that rates of coronary heart disease are higher among workers who are in high demand jobs and who have limited discretion and latitude for dealing with those demands. The work of these researchers is especially impressive because previous studies of job stress failed to establish a link between job pressures and health even though this issue had been examined intensively.

These findings may relate to our study of San Francisco bus drivers by illustrating the usefulness of an environmental perspective in studying health and disease and the possible value of the concept of the "control of destiny" in developing interventions to prevent disease. Several previous studies have noted that bus drivers generally have a higher prevalence of hypertension, as well as diseases of the gastrointestinal tract, respiratory system, and the musculoskeletal system, relative to workers in other occupations.¹¹ Based on these findings, it has been suggested that certain aspects of driving a bus may create an increased risk of disease for workers in that occupation.

From a clinical standpoint it is valuable to identify individual drivers who have diseases so that they may be treated. It would also be valuable to teach drivers about better posture, more healthful eating habits, and alternative ways of dealing with job stress. However, from an environmental perspective, it would perhaps be more useful to identify those aspects of the job that might be changed to prevent disease.

In conclusion, there seems now to be enough evidence to warrant a serious research program on the social environment as an important determinant of health. Our work with individuals has been useful and productive, but this approach alone clearly will not lead to an effective program of health promotion and disease prevention. A new initiative focusing on the environments in which we live must now become a priority for us all.

ENDNOTES

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