BEHAVIORAL FACTORS IN THE HEALTH STATUS OF URBAN POPULATIONS

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ABSTRACT Overwhelming evidence indicates the strong adverse health impact of several personal behaviors, including smoking, immoderate use of alcohol, too little physical exercise, and excessive caloric consumption. These behaviors have arisen on a mass scale in the industrialized nations during the 20th century, thus generating the epidemics of our time. The macrosocial environment—specifically, new (relative) affluence, technological innovations, and commercialization—encourages these behaviors. To advance health, particularly in inner cities of America, a systematic approach to dealing with these major forces on health-related behavior is necessary. Such an approach is briefly outlined.

BEHAVIORAL FACTORS IN HEALTH STATUS

Epidemiological studies have clearly demonstrated that behavioral factors largely determine the pattern of disease and premature mortality that has affected the 20th-century populations of the United States and other industrialized nations. For example, analysis of mortality experience among persons insured by the Metropolitan Life Insurance Company during 1925–1934 disclosed that individuals who were moderately overweight died at a rate that was nearly one and one-half times the rate of persons with average weight. Greater degrees of overweight were associated with even higher mortality rates.¹ The Surgeon General's Advisory Committee on Smoking and Health, published in 1964 and based mainly on epidemiological evidence, concluded that cigarette smoking is causally related to lung cancer, chronic bronchitis, and emphysema.² Subsequent studies demonstrated that smoking is responsible for approximately one-fifth of all premature deaths in the United States³ (Table I). Keys showed the relationship of fat consumption to coronary heart disease, the major fatal form of cardiovascular disease in industrialized nations.⁴ The Framingham study showed the important role of cigarette smoking, high serum cholesterol, and high blood pressure in causing

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TABLE 1 Actual Causes of Death in the United States in 1990

Cause	Estimated No. of Deaths	Percentage of Total Deaths
Tobacco	400,000	19%
Diet/activity pattern	300,000	14%
Alcohol	100,000	5%
Microbial agents, toxic agents, firearms, sexual behavior, motor vehicles, illicit use of drugs	260,000	12%

Source: From McGinnis and Foege.³

atherosclerotic diseases.⁵ Other studies have emphasized the effect of the lack of exercise in cardiovascular disease and mortality generally.^{6,7}

In a more generic approach to health, investigation in the Human Population Laboratory, Alameda County, California, has disclosed the health significance of seven behaviors: not smoking, using alcohol moderately (if at all), exercising at least moderately, sleeping 7 to 8 hours each 24 hours, maintaining moderate weight, eating regular meals, and eating breakfast. Persons who followed four or five of these habits experienced only about two-thirds the mortality of those who followed less than three, and those who followed six or seven behaviors had only about half the mortality rate of those with less than three of the habits.⁸

Follow-up of the Alameda County cohort also disclosed that disability has developed among the survivors in essentially the same behavior-related pattern as mortality. Thus, not only do persons who follow "good" health habits live longer, but also they do so with less disability than the survivors with "poorer" health habits (Figs. 1 and 2).⁸

As evidence accumulated that behavioral risk factors were largely responsible for poor health in the modern world, the tendency arose to attempt to persuade

FIG. 1 Mortality, disability, and health practices among 1965 adult residents, Alameda County, California, 1965–1974 (relative risk). Bars grouped according to number of good health practices. Adjusted for age, physical health status, social network in 1965, and gender. Source: *Preventive Medicine*. 1993;22:86–95.

FIG. 2 Mortality, disability, and health practices among 1973-74 survivors, Alameda County, California, 1982-1983 (relative risk). Bars grouped according to number of good health practices. Adjusted for age, physical health status, social network index in 1972-73, and gender. *Source: Preventive Medicine. 1993;22:86-95.*

people with poor health habits to adopt more healthful behavior, for example, to quit smoking, drink less, eat moderately, get more exercise, and the like. This approach, however, appeared to “blame the victim” and was challenged almost immediately. For example, in 1951, the Commission on Health Needs of the Nation noted that:

Recognition of the significance of individual responsibility for health does not discharge the obligation of a society which is interested in the health of its citizenry. Such recognition, in fact, increases social responsibility for health. Heretofore social effort in behalf of health has been limited largely to such measures as delivery of pure water to the individual’s tap and the sanitary disposal of his sewage. Now it becomes necessary for a society which wishes to advance the health of its citizens to adopt measures which guarantee to the individual an opportunity to make appropriate decisions in behalf of his health. Society must assure its citizens access to professional services, education concerning personal health practices, and a reasonably safe physical environment. Only then can individual responsibility for health exercised through personal action reach its full potential.(p. 2)⁹

These measures to ensure the opportunity to make appropriate decisions for health must take into account socioeconomic status because it has been shown to influence both longevity and disability substantially.^{10,11} Numerous studies

TABLE II Changes in Mortality by Occupational Class, England and Wales, for Males Aged 15-64 Years

	Standardized Mortality Ratios	
	1930-1932	1979-1983
Professional	90	66
Managerial	94	74
Skilled	97	98
Partly Skilled	102	114
Unskilled	111	159

Source: Register Generals Decennial Supplement and Occupational Mortality Tables.

have demonstrated the strong tendency of persons with lower income and less education to engage in unhealthful behavior, such as cigarette smoking and overeating, to a greater extent than those in more fortunate socioeconomic circumstances. This apparently accounts in substantial part for the social class gradient in mortality that has long been observed and appears to be increasing¹² (Table II). In the United States, we tend to emphasize "racial factors" in health, but these conceal the underlying social class factors¹² (Table III). That fact emphasizes the significance for health of continuing to seek fundamental socioeconomic improvement for people who are disadvantaged in that respect. Recognition of that situation underlies the long-standing support by public health professionals for overcoming social disparities. This support is as necessary today, when behavior is so large a factor in health, as it was in the early days of the industrial revolution.

TRENDS AND ORIGINS OF HEALTH BEHAVIORS

Behavior reflects the interaction between human nature and the circumstances of life. Biologic impulses impel people to seek various satisfactions by certain actions. The specific directions taken by individuals in response to these impulses are determined largely by opportunities that prevailing conditions provide. For example, why do people eat so much fat, smoke cigarettes, use alcohol to excess, consume too many calories, and fail to exercise adequately? The prevalence of these well-identified risk factors increased rapidly during the early part of this century, and they have accounted for the 20th-century epidemics of cardiovascular disease, lung cancer, chronic obstructive lung disease, and diabetes.

Biological characteristics of human nature are, of course, partly responsible for these poor health habits: fat tastes good, nicotine is addictive, alcohol permits temporary escape from misery, eating food gives satisfaction, and physical rest is appealing. Some innate drives thus favor some unhealthful behavior. This

TABLE III Age-Adjusted Mortality (per 1,000),
American Black Men and White Men,
Aged 25–64, by Income Class, 1986

Income	White	Black
<\$9,000	16.0	19.5
\$9,000–13,999	10.2	10.8
\$14,000–18,999	5.7	9.8
\$19,000–24,999	4.6	4.7
>\$25,000	2.4	3.6

Source: From Pappas, Green, Hadden, and Fisher.¹²

century, however, has provided vastly increased opportunity to indulge in them and often encouragement to do so.

Growing affluence in the industrialized nations has opened access to “consumables” generally. People have had greater amounts of money with which to obtain the things that are responsible for the diseases that have been causing their premature deaths. Such purchases and indulgences began among those who were affluent: recall the cartoons of the fat-bellied banker that were common during the 1920s and 1930s. During the 1930s in medical school, I remember being shown such a cartoon to illustrate a good candidate for coronary heart disease. In the late 1950s, while visiting a hospital in Belgrade and being shown cases of coronary heart disease, I asked, “Who gets that disease in Yugoslavia nowadays?” The answer given by the attending physician was to take my hand and run his fingers over my palm, saying, “Men with hands like yours—doctors, artists, and bankers who have easy lives, not workers.” In the 1980s, while visiting Papua New Guinea, I asked the nurse in charge of a hospital there, “Do you see any cases of coronary heart disease?”

“Only a few,” she replied.

“What kind of people get that disease here?”

“Mostly the Aussies” (Australians who had been occupying Papua New Guinea), she said.

“Any Papuans?”

“Yes, a few young men who are in business and handle money.”

The difficulty of accepting the notion that the indulgent behaviors of the newly affluent are harmful to health is responsible for the 20th-century epidemics may likewise be illustrated by two other experiences. One was a debate at the 1950 meeting of the American Epidemiological Society; the debate concerned whether the rarity of coronary heart disease among black men reflected a racial immunity to the disease. In more recent times, of course, its mortality among black men, as they have attained sufficient affluence, has exceeded the rate among white men—at least up to age 60. The second experience came after a talk I gave at a 1959 meeting of eastern European (mainly Russian) epidemiologists in Prague. I predicted an epidemic of coronary heart disease among their people if the behavioral risk factors being identified in the West were not controlled in the then-Soviet countries.¹³ Though the epidemic has unfortunately occurred, the 1959 response of the Soviet epidemiologists was to denounce the notion as outside the realm of epidemiology and, further, to ask what right a Western epidemiologist had to lecture them on the “evils” of chocolate, meat, and cigarettes, which Westerners were enjoying.

Hence, the relative affluence of our times has facilitated behaviors that give

rise to huge amounts of pathology. Human constitutions provide the biologic matrix for these behaviors, but are not capable of dealing with their consequences, such as tar in the bronchioles, high lipid levels in the bloodstream, and insufficient cardiopulmonary capacity.

In addition to affluence, a second major contribution to behaviors that injure health has come from certain technological advances. The automobile and other new means of transportation have greatly eased the human energy requirements that prevailed in previous times. The forklift and myriad other "labor-saving" devices introduced into industry have vastly reduced physical demands at work. Easier ways of keeping homes comfortable have substantially reduced earlier heavy chores, such as chopping wood and shoveling coal. Technological innovations in the production of several consumables have likewise encouraged use of some that can damage health, for example, the cigarette form of tobacco, "fast (and fatty) foods," and refined carbohydrates.

It is hence clear that, besides affluence, the tremendous technological advances of the 20th century have played a substantial role in providing opportunities for people to behave in ways that injure their health.

A third factor in unhealthful behavior that deserves serious consideration is rampant commercialism. This force is probably most apparent in the marketing of cigarettes. The tobacco industry has expended billions of dollars to addict young people to nicotine and for lobbying efforts to minimize controls over what, it is now evident, leaders in the tobacco industry recognized decades ago as a health hazard. That expenditure in a highly sophisticated fashion has yielded, and continues to yield, both huge commercial success and vast damage to health. The liquor industry, though perhaps somewhat chastened by the Prohibition experience, has followed many of the same commercial practices that the tobacco industry has found so rewarding, including aggressive sales efforts via the media and the fostering of a multiplicity of sales places. The agricultural industry has pursued commercial advantage in converting grain to meat for sale as food rather than selling grain that is more healthful directly as food. The current battle that is shaping up between health advocates and the gun industry reveals yet another aspect of commercial endeavors with adverse health results. Even the American propensity for sports is being subverted to its moneymaking potential when entrepreneurs, in concert with the media, encourage passive observation rather than active participation in sports.

Thus, three large influences have facilitated the widespread adoption of 20th-century behaviors that harm health: (1) affluence, first in one segment of the population and then in others; (2) certain technological advances; and (3) commercialization of many aspects of life.

CONCENTRATION IN THE INNER CITY

The three influences (affluence, technological advances, and commercialization) now impinge powerfully on inner-city people. While affluence in the usual sense is by no means characteristic of life there and the disparity in socioeconomic status between inner-city and suburban populations is growing—with much therefore remaining to be done to overcome poverty—many people living in inner-city America have finally been able to obtain some things that their new “affluence” (relative to previous times) makes possible. The products of technological advances are available to anyone with the purchase price. The third influence, commercial interest, however, probably carries the greatest impact. Recognizing that people with lower socioeconomic status, such as inner-city residents, are more likely to smoke cigarettes, tobacco interests have concentrated their sales efforts on them. The liquor industry has also sought to accelerate inner-city sales. Cheap guns have proliferated in the inner city.

To improve understanding of the inner-city health problem, we should devote greater attention to its geographic aspects, which we rarely see displayed. Graphic depictions would perhaps highlight this highly important element of urban health. In particular, they might facilitate political action on these matters because our political system is organized on a geographic-population basis.

AN ECOLOGICAL APPROACH TO BEHAVIORAL FACTORS IN HEALTH

Recognition is growing that major reliance on approaching individuals about behavior adverse to health is not very effective. Physicians commonly complain about their inability to influence their patients' smoking or other health-related actions. (Actually, carefully following good protocols does yield fairly good, though not spectacular, results.) We are beginning to realize that it may be more effective to deal with those pressures from the social milieu that so largely determine behavior.⁸

Vigorous microsocial environments (i.e., social networks that consist of family, friends, work, neighborhood, and similar associates) strongly favor health—even beyond any connection with specific health-related behaviors.¹⁴ Such supportive environments should be encouraged. Some social networks, such as inner-city gangs of young people, of course, may induce harmful behavior (e.g., associated with liquor, tobacco, and other drugs, as well as with guns). Some efforts to influence such harmful microsocial environments have been moderately successful, but the young people seem difficult to approach because of their defensive nature.

It may be more useful to deal with the macrosocial environments: new affluence, technological changes, and commercialization. Of course, approaching the

macrosocial environment for health does not mean directly combating those forces; rather, it means dealing with them to minimize their adverse impact on health and even to cultivate a positive effect. Thus, we would obviously not oppose higher incomes (affluence) in the inner city; rather, we would seek better education, an opportunity for sports, and the like, which have aided those now living in the suburbs to avoid those behaviors characteristic of the newly affluent that injure health. We would not seek to turn back technological advances that make life easier, but rather to provide adequate opportunity to obtain the physical exercise necessary for health.

In the commercial aspects of the macrosocial milieu that affect health, however, we face a different situation. There, clearly, powerful efforts to make money promote sales of products that can harm health, for example, tobacco and guns. These efforts must simply be combated in the interest of health. Such combat has already been joined. The intent here is to delineate the relationship of such an ongoing struggle to a social ecology for health.

This ecology entails shifting a substantial share of the behavior-targeted health effort to the macrosocial environment. It is this larger social milieu—which includes affluence, technological innovations, and commercialization—that determines in considerable part health-related behavior we now recognize to be so important.

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