

Smoking and Ill Health: Does Lay Epidemiology Explain the Failure of Smoking Cessation Programs Among Deprived Populations?

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The resistance of disadvantaged groups to anti-smoking advice is remarkable. In relation to the study of differing cultures, there is a long-standing academic tradition assuming that behavior that may otherwise be difficult to understand is indeed rational within particular cultural contexts.

Persistent smoking among the most deprived members of society may represent a rational response to their life chances informed by a lay epidemiology. Health promotion initiatives designed to reduce smoking among members of these groups may continue to fail unless the general health and life chances of such individuals are first improved. (*Am J Public Health*. 2003;93:266–270)

SINCE THE 1970S, THE

smoking prevalence rate among men residing in the United Kingdom has halved,¹ and the recently reported decrease in lung cancer among UK men has been attributed to the public health success of health promotion interventions designed to reduce smoking in the general population.² Similar reductions in smoking prevalence rates and tobacco-related diseases in the United States and other developed countries have also been related to the success of widespread health promotion initiatives, including individual-level approaches, such as advice and nicotine replacement, and social policy approaches, such as bans on smoking in public places.

However, the decline in smoking prevalence rates has been least marked among the most deprived members of society, and over time this group has come to form an increasing proportion of those who remain smokers.^{3,4} Widening social class inequalities in terms of smoking prevalence rates are occurring between successive birth cohorts at the same age, and within cohorts at increasing ages, suggesting that members of lower social classes are increasingly more likely to take up smoking and less likely to quit.⁴

There is no question that smoking is one of the most prominent causes of morbidity and premature mortality⁵ and

that the social class gradient in smoking prevalence rates contributes to the social class gradient in health outcomes.^{6,7} The resilience of deprived groups to smoking cessation programs is, however, remarkable. Here we pose the question of whether the poorer life chances of those who continue to smoke in effect constitute a rational disincentive to their avoidance or cessation of smoking. If this is the case, then smoking behaviors among members of deprived populations will continue to resist health promotion measures until their general health and well-being show improvements equivalent to those that preceded the earlier abandonment of smoking by more advantaged population groups.

SMOKING CESSATION, LAY EPIDEMIOLOGY, AND RATIONALITY

We have analyzed elsewhere the extent to which a lay epidemiology based on personal observation and evidence from a wide variety of sources may mirror the true epidemiological picture rather than the more partial picture often presented in health promotion programs.^{8,9} In relation to the study of differing cultures, there is a long-standing academic tradition that assumes that behaviors that may otherwise be difficult to understand are rational within the particular cultural contexts in which they

occur. This anthropological tradition is rarely invoked in examinations of health-related behaviors of populations in developed countries that may appear unwise from the perspective of the commentator.¹⁰

In the current context, it is more common to assume that the health risks of smoking represent an important contribution to the poor health of disadvantaged individuals and that those who compound their health disadvantages in this way should be helped to secure the health benefits that have already been gained by more advantaged groups. The possibility that the resistance of disadvantaged groups to antismoking advice represents a rational response to their particular circumstances should be considered.¹¹ To illustrate this hypothesis, we examined secular trends in all-cause mortality and smoking prevalence rates among UK men. This group was selected for study because of the availability of good data over a sufficiently long period, but we have no reason to believe that our findings would not apply equally to women or populations from other developed countries.

Trends in all-cause mortality are a useful indicator of general health. By 1960, clear evidence that smoking was a health risk^{12,13} had been disseminated to the general population in many developed countries, including

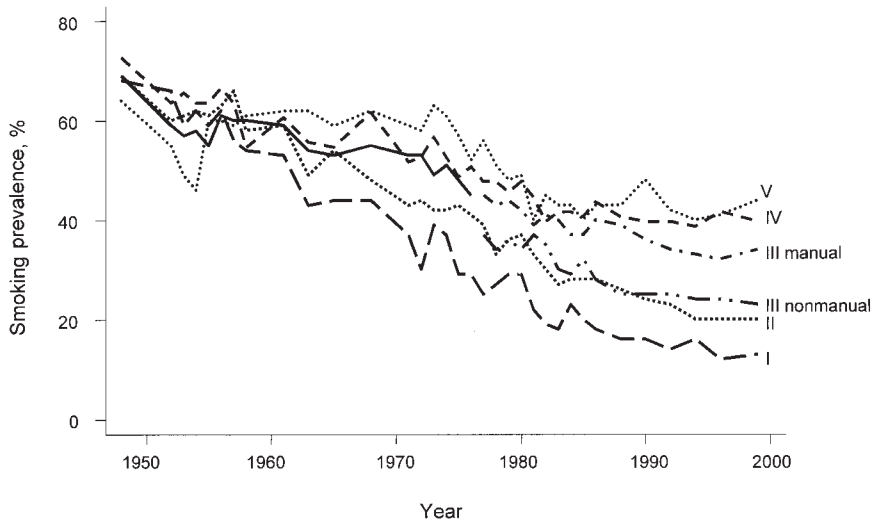


FIGURE 1—Smoking prevalence among UK men 16 years and older, by social class, 1948–1999.^{24,25}

social class V. The manual–nonmanual ratio in smoking prevalence increased from 1.0 in 1948 to 2.2 in 1999.

The data just described were obtained from a number of national surveys conducted during the early and middle years of the 20th century. Their validity is supported by the relative mortality rates from lung cancer presented in Table 1. The social class gradient in lung cancer becomes most apparent from the 1960s onward. The increased risk of lung cancer among men in social class V in 1951 may reflect exposure among this group to industrial hazards associated with lung cancer.

We suggest that the health risks of smoking, and hence the incentives to forgo an otherwise appealing activity, became more evident to segments of the population that could expect to remain healthy. This led to their collective abandonment of smoking as a culturally accepted behavior.

Disadvantaged groups are still suffering a substantial burden resulting from non-smoking-related morbidity and premature mortality, as illustrated, for example, by their increased mortality from accidents (Table 1). Standardized mortality ratios for deaths due to accidents show a social class gradient that has widened over the past century, with members of social class V now facing a risk greater than fourfold that of members of social classes I and II. Accidents account for fewer deaths than lung cancer in the total population, but the close temporal relationship between exposures related to socioeconomic circumstances, such as those arising from poor working and housing environments, and accidents makes the causal nature of the relationship obvious

the United Kingdom. At that time, when the decline in smoking prevalence rates among men from nonmanual social classes began (Figure 1), these men had experienced at least 30 years of marked declines in all-cause mortality. Between 1931 and

1961, mortality rates decreased by 39% among men in social class I (see box for an explanation of social class levels) and 38% among men in social class II, but rates declined by only 28% among men in social class IV and 6% among men in social

class V (Figure 2). It is noteworthy that in 1991 the age-adjusted all-cause mortality rate (and therefore general health status) among UK men in social class V was the same as that of men in social class I in 1931.

The conspicuous health improvements that occurred among the most advantaged groups between 1931 and 1961 clearly did not arise from smoking cessation, because smoking prevalence rates among the most advantaged groups were similar to or even greater than rates among the most disadvantaged groups. From 1948 to 1958, the smoking prevalence rate among adult UK men, although lowest in social class V, was similarly high across all social classes (Figure 1). Between 1958 and 1971, the rate declined from 54% to 37% in social class I but remained unchanged in social class V. By 1999, smoking prevalence rates according to social class ranged from 13% among men in social class I to 44% among men in

UK Social Classifications		
	Class Description	Broad Classification
I	Professional occupations	Nonmanual
II	Managerial and technical occupations	
III(N)	Nonmanual skilled occupations	
III(M)	Manual skilled occupations	Manual
IV	Partly skilled occupations	
V	Unskilled occupations	

Note. Occupational social class is the most common measure of socioeconomic position used in British health research, and it has been analyzed with respect to mortality for each census conducted since 1911. The registrar general's classification is used for this purpose, with individuals being classified according to their occupation into one of 6 classes (I being most advantaged, and V being most disadvantaged). Before 1971, there were only 5 classes; social class III has been separated into 2 groups since 1971.

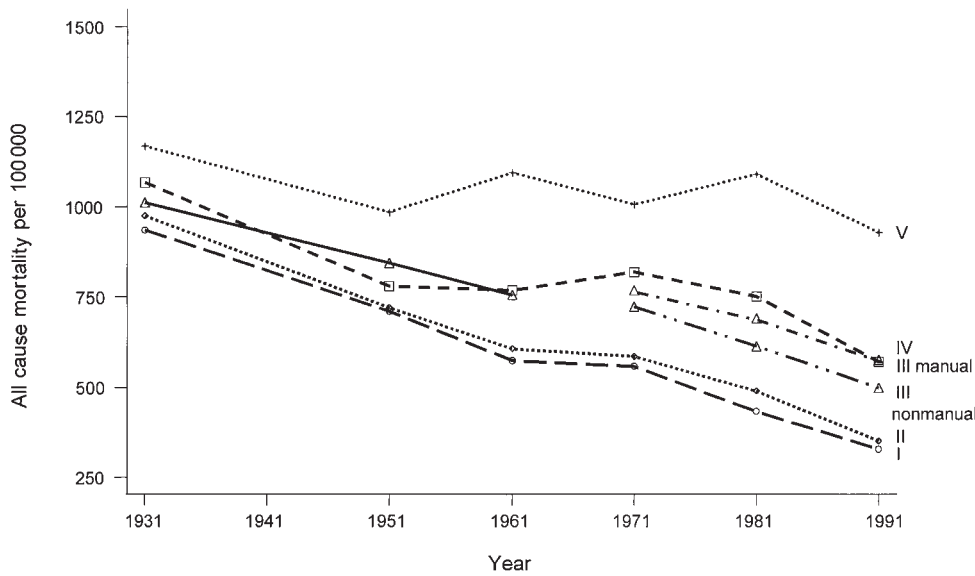


FIGURE 2—Age-standardized all-cause mortality, men from England and Wales aged 20–64 years, by social class: 1931–1991.^{26–31}

as “very worried” about road safety, whereas 70% of parents from social classes IV and V were “very worried” about road safety. These parents’ perceptions accurately reflected the true differences in magnitude in the road safety of their children, as assessed via road traffic accident statistics.¹⁴ Others have suggested that an important influence on people’s decision to invest in human capital (e.g., education and skill acquisition) is perceived life span.¹⁵

Furthermore, the idea of lay epidemiology influencing the likelihood of smoking is consistent with a branch of evolutionary theory increasingly used to understand health-related behaviors.¹⁶ Complex organisms, including humans, develop strategies to maximize growth, survival, development, and reproduction.¹⁶ However, to do so they must balance competing interests. Most important is the balance between investing one’s resources primarily into struggling

and makes avoidance of such exposures more important and meaningful for members of the groups that exhibit the highest mortality rates from these causes. Among these disadvantaged groups, in which the proportion-

ate gains in life expectancy from smoking are much less pronounced, incentives to quit are far from clear.

The idea that lay epidemiology forms an accurate appraisal of real life experiences is seen in

other areas. For example, a survey on parents’ attitudes toward child road safety conducted in the late 1980s showed that only 28% of professional (social class I) parents of children of junior school age described themselves

TABLE 1—Standardized Mortality Ratios for Lung Cancer and Accidents, by Social Class: UK Men Aged 20–64 Years, 1931–1991^{26–31}

Year	All Deaths, %	Ratio (95% Confidence Interval)						
		I	II	III Nonmanual	III	III Manual	IV	V
Lung Cancer								
1931	1.0	107 (87, 130)	95 (87, 95)	...	100 (95, 105)	...	92 (84, 98)	114 (105, 123)
1951	7.8	73 (67, 79)	84 (82, 86)	...	107 (105, 109)	...	91 (86, 96)	118 (115, 121)
1961	11.7	53 (49, 57)	72 (70, 75)	...	107 (105, 109)	...	104 (101, 108)	148 (144, 151)
1971	12.0	53 (49, 57)	68 (66, 71)	84 (80, 89)	...	118 (115, 121)	123 (120, 127)	143 (137, 150)
1981	11.2	43 (39, 46)	63 (60, 65)	80 (76, 84)	...	120 (116, 125)	126 (122, 129)	178 (171, 184)
1991	9.9	45 (41, 49)	61 (59, 63)	87 (82, 91)	...	138 (134, 141)	132 (128, 137)	206 (197, 216)
Accidents (not including suicides and homicides)								
1921	6.8	76 (69, 81)	69 (66, 71)	...	93 (90, 97)	...	127 (126, 431)	119 (112, 125)
1931	6.0	95 (90, 101)	74 (71, 77)	...	102 (99, 106)	...	116 (112, 119)	96 (89, 102)
1951	5.5	137 (128, 147)	64 (61, 67)	...	96 (94, 99)	...	120 (117, 123)	119 (113, 126)
1961	6.7	64 (58, 70)	69 (66, 72)	...	95 (92, 97)	...	114 (110, 119)	178 (171, 185)
1971	6.2	63 (58, 68)	62 (60, 65)	80 (77, 84)	...	106 (103, 109)	119 (115, 123)	184 (178, 190)
1981	5.9	58 (52, 63)	60 (56, 63)	79 (76, 83)	...	103 (101, 105)	111 (107, 115)	209 (201, 218)
1991	5.3	54 (49, 59)	57 (54, 60)	74 (69, 80)	...	104 (100, 109)	107 (101, 112)	226 (215, 236)

against hazards that affect immediate survival and focusing one's efforts on longer term growth and development.¹⁶ This theory has been used to explain why, in hazardous environments, it is actually advantageous for women to have children at a young age.^{16–18} The environmental circumstances and clear health advantages of those in high socioeconomic positions push the balance toward focusing efforts on future survival (evidenced, for example, by their long-term investments in education, mortgages, and pensions); thus, quitting smoking in light of evidence of its health-damaging effects is rational.

Conversely, among individuals from lower socioeconomic positions, the balance is shifted toward improving the immediate environment and removing hazards. Poor housing conditions, occupational hazards, and environmental dangers are more immediate threats to the health of those in lower socioeconomic positions than is smoking. Smoking cessation may become a priority only when these other hazards have been reduced. This suggestion is reinforced by the fact that the smoking prevalence among homeless individuals in the United Kingdom, those in the most dire material circumstances, is 94%.¹⁹

The hazardous environments faced by individuals from lower social classes affect their likelihood of quitting smoking not only because dealing with such circumstances takes precedence over smoking cessation, but because within these environments smoking is often an important pleasure and coping mechanism. Results of a recent study conducted among smokers and non-smokers in 3 Glasgow communi-

ties at high levels of deprivation indicated that smoking was used as a means of coping with living in a stressful, disadvantaged area.²⁰ Furthermore, in deprived communities smoking may become a normalized behavior; for example, in the study just described, nonsmokers commented that they often needed legitimate reasons, such as asthma, for not smoking.²⁰

POLICY IMPLICATIONS

The widening socioeconomic gradient in smoking prevalence as overall population rates have decreased suggests that public health initiatives designed to reduce smoking rates have had little effect among the poorest members of society and may even have accentuated health inequalities.³ In the United States and the United Kingdom, this situation has resulted in special initiatives aimed specifically at reducing smoking in the groups most difficult to reach.^{6,7,21} However, it is our belief that these initiatives are unlikely to be successful.

For example, a qualitative study focusing on smokers residing in deprived areas of the United Kingdom showed that these individuals greatly resented excessive taxation on cigarettes and believed that the government did little to support their difficult situations.²² Furthermore, these smokers developed numerous strategies, including buying contraband cigarettes, to maintain their smoking consumption as the cost of legal cigarettes increased.²² In many health and academic workplaces throughout the United States and United Kingdom, where smoking is rightly banned, we have become accustomed to the sight of our

lowest-paid staff members (e.g., cleaners and caretakers) standing outside in the coldest of temperatures having a cigarette.

The current emphasis on the addictive nature of nicotine has pushed policy away from tackling root causes of disadvantage toward adopting an easier, but clearly less effective, medical model involving such strategies as stop smoking clinics and nicotine substitutes.²³ Smoking prevalence declined among the most advantaged members of society after several decades of greater general health demonstrated by marked and consistent declines in overall mortality and improved material circumstances. To be effective, smoking cessation programs appear to depend on a perceptibly rising tide of general good health among the target population. Efforts to reduce smoking among the most deprived members of society are unlikely to succeed unless they are supported by measures designed to improve the material circumstances of these individuals. ■

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Contributors

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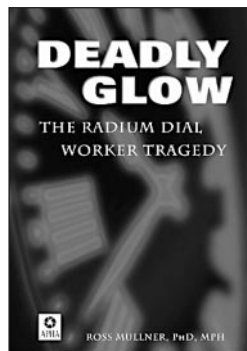
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