

TRENDS IN MAJOR RISK FACTORS

Cigarette smoking

DAVID SIMPSON

DIRECTOR OF ACTION ON SMOKING AND HEALTH

5-11 Mortimer Street, London W1

Summary

The object of this paper is to examine the role of smoking as a risk factor in coronary heart disease, starting with a brief history of smoking in the U.K. and a reminder of the epidemiological evidence linking smoking and cardiovascular disease. This is followed by a more detailed look at the trends in consumption of tobacco and the major factors influencing those trends, together with an outline of the main components of a smoking control policy designed to combat our epidemic of smoking-induced disease.

In the words of Dr Halfdan Mahler, Director-General of the World Health Organisation, 'Smoking is probably the largest preventable cause of ill-health in the world'. Unfortunately, Britain led the way towards the mass epidemic of smoking—and hence, smoking-induced disease—which we now find throughout the world. Of course, tobacco has been smoked in various forms for hundreds of years, but it

was only towards the end of the last century that machines were invented to mass-produce a cheap, readily available smoking product, ready to light up at any time: the cigarette (Fig. 1).

Starting first as a habit practised by males, cigarette smoking spread rapidly in Britain, as indeed it did in North America and Western Europe, during the first decades of this century. Women followed the men in smoking habits later on, until by the middle of this century the average daily smoking prevalence among men in these areas was frequently over 50%, with women not far behind. In the U.K., the increasing rate of consumption seen in each of the two World Wars, was followed by a temporary slump during a period of post-war depression and increased taxation and prices, before resuming its upward trend. This provides a first lesson about smoking control policy, namely that in the short-term at least, one of the most powerful influences on tobacco consumption is the effect of economic factors.

The upward trend in cigarette consumption among males throughout the Fifties is seen to level off suddenly in the early Sixties—this marks the publication, in 1962, of the first Royal College of Physicians (RCP) Report on Smoking and Health (1962). It received widespread publicity, not only in the U.K., but worldwide; and it was followed less than 2 years later by the first report on the subject by the Surgeon-General of the United States of America. These early reports mainly reviewed data available for male smokers and it was not clear why females apparently suffered significantly less from those diseases now associated with smoking. Now, of course, there are ample data to show that this apparent difference, particularly in lung cancer mortality, was due to the then comparatively recent onset of smoking among women. It is not surprising that cigarette consumption among women in the U.K. continued to rise for some time after the first RCP Report.

The dramatic effect of the first RCP Report on male smoking demonstrates another key fact, albeit an obvious one, about smoking control—the effect

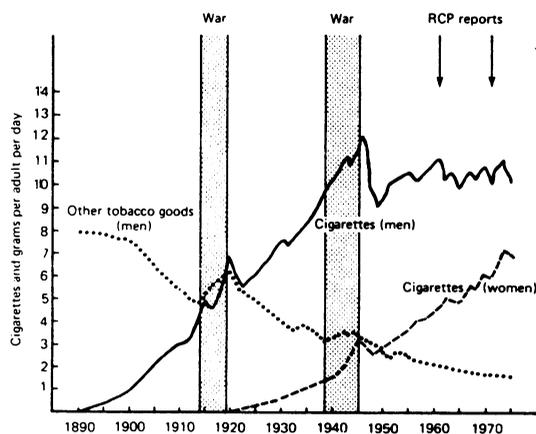


FIG. 1. Tobacco consumption in the U.K. 1890-1975 (taken from 'Smoking or Health'—the Third Report for The Royal College of Physicians of London. Pitman Medical, London, 1977, by kind permission).

upon consumption of giving smokers information about the damage to health caused by smoking.

In the U.K., which has one of the highest death rates from smoking in the world, at least half of the excess mortality caused by smoking is from cardiovascular disease (Doll and Peto, 1976). Some three-fifths of this is from coronary heart disease and two-fifths from other cardiovascular disease and stroke. Lung cancer, bronchitis and emphysema are the other main sources of excess mortality among smokers compared to non-smokers.

While a number of factors are known to lead to coronary heart disease, smoking is probably the most clear cut risk factor, and in theory at least, the most easily avoidable. Because of the synergistic effect of the various factors associated with coronary heart disease, smoking especially increases the risk of a heart attack in those who have raised blood cholesterol levels, hypertension, take little exercise or are women taking oral contraceptives.

The risk of a fatal heart attack for a cigarette smoker is two to three times greater than for a non-smoker; and it is greater in heavier smokers than in those who smoke less. The excess risk of death is particularly marked in younger smokers (Doll and Peto, 1976): a man under 45 years smoking more than 25 cigarettes a day is 10–15 times as likely to die from a heart attack than a non-smoking man of similar age. Cigarette smoking has been found to cause as much as 81% of coronary heart disease deaths in men under 45 years, and 27% in those aged between 45 and 64 years (Townsend and Meade, 1979). Over all ages, about a quarter of coronary heart disease deaths in people of working age are generally attributed to smoking. Similarly, 90% of lung cancer deaths and 75% of bronchitis and emphysema deaths in the U.K. are attributed to smoking. If smokers stop smoking, their risk of dying from a smoking-induced disease falls sharply. For example, in men under 55 years who stop smoking, within 5 years the risk of a fatal heart attack is less than half the risk of those who continue to smoke (Hammond and Garfinkel, 1969). Even after a non-fatal heart attack, giving up smoking may reduce the risk of a further attack by up to a half compared with continuing smokers (Wilhelmsson *et al.*, 1975). On present evidence there is, quite simply, no better therapy for the survivor of a heart attack, if he or she is a smoker, than successfully helping the patient to stop smoking.

The link between smoking and peripheral arterial disease is even stronger, as has been shown by numerous studies. Leg amputation is required much more frequently in those who continue to smoke.

Cigarette consumption

It is important to note that the total number of cigarettes consumed by any population is a product

of prevalence and individual consumption per smoker; in other words, in a constant market where the number of cigarettes sold per annum is static and there is no significant change in the population there may still be, for example, a decline in prevalence of the smoking habit, countered by an increase in individual consumption per smoker. Furthermore, any trend in prevalence or individual consumption within any population is only the net effect of changes among individual groups—for example, in different social classes, age groups and within each sex.

After a peak in 1973, the number of cigarettes sold in the U.K. has declined each successive year, with a particularly dramatic decline in the last 2 years (Fig. 2). Prevalence has also been declining since that time, once again showing the fastest rate of decline from 1980 to 1982, the latest time of measurement by the General Household Survey of the Office of Population Censuses and Surveys (Fig. 3). The 1982 figures show that for the first time, daily cigarette smokers, 16 years and over, are in the minority in every group by age, sex or social class.

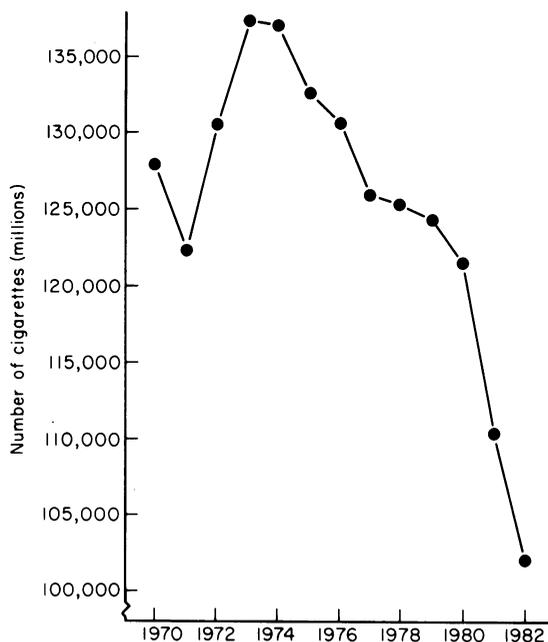


FIG. 2. U.K. sales of manufactured cigarettes 1970–1982.

Looking at the trend between light (under 20 cigarettes per day) and heavy smokers, we see a faster reduction in the former than the latter, as is to be expected given the addictive nature of the cigarette smoking habit (Table 1).

Whereas the early years of cigarette smoking showed a higher prevalence and consumption among

TABLE 1. Prevalence of cigarette smoking by sex: 1972 to 1982. Persons aged 16 and over, Great Britain (Source: Office of Population Censuses and Surveys Monitor. Cigarette smoking: 1972-1982)

	1972	1974	1976	1978	1980	1982
Men						
Current smokers						
Light (under 20 per day)	28	25	22	22	21	20
Heavy (20 or more per day)	24	26	24	23	21	18
Total current smokers	52	51	46	45	42	38
Ex-regular smokers	23	23	27	27	28	30
Never or only occasionally smoked	25	25	27	29	30	32
(Base = 100%)	(10,351)	(9,852)	(10,888)	(10,480)	(10,454)	(9,199)
Women						
Current smokers						
Light (under 20 per day)	30	28	24	23	23	22
Heavy (20 or more per day)	11	13	14	13	13	11
Total current smokers	41	41	38	37	37	33
Ex-regular smokers	10	11	12	14	14	16
Never or only occasionally smoked	49	49	50	49	49	51
(Base = 100%)	(12,143)	(11,480)	(12,554)	(12,156)	(12,100)	(10,641)

TABLE 2. Prevalence of cigarette smoking by sex and socio-economic group: 1972 to 1982 (Source: Office of Population Censuses and Surveys Monitor. Cigarette smoking: 1972-1982)

Socio-economic group	Percentage smoking cigarettes					
	1972	1974	1976	1978	1980	1982
Men						
Professional	33	29	25	25	21	20
Employers and managers	44	46	38	37	35	29
Intermediate and junior non-manual	45	45	40	38	35	30
Skilled manual and own account non-professional	57	56	51	49	48	42
Semi-skilled manual and personal service	57	56	53	53	49	47
Unskilled manual	64	61	58	60	57	49
All aged 16 years and over*	52	51	46	45	42	38
Women						
Professional	33	25	28	23	21	21
Employers and managers	38	38	35	33	33	29
Intermediate and junior non-manual	38	38	36	33	34	30
Skilled manual and own account non-professional	47	46	42	42	43	39
Semi-skilled manual and personal service	42	43	41	41	39	36
Unskilled manual	42	43	38	41	41	41
All aged 16 years and over*	42	41	38	37	37	33

*Aged 15 years and over in 1972.

the higher social classes, today the position is reversed, with almost three times as many men in social class V smoking as those in social class I (Table 2). This same social class gradient is found among women, even if slightly less marked.

An encouraging trend over the last 2 years has

been the reduction in per capita consumption among women smokers, who previously were increasing their consumption (Table 3). Thus in the last 2 years, both sexes have reduced both prevalence and per capita consumption; and all social classes in each sex have reduced smoking prevalence with the single

TABLE 3. Average weekly cigarette consumption per smoker by sex and age: 1972 to 1982 (Source: Office of Population Censuses and Surveys Monitor. Cigarette smoking: 1972-1982)

Age (years)	Men						Women					
	1972	1974	1976	1978	1980	1982	1972	1974	1976	1978	1980	1982
16-19	102	110	106	98	99	87	76	86	89	90	84	76
20-24	123	132	135	122	113	114	91	99	110	101	102	100
25-34	129	136	138	134	135	121	97	108	109	113	111	109
35-49	132	138	141	138	140	137	94	104	112	109	115	108
50-59	124	127	130	137	130	129	87	91	103	101	105	101
60 and over	96	100	108	104	102	109	60	68	75	79	73	77
All aged 16 years and over	120	125	129	127	124	121	87	94	101	101	102	98

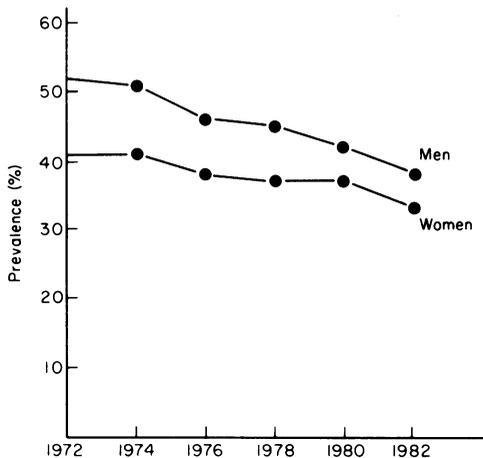


FIG. 3. Prevalence of daily cigarette smoking in men and women 1972-1982 (Source—Office of Population Censuses and Surveys Monitor. Cigarette smoking 1972-1982).

exception of women in the unskilled manual class, who have maintained the same smoking prevalence since 1978 (41%) (Table 2).

Economic factors

Few would doubt that the most significant factor causing the decline in both prevalence and consumption in the last 2 years was the U.K. Budget increase in cigarette tax of 14p in the spring of 1981 followed by a further 3p increase the following July (Fig. 4). Although cigarettes are still cheaper, in real price terms, than they were in the early 1960s when the scientific evidence first became generally accepted, the 1981 tax increases nevertheless restored some of the slip in real price and no doubt played a key role in influencing consumption. In the same period, however, there was a range of public education and public information initiatives which helped to convey the health message about smoking. Most notable among these was the BBC Television series 'So you want to stop smoking' which was first screened early in 1982.

It is doubtful whether the effects of public education and information campaigns against smoking can ever be accurately measured—certainly no attempt is offered here. But among replies from recent ex-smokers questioned in DHSS/NOP Public Attitude surveys about why they gave up smoking, the reason 'bad for health' vies with 'too expensive' as the most popular response, depending on whether there has been a significant price rise shortly before the survey. It would surely be naive to suggest that the delivery of health information about smoking has not been a major factor helping to bring about the recent decline in consumption.

Advertising

The tobacco industry has constantly sought to negate the impact of health initiatives designed to reduce smoking; and as successive governments have attempted, albeit weakly through a system of 'voluntary agreements' with the industry, to restrict cigarette advertising in various ways, so in their turn the companies have devised new ways to promote their brands. Most notably, they have invested in the sponsorship of sports, the arts and now a range of other goods and services, including holidays. Sports sponsorship has the particular advantage to the companies of enabling them to get their cigarette brand names back on television, from where regular cigarette advertisements were banned in 1965. Sports sponsorship also enables them to associate cigarette brands with excitement, success, sporting achievement, fitness and personalities, all of which are banned under the rules applying to ordinary cigarette advertisements.

Even those rules which do exist to try to contain tobacco sports sponsorship—a separate agreement on this topic exists between the Minister for Sport and the tobacco companies—are broken with impunity. In 1982, the winner of the women's Wimbledon Championship wore a costume throughout the contest which bore the distinctive red, yellow, orange and brown wavy stripes on a white background

which are the symbol of one particular brand of cigarette which is aimed towards women. The manufacturers at first denied responsibility for this, claiming that they had sold the name to an Italian fashion wear company. Later, they apologized to the Minister for Sport for the breach in the Agreement and assured him it would not happen again. Nevertheless, the same player appeared in the 1983 Wimbledon Championships in a dress bearing an identical symbol. The only difference was that the cigarette brand name which had been displayed on a small label in 1982, was absent on the 1983 dress. After a public outcry, the player changed to a plain white costume. Despite this implied admission of a further breach of the voluntary agreement and the terms of the agreement itself which prohibit players from wearing cigarette brand symbols at televised events, the Sports Minister insisted that no breach had taken place.

Whilst it is impossible to evaluate, there can be no doubt that the massive promotion of cigarettes, running at over £100 million per annum, must undermine the delivery of the health message about smoking, especially to the young. A trend which is now causing more concern to the tobacco manufacturers than anything directly connected with health is the growing interest in the right of non-smokers to breathe smoke-free air. This 'social acceptability issue', as the manufacturers call it, includes the provision of non-smoking areas in restaurants, public transport and other public areas and increasingly, demands from non-smokers for the right to be free from other people's smoke while at their place of work.

Trends in public attitudes demanding more non-smoking space in public places are likely to continue, accelerating as the proportion of non-smokers in the community grows still larger. The logical target is to create an environment which truly reflects the new situation in which the majority of people are non-smokers: to make non-smoking the norm in all public places, meaning that smoking is implicitly prohibited in all public places except in specially designated smoking areas set aside where practicable and without inconvenience to the non-smoking majority. A moment's reflection will show that this goal means the exact reversal of the current situation in virtually all public places, where smoking is acknowledged to be allowed unless there is a specific instruction to the contrary. It is encouraging to note that such a reversal is already being implemented in a number of public places, notably hospitals.

Recalling the important effect of price on consumption and the ability of governments, by means of taxation increases, to increase the price of cigarettes, another important public attitude is the acceptability of further increases in cigarette duty. In

November 1981, only 9 months after the largest single cigarette tax rise for over 30 years, 55% of adults in a DHSS/NOP Survey said they either approved of or were not concerned about a further increase in cigarette taxation. In ex-smokers in the same population the corresponding figure was 70%. A similar question a year later provided figures of 59% of all adults either approving or indifferent to a further rise; 69% of ex-smokers (NOP Market Research Ltd, 1981, 1982). As the proportion of ex-smokers in the adult population continues to increase, it seems likely that the majority in favour of, or indifferent to further tax increases in the future, will continue to rise, thereby providing important political support for future Chancellors of the Exchequer to play their vital part in preventive medicine.

The main objectives of a smoking control programme may be summarized as follows: (1) To change the behaviour of the smoker; and to maintain that of the non-smoker; (2) To change the cultural background of society against which cigarette smoking is often viewed as a status symbol representing success and sophistication; and to establish the realistic view which is that smoking is both dangerous and unnecessary; (3) To change the economic and legislative climate so that smoking products are less readily available, pressures promoting smoking are removed and education and information programmes about the dangers of smoking and the benefits of not smoking are supported and reinforced; (4) To change the nature of the cigarette or other tobacco product so that it is less harmful for those who cannot or will not stop using it; (5) To establish non-smoking as the norm in society.

The possible components of a smoking control programme are as follows: (1) Carrying out a suitable economic and social analysis of the smoking problem; and repeating this analysis from time to time; (2) A public information programme, involving the dissemination of information, usually via the press, on all aspects of smoking at every possible opportunity; (3) Public education programmes—delivery of special programmes of education and information to specific target groups such as children, adolescents, adults, and exemplar groups such as doctors, nurses and health workers; (4) A legislative programme; (5) Access to schools, media and help from other agencies to deliver programmes once they have been developed.

The Norwegian experience

Of those countries which have attempted to make a serious impact on their smoking problems, Norway is exemplary. Norway decided to undertake a thorough range of measures to beat its smoking problem even

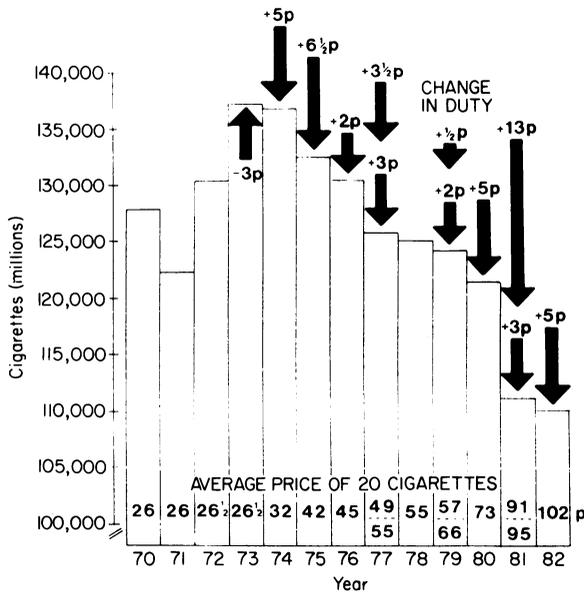


FIG. 4. U.K. cigarette sales: increase in duty of a standard packet of 20 cigarettes 1970–1982. Note: (i) changes in VAT excluded; (ii) structure of tobacco duties altered in 1978, (Source Customs and Excise, 1983).

though that problem was nowhere near as great as that of other countries which had taken much less action, such as the U.K. The Norwegian Tobacco Act entered into force in 1975, banning all advertising and promotion of tobacco products and introducing further regulations including the provision of health warnings and banning sales to children. Although it is still too early to be conclusive about whether the Norwegian measures will achieve their objectives, there have been some highly significant and beneficial developments. Most dramatic in terms of changing trends has been the effect on per capita tobacco consumption: this had been increasing steadily but in 1970, when the Norwegian measures were first announced, it levelled out. Before the Tobacco Act,

male smoking prevalence had been 52%, but began to drop to the present level of 40%. Among women there had been a steady rise of prevalence of smoking in the 1960s and early 1970s which then levelled out (data from Central Bureau of Statistics, Norway). This too has now begun to fall. Among young people, nationwide surveys carried out through schools indicate that an increasing trend of smoking among young people may now have been reversed.

Conclusion

No British government has responded adequately or with a sense of urgency to our smoking epidemic—or to the demands for tough action which have been heard from the medical profession for over two decades. Nevertheless, trends in smoking show that the fight is being won, even though at a slower rate than if a comprehensive range of smoking control measures were to be enacted; and thus a major risk factor in coronary heart disease in Britain is being removed. It is the urgent duty of government, politicians and society as a whole, rather than just health professionals, to ensure that this trend is maintained and improved still further.

References

- DOLL, R. & PETO, R. (1976) Mortality in relation to smoking: 20 years' observation on male British doctors. *British Medical Journal*, **2**, 1525.
- HAMMOND, E.C. & GARFINKEL, L. (1969) Coronary heart disease, stroke and aortic aneurysm. Factors in the etiology. *Archives of Environmental Health*, **19**, 167.
- MAHLER, H. (1980) *Smoking or Health. The choice is yours!* World Health Feb–Mar 3.
- NOP MARKET RESEARCH LTD (December 1981, 1982) *Smoking habits*.
- ROYAL COLLEGE OF PHYSICIANS (1962) *Smoking and Health. A Report of the Royal College of Physicians of London on Smoking in relation to cancer of the lung and other diseases*. Pitman Medical Publishing Co., London.
- TOWNSEND, J. & MEADE, T.W. (1979) Ischaemic heart disease mortality risks for smokers and non-smokers. *Journal of Epidemiology and Community Health*, **33**, 243.
- WILHELMSSON, C., VEDIN, J.A., ELMFELDT, D., TIBBLIN, G. & WILHELMSSON, L. (1975) Smoking and Myocardial infarction. *Lancet*, **i**, 415.