

SMOKING AND HEALTH: NEW INSIGHTS AND RECENT DEVELOPMENTS

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Tobacco has been a source of recurrent controversy since it was introduced to the rest of the world from America approximately 500 years ago, acclaimed as a source of pleasure by some and abhorred by others. The Turkish historian Ibrahim Pechevi left no doubt about his feelings when tobacco reached the Middle East about 400 years ago.¹ "The fetid and nauseating smoke of tobacco was brought in the year 1009 (1600-1601 A.D.) by English infidels who showed it as a remedy for certain diseases of humidity. Some pleasure seekers and sensoralists became addicted and soon even those who were not pleasure seekers began to use it. Many even of the great ulema and the mighty fell into this addiction."

Smoking habits and frequency have varied greatly over the centuries. In the Western world about 100 years ago, smoking of pipe and cigars, as well as chewing of tobacco and snuff, predominated and cigarette smoking was negligible. This changed completely over the first half of the 20th century, when cigarette smoking became predominant, accounting for more than 80% of all tobacco consumption.

The Human Cost of Smoking

The realization that smoking is detrimental to human health has been slow in coming, and largely belongs to the last 60 years. Until then, smoking was mainly regarded as a harmless exercise, although frowned upon as amoral by some religious authorities, and decried as a nuisance or unhygienic by anti-smokers. In fact, medicinal properties were sometimes attributed to tobacco, a claim eagerly accepted by smokers and certainly paradoxical, given today's knowledge. In 1940, smoking was reported to be associated with coronary heart disease.² Shortly thereafter, a link between smoking and lung cancer was suspected, and was confirmed a decade later in British and American studies.^{3,4} The last 20 years has seen an avalanche of information on the detrimental effect of smoking on human health.

The excess long-term mortality from smoking has been highlighted in several recent studies, particularly in the so-called British Doctors' Study, which followed a cohort of male British doctor smokers and nonsmokers for four decades, beginning in 1951.⁵

In the 1994 update of the study, with a 40-year observation period of all participants, it was concluded that previous estimates of the long-term mortality from smoking had been too low, and the authors arrived at the stark conclusion that "half of all regular cigarette smokers will eventually be killed by the habit." The study found that smokers have an increased annual death rate from a number of diseases, chiefly a variety of cancers, cardiovascular disease and nonmalignant respiratory disease. Lung cancer led the field, the risk of death from this disease being 25 times greater in smokers than nonsmokers. Mortality from cardiovascular disease was increased by 50% in smokers compared to nonsmokers, and caused the greatest excess mortality overall because of the high frequency of this group of diseases in the population. For cigarette smokers, the age by which half had died was eight years less than for nonsmokers, while for heavy cigarette smokers it was 10 years. More than half the deaths of smokers in middle age (35-69 years) were caused by smoking, and the average loss of life in this age group compared to nonsmokers was 20-25 years.⁶ In a similar study, Easton calculated that New Zealand male smokers reduced their life expectancy by 11.7 years and females by 15.6 years.⁷ Worldwide, three million people were estimated to have died from smoking-related illnesses in 1995, and the annual figure is projected to rise to 10 million in 2025 if current smoking trends continue.⁸

In addition to causing non-fatal cardiovascular and pulmonary diseases in both males and females, there is a long list of other smoking-related illnesses. Eye diseases such as cataract and age-related macular degeneration have been shown to be caused by smoking.^{9,10}

In women, smoking reduces fertility, increases the rate of spontaneous abortion and complications of pregnancy such as abruptio placenta, placenta previa, bleeding and premature rupture of placental membranes.¹¹ Smoking also carries an enhanced risk of postmenopausal osteoporosis, as well as increased risk of facial wrinkling.^{12,13} Youngsters who smoke have a sixfold increase in the risk of subarachnoid hemorrhage, generally a rare condition.¹⁴

The risk of disease and death caused by smoking is by no means confined to the smokers themselves. Although still a subject of some controversy, it is now firmly

established that environmental smoke (passive smoking) is associated with a number of the same fatal and non-fatal conditions as active smoking. Environmental smoke consists of a mixture of mainstream smoke (exhaled by the smokers), and sidestream smoke (the smoke that drifts off from the burning tip of the cigarette). In fact, most of the smoke emitted from a lit cigarette is sidestream smoke rather than smoke which is actively inhaled. Environmental smoke is now proven to carry an increased risk of lung cancer and coronary artery disease in nonsmoking spouses of smokers.¹⁵ Unborn children of smoking mothers are particularly at risk from passive smoking. They suffer from an increased risk of low birth weight, perinatal death, sudden infant death syndrome, as well as long-term neurotoxicity affecting neurobehavioral development.¹⁶ There is also evidence that the offspring of nonsmoking mothers subjected to environmental smoke during pregnancy suffer some of the same consequences.¹⁷ Overall the human cost of smoking measured in loss of life and health can only be described as enormous.

The Mechanism of Tobacco Addiction

It is now well established that tobacco smoke is addictive. In the US, 80% of smokers are addicted before the age of 18,¹⁸ and the pattern is probably the same in the rest of the world. It has been known for some time that nicotine stimulates the release of dopamine, an important neurotransmitter in the brain, and this effect is thought to be central to the mechanism of nicotine addiction.¹⁹ Dopamine release is known to have a pleasure-enhancing effect. Furthermore, it has recently been shown by Fowler and associates that nicotine inhibits the enzyme monoamine oxidase B (MAO B) in the brains of smokers, an enzyme which is involved in the breakdown of dopamine. A group of smokers were found to have MAO B levels in the brain which, on average, were 40% lower than that of nonsmokers. Thus they hypothesize that the reduction in MAO B levels acts synergistically with nicotine to boost dopamine levels even higher.²⁰

In August 1996, nicotine was officially recognized as a drug in the US, which gave the Federal Drug Administration wide-ranging powers to regulate the manufacture, sale and distribution of nicotine and thus all tobacco products.

The Tobacco Industry and the Role of Advertising

Today's cigarette market consists mainly of two types of cigarettes: the national brands produced in just about each and every country and typically tailored to that country's particular taste, and the international brands produced by large multinational companies mainly based in the U.S. Tobacco is big business. In 1992, Phillip Morris was the most profitable corporation in the US, with profits of US\$4.9 billion, half of which came from tobacco.²¹ Tobacco products used to be freely advertised and marketed. Starting with the 1964 US Surgeon

General's Report on the detrimental effects of smoking,²² things began to change.

In 1971, cigarette advertising in the electronic media was prohibited in the US. This only meant that advertising shifted to newspapers, magazines and billboards, and total advertising expenditure by US tobacco companies actually increased enormously, while overall smoking levels increased slightly.²³ The tobacco industry also turned to promotion and sponsorship in order to circumvent the ban on advertising in the electronic media, supporting such popular sporting events as the Marlboro Grand Prix, the Camel Motorcross, the Virginia Slims Tennis Tournament and the Salem Cup. Cultural events were also sponsored, university chairs endowed, etc. Other promotional gimmicks were introduced, such as the free distribution of cigarettes (kiddie packs), and the so-called Joe Camel Campaign initiated in 1988, featuring a cartoon character Joe Camel. This campaign was a huge success and succeeded in increasing the Camel share of the teenage market from 0.5% to 32.8% within two years.

The role of advertising and promotion has been the subject of controversy over the years, with opponents of tobacco use insisting that it increases its overall use, whereas proponents claim that all it does is alter the market share of different companies without affecting the overall size of the market. In a comprehensive review of the evidence by the Toxic Substances Board of New Zealand in 1989, it was concluded that tobacco advertising does indeed increase tobacco consumption and market size, and not just market share.²⁴ This was also the conclusion in the US Surgeon General's Report in 1994, which dealt with preventing tobacco abuse among young people.²⁵

The Economic Cost of Smoking

The cost to society from smoking is truly enormous. The cost to the US economy in the form of lost productivity and premature deaths from tobacco-related illnesses was estimated at \$47 billion for the year 1990.²⁶ The annual loss to the U.S. economy from passive smoking was estimated at \$8.6 billion.²⁷ In New Zealand, with a population of approximately 3.5 million, the cost of smoking-induced hospitalization in 1985 was estimated at NZ\$100 million, corresponding to 302,000 bed-days annually.²⁸

The economic burden of smoking for individual smokers varies widely with the level of consumption and smokers' income. In some cases the cost of the habit can be staggering. A recent study from Shanghai, China, where cigarette smoking has caught on explosively in recent decades, showed that 67% of males and 2% of females were current smokers, and spending an average of 60% of their personal income, corresponding to 17% of household income, on cigarettes.²⁹

The Worldwide Fight Against Smoking

As public awareness of the hazards of smoking has

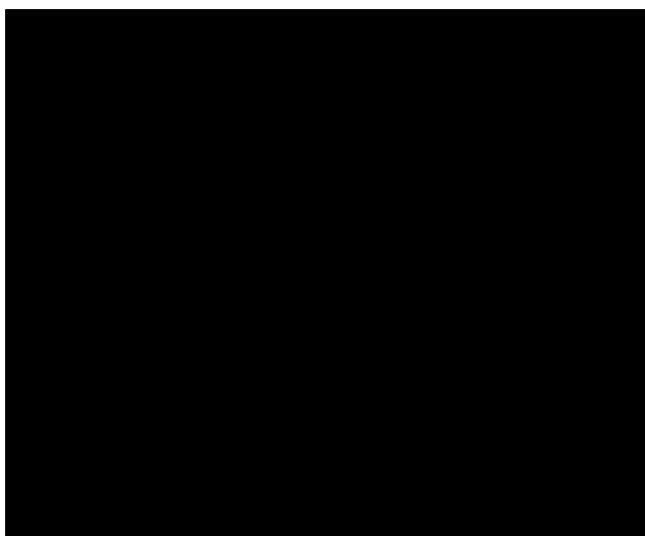


FIGURE 1. How Saudi Arabia compares against the world's top ten and the USA on cigarette prices (average price for a pack of 20 cigarettes in Saudi riyals).

grown and thousands of studies have confirmed the severity of the problem without a shadow of doubt, the fight against smoking has taken a dramatic upturn in the Western world. Although the situation varies from country to country, some key measures have been implemented in most places. These include price hikes, restrictions on tobacco advertising, public education, measures to develop safer cigarettes, and specific measures to keep cigarettes out of the hands of children and adolescents. Norway and Finland became two of the first countries in the world to ban tobacco advertising completely in the early 1970s. In the US, advertising in the electronic media was prohibited from 1971, and in August 1996 further tightening of restrictions on advertising were announced by President Clinton. Since the tobacco companies have consistently claimed that advertising only serves to encourage brand loyalty among existing smokers (and not recruit new ones), one proposed solution for doing away with advertising has been to adopt generic packaging only, e.g., sell cigarettes in plain white packages, giving the brand name in black letters, with a health warning. Studies have shown that it is the brand image(s) which attract smokers, and generic packaging has been proposed (although not adopted) in Canada, Australia and New Zealand in order to break the link between the act of smoking and the brand image.³⁰ The price of cigarettes clearly influences consumption, higher prices tending to decrease smoking. This has been found in Canada, the UK, France and elsewhere. In a publication from the European Seminar on Tobacco Taxation Policy held in London, UK, in December 1994,³¹ a key recommendation was that the EU member states ought to raise taxes on tobacco annually, so that they increased more than the rate of inflation. Another recommendation was to allow member states to tax

cigarettes with higher levels of nicotine and tar more heavily, and allocate a proportion of the added revenue to health promotion campaigns. The study concluded that in the short-term, government revenue from higher tobacco taxes would actually increase even though consumption was reduced. As an example, for the UK it was calculated that for every 10% increase in price by tax increases, tobacco consumption would fall by 5%, but tax revenue would increase by 7.5%, corresponding to an extra 500 million pounds sterling annually.³²

Prohibiting smoking in public places and the workplace has been widely adopted in many countries in recent years. In a major US study from 1996 of smoking bans in American hospitals, it was concluded that bans could be implemented as a method of improving employee health, and the bans were effective in saving lives, reducing healthcare costs and safety problems, and decreasing operating and maintenance expenses of employees.³³

Public information campaigns and introduction of smoking information in school curriculae have been practiced for a number of years. Health warning labels on cigarette packs have been required by law in the US since 1966 and subsequently in many other countries. Needless to say, the tobacco companies have not been sitting idly by watching their market being eroded by the onslaught of the antismoking forces. With their home market shrinking (the percentage of US smokers has declined from roughly 40% in the late 1970s to 25% today), the big companies have been busy creating new markets for themselves elsewhere, particularly in the developing world. In fact, the world production of cigarettes has risen at an annual rate of 1.7%, outpacing the annual world population increase of 1.2%.³⁴ The large companies based in the US and the UK have fought a running battle with regulatory agencies, particularly the FDA. Industry strategies have consisted of litigation challenging FDA jurisdiction, litigation against the media or threats thereof, lobbying the US Congress, and running advertising campaigns to influence public opinion, all of which have been remarkably successful for decades.

Recently, however, under threat of potentially ruinous class action suits against the industry and also suits from 40 US states trying to recover the costs of treating sick smokers, the tobacco industry and the US government reached what seems to be a historic settlement. Under the terms of this agreement, the American tobacco industry will pay \$368.5 billion in compensation over the next 25 years. Additionally, the use of human and cartoon forms in advertising will be forbidden, as well as advertising on all outside sites and the Internet. Various forms of product placements will be forbidden, as well as cigarette vending machines. The industry agreed to concede full regulatory control to the FDA and pledged to finance a campaign to reduce smoking by youth by 50% within seven years. However, the industry remains free to promote its products elsewhere. Many critics claim that the settlement will be

too favorable for the industry, and it appears increasingly unlikely that the agreement will be approved by the U.S. Congress.

A somewhat similar set of proposals has been considered by the British government and will be contained in a "White Paper" due soon.

Cigarette Smoking in Saudi Arabia

Smoking only became widespread in Saudi Arabia in recent times. In fact, smoking was totally prohibited by King Abdulaziz in 1926 as being un-Islamic.³⁵ However, since the 1950s, cigarette smoking has become widespread in Saudi Arabia. From 1961 to 1987, tobacco imports increased forty-fold.³⁶ Although no nationwide study of smoking problems has been done, various surveys indicate that 20%-40% of the male population are regular smokers, while the figures for females are somewhat less.³⁷⁻³⁹ The human cost to Saudi Arabia of this high rate of tobacco consumption has not been calculated but is bound to be high. Lung cancer is one of the leading causes of cancer deaths in males, according to a recent study in the Eastern Province, and both morbidity and mortality can be expected to rise sharply if present smoking patterns continue unabated.³⁶

Although direct advertising of tobacco products is prohibited in Saudi Arabia, foreign publications continue to carry cigarette advertising. Cigarettes remain widely available in supermarkets and shops and are typically prominently displayed. There are no restrictions on sales to minors, and despite a recent price hike, prices are still very low compared to prevailing rates in the Western world (Figure 1). There is little knowledge among the population about the risks of smoking, and consumption of 60-80 cigarettes daily is considered quite ordinary by many. Smoking is now banned in public places such as hospitals, airports and on domestic flights, but the ban is often flouted and enforcement is extremely lax.⁴⁰ The government has recently decided to raise tobacco import duties, which will result in a price increase, but cigarette prices will continue to remain very low by world standards. Other efforts to control smoking in Saudi Arabia have hitherto remained rather feeble.

Statistics on smoking are lacking, although there is no doubt that smoking is already a leading cause of illness and premature deaths, in addition to causing untold human suffering and great expenditure to the Saudi health services. What is more, this tragic situation is certain to worsen in the decades ahead unless strong action is taken. In 1994, the World Health Organization issued a set of recommendations for government action on smoking to the governments in the Middle East.⁴¹ Accordingly, the governmental authorities would do well to adopt the WHO program and adapt it to the conditions in Saudi Arabia. This should include the following strategies:

1. Development of a national strategy.
2. Assessment of the magnitude of the smoking problem on the public's health and establishment of a baseline on consumption.
3. Development of educational materials for both the public and health professionals, using the media and non-governmental organizations to spread the message of the harmful effects of tobacco.
4. Institution of price increases, using taxation to bring cigarette prices in Saudi Arabia in line with prices in the Western world, and using the extra revenue to fund health promotion programs.
5. Restriction of sales to minors (requirement of identification cards for purchasing).
6. Adoption of generic packaging for all tobacco products.
7. Banning of all forms of tobacco promotion, including those at point-of-sale, in addition to the existing ban on advertising.
8. Expanding the existing ban on smoking in public institutions and transportation and creating mechanisms to ensure enforcement of the ban.
9. Introduction of smoking information in school curriculae.
10. Introduction of legislative measures to reduce the tar and nicotine levels in cigarettes.
11. Development of a tobacco control program at the national level.

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