Background materials on Tobacco Control

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1	Tobacco kills.....Don't be duped Say no! Regional office, World Health Organization. 2000	1-24
2	3 - Tobacco use in India: Practices, patterns and prevalence 3.1 – Tobacco use practices 3.2 – Prevalence of tobacco use 3.3 – Prevalence of tobacco use among women 3.4 – Prevalence of tobacco use among women 3.5 – Key selected studies and estimation of the number of tobacco users 6.6 – Health Education and Mass Media Efforts 6.7 – India experience with tobacco cessation 7.4 – Policy Interventions: A comprehensive ban on advertising 7.5 – Policy Interventions: Packaging and labeling of tobacco products 7.6 – Protection of Vulnerable Groups: A human Rights' approach to tobacco control 7.7 – Community Interventions: Protecting the Youth from Tobacco 7.8 – Community Interventions: Smoke-free public places 7.9 – Community Interventions: Strenthening Health Literacy on Tobacco related matters 7.10 – Benefiting from models of behaviour change 7.11 – Individual interventions: Promoting tobacco cessation Report on Tobacco Control in India. Edited by K Srinath Reddy & Prakash C. Gupta. Published by Ministry of Health and Family Welfare, government of India. 2004	25-56 57-74 75-127
3	The smoke-free class competition – A European School – Based Anti Smoking Campaign. An overview of the experiences of 1997/98. Edited by Sari Savolainen. Published by National Public Health Institute, Finland. 1998	128-164
4	Finnish Strategy to Promote Health and Non-smoking Among Young People. Published by Ministry of Social Affairs and Health. Helsinki. 1997	165-184

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5	Control of Tobacco Habits Smoking habits Tobacco control in India Tobacco Research and Interventional Studies in India Tobacco and Areca Nut by V M Sivaramakrishnan. Published by Orient Longman, Bangalore. 2001	185-233
6	Appendix 3 – Health effects associated with exposure to Second-hand Smoke Appendix 4 – Countering the opposition Protection from Exposure to Second-hand Tobacco Smoke – Policy recommendations. WHO, Geneva. 2007	234-241
7	Crowding out effect of tobacco expenditure and its implications on household resource allocation in India by Rijo M. John. Social Science and Medicine, 66 (2008) 1356-1367	242-253

Tobacco kills...Don't be duped

Say No !

World No-Tobacco Day
31 May 2000

World Health Organization
Eastern Mediterranean
Regional Office

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Message from Dr Gro Harlem Brundtland, Director-General of the World Health Organization for World No Tobacco Day 2000

Every day, 11000 people die due to a tobacco-related disease. Tobacco is a communicated disease—communicated through advertising and promotion for which the tobacco industry spends billions of dollars. Tobacco advertisements talk to us from our streets, films, radios, television sets and sports events. Everywhere our children and we turn, there is something or someone telling you to smoke.

What makes all this unacceptable and treacherous is that this dangerous and addictive product is sold to youth and adolescents as an assertion of their freedom to choose. One of the primary objectives of the tobacco industry is to frame tobacco use as an individual and behavioural decision. The deception in this casting is that it leaves the tobacco industry's activities and practices completely out of the equation. It assumes that people make their decisions in a state of vacuum, completely uninfluenced by the environment of industry advertising and marketing.

Research shows that people's decision to smoke is influenced by tobacco industry promotion. Tobacco advertising featuring prominent sports and entertainment figures project and reinforce and image of tobacco as glamorous, fun, healthy, sophisticated and wealthy. In countries where advertising bans are beginning to emerge, subtle product placement in films and film videos continue to send these messages to young people. By the time people find out, it is often too late.

So what is it that the tobacco industry spends billions of dollars to conceal? They want to suppress truth that documents their manipulation of nicotine to levels that ensure that addiction occurs and is sustained. Truth that shows us that the tobacco industry privately

develops strategies to market to children while publicly claiming the contrary. Truth, that instructs us that it is hard, if not impossible to find any parallel in history where people who have gone about in such a systematic way perpetuating death and destruction have gone unpunished and unquestioned.

Our decision to focus on the entertainment, films and sports industry for World No Tobacco Day this year is a carefully thought one. It is unconventional and unorthodox, but that is precisely why we have chosen it—the tobacco industry strikes where people least suspect it to be. Global advertising bans is also one of the early protocols that will be negotiated by WHO's 191 Member States working on the Framework Convention on Tobacco Control. The decision to highlight that early in the treaty-making process is no accident—it is our answer to calls from our Member States seeking an urgent global response to a global menace.

Together, we can hold up mirrors to their practices. Together, we can buck the tobacco tide that is set to claim 10 million people by 2030, over 70% of them in the developing world. To those young and not so young who might be debating whether or not to start smoking, I would like to say, "tobacco kills—don't be duped."

Message by Dr Hussein A. Gezairy Regional Director WHO Eastern Mediterranean Region on the Occasion of World No Tobacco Day 31 May 2000

As I was completing this message on the occasion of World No Tobacco Day, a friend of mine asked me the following question: why does the World Health Organization put such a strong emphasis on tobacco smoking when everyone is fully aware that smoking is extremely harmful to health? He added: every smoker knows this fact and feels it in his poor health and his vulnerability to many diseases and the rapid deterioration of his health.

That many people are generally aware of the harmful effects of smoking is one thing, but knowing the full extent of such effects and the health, social and economic consequences of smoking is something else. Who, among the vast majority of people, realizes that in the few minutes a person needs to read this message, smoking will have killed 60 more people? How many of us realize that tobacco smoking kills more than 10 000 people every day? As for the diseases directly related to smoking, these are countless. It is sufficient to state that if everyone were to stop smoking completely, and if no one were to light up a cigarette or puff out tobacco smoke, the world would be spared one-third of all cancer cases, a substantial proportion of cardiovascular diseases would be prevented, and a further substantial reduction would be achieved in the number of cases of many serious and killer diseases. The fact is that smoking is a more fatal killer than wars, natural disasters and epidemics.

Nevertheless, smoking remains acceptable in many social environments. Smokers continue to puff away at home and at work, paying no heed to the extensive and serious harm to which they

expose their families and colleagues. The tragedy is that the number of smokers is increasing, and its tragic consequences are rapidly mounting. According to WHO's estimates, the number of smokers in the world today is in excess of 1.25 billion, which is more than one-third of all people above 15 years of age. If the present trends continue, this number will continue to rise. By the year 2020, the number of victims which tobacco kills all over the world will reach 10 million every year, or more than 10 000 every hour of the day and night.

Despite all the health problems tobacco smoking causes, powerful interests including multinational companies and prosperous national industries continue to promote tobacco, targeting adolescents and women in particular. The tobacco industry is always trying to compensate for the loss of those of its customers killed by its evil product. It tries to give smoking a false glamour and an adventurous aura that it does not have. By so doing, it seeks to attract teenagers before they gain a full picture of the harmful effects of tobacco and the hard addiction it causes.

At the same time, officials in certain sectors, such as agriculture, industry and taxation, imagine that they make large financial and economic profits from tobacco growing, sale and consumption. But a proper balance sheet of profits and losses attributed to tobacco will immediately reveal that the losses incurred by every country of the world in consequence of smoking far outweigh the profits it makes. This is true when we include just the hard figures of material gain and loss. The human loss, in terms of morbidity and mortality, however, is too great to be balanced against any financial revenue that by contrast will remain paltry, no matter how high its figures are.

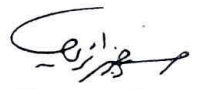
The tragedy represented by tobacco smoking cannot be overcome except through a collective effort in which all sectors cooperate, including education, health, media, religion, agriculture, industry and finance. In this joint effort, measures taken by governments should support and complement efforts made by individuals and voluntary organizations. They should all contribute to an integrated effort that seeks to protect adolescent boys and girls from starting to smoke and

also helps smokers to quit their harmful habit. Such an effort should also contribute to rescuing the world from the scourge of smoking and to achieving a tobacco-free world.

But these goals cannot be achieved except through a common effort in which all take part. Every year the World Health Organization seeks to enlist the support of one sector of society in the fight against tobacco with an aim of preventing its promotion. This year we are trying to enlist the support of all who work in the entertainment sector, including the media. When we look around, we find that tobacco promotion seeks to portray smoking as glamorous and fun. We also see places of entertainment, such as cafes and places of recreation, providing facilities that encourage people to smoke. Many hotels and clubs have introduced what they describe as a Ramadan tent in which the sinful practice of smoking, particularly waterpipe, is encouraged, and thereby they defile the month of worship. Women's smoking of the waterpipe has recently become very common in these places, while it used to be totally unknown.

The fact is that all this promotion relies on absolute falsehood. There is in fact no pleasure to be derived from smoking. Pleasure is to be sought in practices that promote health and prevent disease. Thus the World Health Organization appeals to all men and women who work in the entertainment sector to join it in its strong stand against tobacco and to contribute to the worldwide effort to protect our young against the temptation to smoke and to free our world of tobacco. This is highlighted in the slogan we raise this World No Tobacco Day: Don't be duped... tobacco kills.

May God bless you all.



Dr Hussein Gezairy
Regional Director

The health dimension of the tobacco problem

Four million people are killed by tobacco every year. For the smoker, however, this does not happen out of a sudden. Death comes as the result at the end of a long series of suffering and illness. Tobacco smoke contains no less than 4000 chemical compounds which are harmful; 500 of these are very harmful, and 43 are complete carcinogens, i.e. cancer causing agents, in their own right. Smoking is also harmful in the short term. The irritant substances in tobacco smoke can cause a build up of phlegm and a smoker's cough. Tobacco smoke also reduces the efficiency of the lungs, making people more breathless than they would normally be during situations of rest-exercise, or sudden physical exersion. Furthermore, smoking reduces the ability of the lungs to fight infection, which makes smokers more likely to get different types of chest infections.

However, the worst types of the health effects of tobacco smoking appear only after many years of continuous smoking. This is the reason why young smokers continue to turn a blind eye to the harm they inflict on themselves by smoking. The fact remains that a large number of fatal and life-threatening diseases are caused largely or entirely by smoking. These include chronic obstructive pulmonary disease, vascular diseases at various critical sites and several forms of cancer. A study by the American Cancer Society found that cigarette smokers had ten times the risk of dying from chronic obstructive pulmonary disease than non-smokers. It also established that about three-quarters of deaths from this disease were attributable to smoking. In a prospective study of male British doctors,. cigarette smokers had 13 times the risk of dying of the disease compared to non-smokers.

The number and types of cardiovascular diseases caused by smoking is large indeed. These include coronary artery disease and heart attacks, aortic aneurysms which can lead to sudden death, carotid artery disease which can lead to strokes and peripheral

vascular disease which, in the lower limbs, can lead to severe pain in the leg on walking and may necessitate amputation.

The list of diseases known to be associated with smoking includes cataracts, hip fracture (osteoporosis), and periodontal disease.

As for cancer, it is well established that smoking is the direct cause of the overwhelming majority of cases of lung cancer. Smoking and alcoholic drinks are the two main causes of cancer in the oral cavity and the larynx. When both risk factors are present, the total risk is higher than the sum of the two risks taken separately. Other cancers caused by smoking are those of the pharynx, oesophagus, stomach, pancreas and bladder. Smoking is also related to other cancers in the head and neck.

This is a summary of what tobacco smoking causes to smokers. What it causes to non-smokers is in no way less serious or less extensive. In its report of 1998, the British Scientific Committee on Tobacco and Health outlines the effects of environmental tobacco smoke, making the following conclusions:

- Exposure to environmental tobacco smoke is a cause of lung cancer and, in those with long term exposure, the increased risk is in the order of 20%–30%.
- Exposure to environmental tobacco smoke is a cause of ischaemic heart diseases and if current published estimates of magnitude of relative risk are validated, such exposure represents a substantial public health hazard.
- Smoking in the presence of infants and children is a cause of serious respiratory illness and asthmatic attacks.
- Sudden infant death syndrome, the main cause of post-neonatal death in the first year of life, is associated with exposure to environmental tobacco smoke. The association is judged to be one of cause and effect.
- Middle ear disease in children is linked with parental smoking and this association is likely to be causal.

In addition women are at an increased risk of cancer of the cervix as a result of smoking. Women who smoke and use contraceptive pills run a higher risk of suffering a stroke or a heart attack. Smoking causes complications during pregnancy and harms the developing baby. Mothers who smoke put their own health at great risk, and they also expose their babies and young children to all the risks of passive smoking.

Deceptive and alluring practices employed by tobacco companies have successfully drawn women and girls into the claws of smoking

These facts give a clear indication of the magnitude of the problems faced by health authorities as a result of tobacco smoking. But the problem is ever on the increase. The number of smokers throughout the world continues to rise, and a small percentage of smokers try to quit, with only a moderate rate of success.

Most Member States in the Eastern Mediterranean Region have taken measures aimed at curbing the spread of the smoking epidemic. Nevertheless, the problem is still on the increase, due to three highly important reasons. The first is the fact that tobacco is addictive. The Report of the British Scientific Committee on Tobacco and Health states: "Nicotine has been shown to have effects on brain dopamine systems similar to those of drugs such as heroin and cocaine, and with appropriate reward schedules it functions as a robust reinforcer in animals. Dependence on nicotine is established early in teenagers' smoking careers, and there is compelling evidence that much adult smoking behaviour is motivated by a need to maintain a preferred level of nicotine intake, leading to the phenomenon of nicotine titration, or compensatory smoking in response to lowered nicotine

yields. People seeking treatment for heroin, cocaine, or alcohol dependence rate cigarettes as hard to give up as their problem drug. The aversiveness of nicotine withdrawal is an important factor underlying the failure of many attempts at cessation."

Furthermore, a habitual smoker more than doubles the risk of dying before the age of 65. The best health investment anyone can make is never to smoke. Giving up smoking is the best measure a smoker can take to improve his or her health. Should all smokers stop smoking and no one light up again, more than one-third of all cancer cases would be avoided.

Today, there are different ways to help smokers who wish to quit the habit. These should be made available in hospitals, primary health centres, pharmacies and other health facilities.

It is important to remember that the choice we have is always one between tobacco or health. The two are at opposite extremes and cannot meet up.

Tobacco kills—don't be duped
The tobacco industry's war on public health

The tobacco industry has declared war on public health. A cigarette is the only consumer product which, when consumed as indicated, kills. Tobacco is a powerfully addictive substance and the tobacco industry has subverted science, public health and political processes to sell a product that addicts its consumer before killing them. Available data shows that two-thirds of today's smokers started in their teen years. Far from being a bunch of tobacco leaves rolled into paper tubes, a cigarette is a highly engineered product designed to addict and kill.

> *Manufacturers are concentrating on the low TPM [total particulate matter] tar and nicotine segment in order to create brands... which aim, in some way or another; to reassure the consumer that these brands are relatively more "healthy" than orthodox blended cigarettes.*
>
> P.L. Short, British American Tobacco Company, "A new Product," 1971

* * *

Lies and more lies

One of the primary objectives of the tobacco industry is to frame tobacco use as an individual and behavioural decision. The deception in this casting is that it leaves the tobacco industry's activities and practices completely out of the equation. It assumes that people make decisions in a state of vacuum, completely uninfluenced by their environment including industry advertising and marketing.

"The tobacco companies spend US$6 billion a year enticing youth to smoke. They make you believe that if you smoke, you're going to be sexy, attractive, successful, accepted by your peers, rocking, and macho, cool and sassy. They project this image in every media —from day time movies to night-time movies, magazines and even cartoon

characters," says former "Winston" man turned tobacco control activist Allan Landers.

Research indicates that the decision to smoke is affected by tobacco industry promotion. Tobacco advertising featuring prominent sports and entertainment figures project an image of tobacco use as glamorous, fun, healthy, sophisticated and wealthy. In countries where advertising bans are beginning to emerge more subtle product placement in movies and music videos continue to send these messages to young people. By the time people find out, it is often too late.

* * *

The threat concerns us all

The tobacco industry acts as a global force sparing no nations and peoples. There are no true economic or public health arguments in favour of tobacco as it kills human beings and saps national treasuries. Tobacco has killed four million people this year. By the 2020s or the early 2030s, that preventable death toll will rise to 10 million deaths per year. The tobacco industry and their marketing henchmen need some 11 000 new smokers every day to replace those they kill. So they target our children and sell addiction and death as an act of freedom, rebellion, free choice, sophistication and success.

> *to ensure increased and longer term growth for the Camel Filter, the brand must increase its share penetration among the 14–24 age group which have a set of more liberal values and which represent tomorrow's cigarette business.*
>
> 1975 Memo to C.A. Tucker, Vice-President For Marketing, R.J. Reynolds

* * *

Countering the deception

Every eight seconds a person dies of a tobacco-related disease and almost as quickly another victim is recruited. Big tobacco trades in death and deception. This assault on world health has got to stop. The WHO has risen to this global challenge. At the core of this response is the creation of the world's first legally binding international treaty dedicated to human health. The WHO Framework Convention on Tobacco Control (FCTC) will address such issues as advertising bans, smuggling, taxes and agricultural diversification with a view to crafting a global response to a global menace.

As tobacco control action begins to reduce markets in the west, transnational tobacco companies are aggressively extending their global reach. The FCTC will provide a powerful political platform upon which all the nations of the world can unite and strengthen their capacities to counter the deadly and deceitful cross border tactics of the transnational tobacco companies.

> *If you still believe the industry is simply stuffing tobacco into paper tubes, not fine-tuning nicotine delivery, consider this quote from a senior scientist working for a tobacco company, uncovered recently from a long-hidden document. In 1972, he said: "the cigarette should not be construed as a product but a package. The product is nicotine. Think of the cigarette as a dispenser of a dose unit of nicotine. Think of a puff of smoke the vehicle of nicotine."*
>
> WHO Director General Dr Gro Harlem Brundtland to the Ninth International Conference of Drug Regulatory authorities, Berlin, 27 April 1999

* * *

Igniting the tobacco curtain

Key to big tobacco extending its global reach has been aggressive marketing and advertising and the creation of a new "tobacco iron curtain". What is going on in the west (European Union legislation, huge tobacco company settlements in the United States, advertising

bans, etc) is not known in Sri Lanka or Mexico. On the other hand unregulated marketing to youth and women in developing and developed countries in transition (cigarette discos, golden cigarette contests, etc) which are systematically denied in the west have not been sufficiently exposed. To ignite this tobacco curtain and build global support for the FCTC, the WHO has developed the "tobacco kills–don't be duped" media initiative.

This new media initiative will systematically attempt to reframe public perception of the tobacco problem by giving the health and political community the tools needed to begin to expose and combat the enormous resources and deceitful tactics of the transnational tobacco companies.

> *Obviously there is enormous potential in all these countries. I would say that the demand for Western cigarettes is insatiable. It's a fantastic opportunity for everybody, and we're talking in any number of countries.*
>
> Stuart Watterton, BAT Director of New Business Development speaking of new opportunities in Eastern Europe and the former Soviet Union, 1995

> *They've got a good buffer. No matter how badly things go in the United States, international sales will carry them along.*
>
> Allan Kaplan, tobacco analyst at Merrill Lynch & Co. commenting on Phillip Morris, 1997

From the horse's mouth: the tobacco industry speaks

I do not believe that nicotine is addictive.

Thomas Sandelfur, Chief Executive of Brown & Williamson

* * *

I believe that nicotine is not addictive.

William Campbell, Phillip Morris

* * *

And I too believe that nicotine is not addictive.

James Johnston, R.J. Reynolds

CEOs testifying under oath before Congressional Health and Environment Subcommittee, 1994

* * *

Nicotine is addictive. We are, then, in the business of selling nicotine, an addictive drug.

Addison Yeaman, Brown & Williamson, 1963

* * *

Smoking and cigarette for the beginner is a symbolic act. I am no longer my mother's child, I'm tough, I am an adventure, I'm not a square... as the force from the psychological symbolism subsides, the pharmacological effect takes over to sustain the habit...

Phillip Morris, Vice President for Research and Development, "Why One Smokes," first draft, 1969

Recent revelations of corporate documents disclosed in litigation and associated investigations, give compelling evidence for the longstanding interest of various tobacco companies in young smokers. The following is an overview of statements made by these companies.

Evidence is now available to indicate that the 14- to 18-year-old group is an increasing segment of the smoking population. RJR must soon establish a successful new brand in this market if our position in the industry is to be maintained over the long term.

RJ Reynolds planning forecast stamped "secret", 15 March 1976

Our attached recommendation...is another step to meet our marketing objective: To increase our young adult franchise. To ensure increased and longer-term growth for Camel Filter, the brand must increase its share penetration among 14–24 age group which have a new set of more liberal values and which represent tomorrow's cigarette business.

J.W. Hind, RJ Reynolds, 23 January 1975

...if our company is to survive and prosper, over the long term we must get our share of the youth market. In my opinion this will require new brands tailored to the youth market.

Claude Teague, RJ Reynolds, Researcher, 1973

If the last ten years have taught us anything, it is that the industry is dominated by the companies who respond most effectively to the needs of young smokers.

Overall Market Conditions 1988, Imperial Tobacco Ltd (ITL)

Since how the beginning smoker feels today has implications for the future of the industry, it follows that a study of this

Excitement, adventure and masculinity.. harsh strong psychological pressure is exerted by the tobacco industry on children and young people through advertisement

area would be of much interest. Project 16 was designed to do exactly that–learn everything there was to learn about how smoking begins, how high school students feel about being smokers, and how they foresee their use of tobacco in the future.

Ads for teenagers must be denoted by lack of artificiality, and a sense of honesty

Serious efforts to learn to smoke occur between ages 12 and 13 in most cases.

The adolescent seeks to display his new urge for independence with a symbol, and cigarettes are such a symbol since they are associated with adulthood and at the same time adults seek to deny them to the young.

Kwechansky Marketing Research Inc, Report for Imperial Tobacco Limited, Subject: "Project 16", Date: 18 October 1977

Another popular means of keeping cigarette brands in the public eye and circumventing restrictions on advertising using cigarette logos on other products such as caps and t-shirts. Many of these products are popular with children around the world, and they soon become walking cigarette advertisements.

Counteradvertising can be a useful addition to a tobacco control campaign

In countries around the world, young people are exposed to highly effective tobacco advertising on a daily basis. Tobacco companies spend billions of dollars each year to promote tobacco products, an amount which dwarfs the resources available to most tobacco control programmes. Thus, one important requirement for an effective prevention programme is to seriously limit the ability of the tobacco industry to hook a new generation of smokers through advertising.

At the same time, a number of countries have produced anti-tobacco advertisements for distribution via mass media. Many of these ads are targeted at young people, with the aim of de-glamourizing tobacco. There are often possibilities for free distribution of these ads in the form of public service announcements. However, they are only useful if they are seen, and not broadcast only during times when most viewers are asleep. In some situations, carefully selected paid counter advertising campaigns may be worth the cost. In the USA, Doctors Ought to Care (DOC) pioneered the concept of using paid counteradvertising to ridicule brand name tobacco advertising and promotion.

Health interests can never hope to match the spending by tobacco interests on paid media advertising, and probably should not try. However, paid media advertising, when used with precision, can be an effective tool in a comprehensive effort to discourage tobacco consumption. One way of funding this would be to use a portion of increased cigarette taxes for this purpose. Examples of this strategy may be seen in several states in the USA as well as in other countries, such as Australia, France and New Zealand.

Reducing the glamourization of tobacco in movies, on television and in music videos

Four steps the entertainment industry can take to reduce the glamourization of tobacco:

When tobacco is glamourized in movies, on TV and in music videos, it sends a powerful message to young people that tobacco use is both appropriate and desirable.

Following are four steps the entertainment industry can take to discourage teenage tobacco use:

1. Avoid glamourizing tobacco. Refrain from portraying tobacco use as something that is exciting, cool or sexy and linking tobacco with adventure, fun and celebration.
2. Creatively substitute other props. Consider means other than tobacco-type clichés for portraying rebellion, celebration and relaxation.
3. Portray the reality of tobacco use. People become sick and die from using tobacco. Most smokers would like to quit but have a difficult time because of the highly addictive nature of nicotine. Environmental tobacco smoke impacts the health of non-smokers. The majority of people in the world do not smoke and prefer to live in a smoke-free environment.
4. Work toward reducing overall tobacco use. Avoid creating an image that smoking is a normal, daily activity. Refrain from having characters use tobacco in inappropriate situations such as around children, in medical care facilities and in non-smoking areas.

Three other actions that will make a difference

Watch what you are watching. Inoculate yourself against the pro-tobacco messages you receive from entertainment productions. Recognize that movies and TV are for entertainment and that they

rarely reflect reality. Tobacco use is not exciting or glamorous. Many stars have died from tobacco-related diseases.

Encourage others to watch what they are watching. As a young person, talk with your friends about tobacco use in the movies and on TV. As a family, watch movies or TV and discuss the difference between the portrayal and reality of tobacco use. As a teacher or youth group leader, consider teaching a unit on critical viewing skills.

Work to raise public awareness. Host local youth-based media events around the time of the Oscars or your local award ceremonies. Contact your local movie and TV critics and ask that they write articles on the issue. Copy and distribute this packet at health fairs, World No Tobacco Day, and other events that promote health and/or tobacco education. Be creative!

Why is tobacco included in movies and on TV?

There are several reasons why tobacco finds its way into movies and TV programmes.

It is a convenient prop. If you want to establish that a teen is rebellious put a cigarette in his or her hand.

It may depict reality.

It can reflect the personal attitudes and use of tobacco by writers, directors, actors and actresses. It may result from direct or indirect influence by the tobacco industry.

It may be used its a marketing tool to reach specific audiences.

Do a study

Many studies have been conducted to test the manner and frequency of tobacco usage in the movies and on popular television programmes. An example of one such study comes out of California in the United States. It was conducted by Thumbs Up! Thumbs Down!, a project of the American Lung Association of Sacramento-Emigrant Trails. The study looked at all movies with a domestic box office income of more than $5 million in the time frame from May 1994 through April 1995. It reviewed television shows over

six-week period in the spring of 1996. These are movies and programmes that are screened all the world, not just the US, and have enormous appeal to teenagers everywhere. Following are the key findings:

Hollywood gets a Thumbs Up! and a Thumbs Down! in the amount of tobacco use. Approximately 50% of the 133 movies reviewed had zero to 10 incidents of tobacco. The other half ranged from a moderate 11–20 incidents to a smoke-filled 100 plus incidents. Television fared better with only 15% of the 238 episodes watched containing tobacco. Overall, movies averaged 10 incidents per hour and television two.

Use varies considerably by studio and network. Studios with low tobacco use included Walt Disney Pictures, Twentieth Century Fox and Hollywood Pictures. On the high side were Miramax, Castle Rock and Warner Brothers. On television, ABC had the lowest incidence while Fox was highest.

Leading actors are more likely to light up in the movies. In the movies and television programmes which included tobacco use, one or more leading actors and actresses lit up 82% of the time in movies and 57% of the time on TV.

Cigarettes and cigars are the tobacco of choice. In the movies where tobacco was used, 86% displayed cigarette use, 52% cigar use, 12% pipe use and 7% smokeless tobacco. On television episodes with tobacco use, 67% displayed cigarette use, 42% cigar use and 3% pipe use. There was no smokeless tobacco use displayed.

So what if your favourite actor lights up on screen?

The entertainment industry has a pervasive influence on our society. While movies and television may reflect our life styles, they also help define them. The power of the entertainment industry in influencing young people suggests that it also has a responsibility to monitor and reduce the potentially negative impact of its messages on this audience. One area where it can play a particularly important role is in helping to discourage tobacco use.

The famous actor Adil Imam has quit smoking, deciding for himself without waiting for a doctor recommendation. As a respectable actor, he will surely stop using cigars or cigarettes in the ads for his works.

Basic tobacco facts

Tobacco kills 4 million people a year around the world. According to the World Health Organization, it is the single most preventable cause of death and disease in the world. In addition to the tremendous suffering it creates, tobacco use costs the United States alone close to $100 billion annually in health care and days missed from work. Do you know what the costs are in your own country? It is a price we all help pay, whether we smoke or not.

Adults don't make the decision to start smoking: young people do

Each day between 82000 to 100000 teenagers light their first cigarette. Tobacco use starts in early adolescence. Almost all first-time use occurs before graduation from high school. People who start smoking at an early age are more likely to develop severe levels of nicotine addiction and are more likely to die early of a tobacco-related disease than people who start later.

Why do young people start? A teenager is much more likely to light up if his or her parents, brothers or sisters smoke. Peer pressure is also a powerful influence. The most common offer of a first cigarette is from a friend. Certainly, the massive advertising campaign carried out by the tobacco industry plays a part. Billions go toward

making the Marlboro Man and his counterparts attractive to children. Whether it is popularity, beauty, adventure, wealth or uniqueness, the tobacco industry and its legion of public relations firms have a multitude of ways suggesting it can be had for the price of a puff. Kids with low levels of self-esteem and a sense of alienation are especially vulnerable to the industy's relentless campaign.

The role of the entertainment industry

What role does the entertainment industry play in this process'? When tobacco is glamourized in movies, on TV and in music videos, it provides a powerful message that tobacco use is an appropriate and even on desirable activity. Whether the glamourization is intentional or not, it reinforces the multi-billion dollar advertising campaign carried out by the tobacco industry. In some ways, it may be even more effective. No warning label is required when actors and actresses light up. What the young person sees is someone he or she looks up to, living a life that he or she would like to live, and doing it while using tobacco.

Creativity has nothing to do with smoking. A successful person is not necessarily a smoker and should not be.

There are three major ways tobacco use is glamourized:

It's fun. Cool, attractive and successful people light up and they use tobacco while they are doing exciting things.

It represents rebellion. Lighting up becomes a symbol for challenging a repressive system, whether that system is your parents or the government.

It's a way of relieving stress. As tension mounts, people light up.

Advocacy activity for teens

Youth advocacy efforts are an important way to reduce the influence and amount of positive tobacco portrayal in movies and on television. Here are some suggestions:

1. Teens can write to the actors and actresses to express their concern over how tobacco use is portrayed on screen. Simple form or hand-written statements or letters to actors/actresses, production companies, or anyone actively involved in decision making, will let them know that the amount of tobacco use does not go unnoticed and is undesirable. The youth may also send letters of recognition to those who convey an anti-tobacco message to encourage and congratulate their efforts.
2. Produce a slide with an anti-tobacco message that could be shown prior to movie trailers previews. Contact your local theatre to find out if they will show it.
3. Send it petition to a particular actor, director or producer signed by youth. This petition can express their concern regarding how tobacco is being portrayed.
4. Do a pre and post test at a movie theatre. Survey moviegoers about their impression of tobacco and cite some facts. After the movie, survey the same audience to see if their impression/reaction changed.
5. Get permission from a movie theatre and hand out a movie evaluation form for the audience to fill out. For example, the release of the Hollywood movie "The Insider" may be a good opportunity to do this.
6. Have youth create a list of movies that contain smoking scenes.

7. Encourage teens to write letter/article in a school newspaper. Include a list of celebrities who have died from smoking related diseases. (See list of celebrities killed by tobacco)

These are just a few of ways to encourage critical thinking while deglamourizing tobacco use. The goal is to encourage the movie and television industry to stop portraying tobacco as being a desirable activity.

Watch what you are watching

How do your country's movies and television programmes fare? It Would make for an interesting project. Why don't you find out?

Whether you are sending a message to Hollywood or your local entertainment industry, discussing tobacco use with your family, or working on a class or group project, the following questions and methods utilized by the Thumbs Up! Thumbs Down! project should help in your efforts.

How much tobacco use is shown? The easiest way to determine the extent of tobacco use is to count incidents. While there are various ways of counting, the method used by Thumbs Up! Thumbs Down! is to count each time tobacco is shown on the screen as an incident. For example, two people smoking at the same time on screen are considered two incidents. When a hand holding a cigarette moves off screen and then back on and when a camera refocuses on a person smoking are also considered separate incidents. More than 30 incidents in a movie and over 10 incidents on a television programme reflect relatively high use.

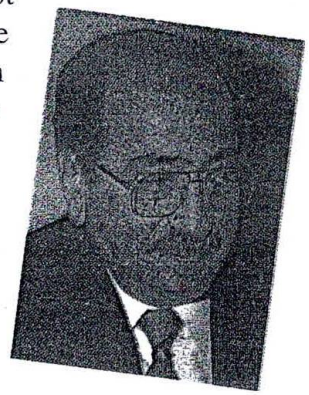
What type of tobacco is being used? The type of tobacco being used in movies and on TV can encourage or discourage certain trends in tobacco use. For example, the prominent use of cigars in recent movies and TV shows in the US has likely played an important role in the increasing incidence of cigar use in the US.

Who is using tobacco? Major characters who are played by popular actors and actresses carry out much of the tobacco use in movies and on TV. Many of these characters, actors and actresses serve as role

models to young people. When these role models light up, it sends a powerful message that smoking is OK.

How is tobacco use being portrayed? The way tobacco use is portrayed is an all-important factor in encouraging or discouraging tobacco use. When the entertainment industry shows tobacco use as fun, it suggests it's a way of rebelling and establishing independence, or shows it as a means of relaxing and dealing with stress, it sends a message that using tobacco is a highly desirable activity. When the entertainment industry suggests that tobacco use is unhealthy or addictive, portrays a character strenuously objecting to breathing second-hand smoke, or shows some of the more unattractive aspects of tobacco use such as smelly clothes and stained teeth, it sends the message that one should avoid tobacco use.

A message to all youth from Duraid Lahham



I was a heavy smoker, and I would not refrain from smoking for any reason despite my knowledge that it is harmful. I even realized that smoking could easily send me to my grave. Later, I began to feel that I should quit, and made several attempts but without success. I asked several people who were able to quit how did they manage to break loose of the bondage of this killer, which we imagine it to be give us enjoyment when it is truly a killer. Whatever I tried in this respect ended in failure, until a moment arrived when my worst fears came true. I suffered a blockage of my arteries which doctors attributed to smoking. This led to the fact that blood supply to my heart was severely disrupted. Had it not been for God's mercy, I would have been one among the millions that tobacco kills every year.

Smoking is a very deceptive habit. We think of it as a source of some pleasure or enjoyment, and we take it up unaware of the risks to which it exposes us. It all starts with a cigarette offered to you by a friend, which you may wish to try because you think it may be pleasant, or you may think that it gives you a bridge to cross over in a few minutes to the stage of being an adult. But it is a bridge of smoke that kills. It is then a matter of one cigarette after another until we slip into the stage of nicotine addiction. Then the realization creeps in that smoking is a total evil, with no positive aspects and no enjoyment either. It is simply a mechanical habit that enslaves human beings. Then the smoker is torn apart between his awareness of the risks that engulf him and those he loves as a result of continuing to smoke and his inability to break his chains and quit his habit.

Some smokers may do like I have repeatedly done, entertaining a wish to quit but feeling unable to do so. I would seek help and aids, such as a nicotine patch or some medication which is supposed to turn you off smoking. But none of this works, because my resolve to quit has not been strong enough. Then thoughts of what I may have to endure after quitting blacken my day and return me back to smoking.

Then the moment of truth arrived. I discovered that it is all a matter of decision and resolve to break the chains and save myself, my health and the health of those who are very close and dear to me. I felt that it is imperative for me to pause and reflect, and to take the decision to stop once and for all this hazardous and ruinous habit. I felt that I had to take that decision, even in the form of a vow to commit myself privately and publicly and to honour my resolve.

The point is that it is all a personal decision, commitment and resolve. I have made that resolve and I praise God for having enabled me to quit smoking. As it turned out, nothing of my initial fears have had any real substance. I have not felt any crave to take up smoking again. I have not been a victim to intolerable suffering. Now I feel smoking to be repugnant. I wish I had had the courage to quit earlier. Indeed I wish I had the courage to say no to the first cigarette when it was offered to me. I would have then spared myself much trouble and much suffering.

All that it takes, then, is a little reflection and clear thinking. Smoking kills in different ways. It destroys our health, wastes our money and time. All that goes up in smoke. What we are left with is utter ruin.

A final word to all young men and women:

I was young like yourselves. But now at my age, I remember, with no good thought, my friend who encouraged me to light up the first time. Hence, I hope that you have the awareness and the courage to refuse the first cigarette and save yourself and your friends much suffering.

Tobacco control legislation and its implementation

By
Abdullah Al-Eissa
Vice President, High Court, Kuwait

When the wide range of risks smoking represents became well established, and the health hazards it poses to smokers and non-smokers were identified, governments and legislative authorities began to take measures that seek to contain its effects. Some countries issued some laws and regulations which aim to control smoking by banning tobacco advertising, and restricting smoking in enclosed public areas. They also made certain specifications with regard to the contents of tobacco products. Legislation is a good and effective tool of social control. Legislation may provide for the restriction of certain practices that are deemed hazardous, or represent an unjustifiable risk to human life, health or wealth. Its provisions may outline the principles of accountability and imposes penalties that fit with the aims and purposes of the legislation. Legislation must always be suited to the circumstances prevailing in society. It must have some essential qualities that make it suitable for implementation. Only in this way can it become an effective way to achieve the purposes for which it has been promulgated.

While this applies to any piece of legislation that aims to establish social controls and serve certain public interests, like tobacco control legislation, a number of prerequisites must be fulfilled for it to work out. These are:

1. Those who are entrusted with its implementation must have no personal interest that is contrary to tobacco control;
2. The authority supervising implementation should be seen to provide a good example. This is achieved through conviction of its usefulness and a complete commitment to the fulfilment of its objectives.

3. Maintaining justice in implementation. No piece of legislation should ever be applied to one sector of the population while others are exempted. No regulation could apply to one company and not to another. Yet in practice we see that in both industrial and developing countries legislation banning tobacco advertising have been applied to radio and television, but not to press. We also see that the ban on smoking in public places has been welcomed in Western countries, while its implementation in the developing world, including Arab countries continues to leave much to be desired. It is a simple fact to say that restricting smoking in public places and transport is the responsibility of three different bodies which must cooperate to ensure the achievement of the aims of legislation. These are:

   a) The smoker, since he is the one who represents the problem and bears the burden of compliance with regulations;

   b) The non-smoker, who is, in this respect, the victim. The non-smoker is an important actor in such a situation. He should make clear his disapproval of smoking, particularly if he happens to be in close proximity to the smoker, suffering the effects of passive smoking. He should be able to seek help from the person in charge of maintaining the regulations in that place, should the smoker insist on contravening those regulations. It may be suggested that an effective means to ensure compliance is to file a case against the smoker, claiming compensation for what he may cause of health risks to the non-smoker. This is correct to some extent. What is needed though is a proof of the damage that a particular person may experience, as in the case of both smoker and non-smoker share the same environment for a certain period of time. Moreover, the court must conclude that there is a causal aspect that requires compensation. Needless to say, the difficulty of proof in such cases makes such a law suit very rare. This means that seeking compensation through the court is not reliable as a means of restricting smoking in public places. Nevertheless, judgement has awarded compensation to those affected as a

result of passive smoking in the US and Sweden. But this judgements were not awarded against the smokers but against the authorities in charge of the place;

c) The authority responsible for the public place or the means of transport, as the one responsible to implement the regulations in that particular environment. Such an authority should always move to protect non-smokers, taking issue with the smoker who tries to breach the regulations and pointing out to him the need to comply. Should he persist, then the punishment specified in the regulation must be implemented.

That apart, implementation differs according to the provisions of the law. A provision requiring the tobacco industry to reduce nicotine and tar contents is one for an appropriate government department to ensure compliance. This may be the ministry of health, a consumers affairs authority or some other. The same applies to a regulation that requires staff in restaurants not to smoke when they are preparing meals for their customers. Since monitoring this aspect falls within the jurisdiction of the authority in control of food and beverages, whatever the law provides in this area also falls under its jurisdiction.

Regulations that ban advertising in the media may be primarily addressed to tobacco companies which are responsible for compliance with the restrictions imposed. However monitoring implementation is the responsibility of ministries of information. Certain countries may issue regulations banning the sale of cigarettes to those below a particular age. This aims to protect the youth from smoking, and rightly so. Nevertheless such provisions may remain rather advisory because of the difficulty of implementation. This is partly due to the availability of vending machines and the availability of cigarettes in the supermarkets. It is difficult to require shopkeepers to demand a proof of age from every young person buying a packet of cigarettes. Even then it is not difficult to dodge such requirements.

Let us now look at the role of legislation in tobacco control. The most important points are:

(a) Means of compliance

It is inconceivable that the promulgation of legislation restricting smoking in certain places and imposing a partial ban on advertising can achieve the overall objective of tobacco control. Even the best legislation will not rid the community of a problem of such a large magnitude as the tobacco problem. Nor is it possible for the law to check the tobacco epidemic without concerted efforts exerted by several sectors working in unison and committed to achieve a tobacco free society. With such an aim in mind, action must follow two lines in parallel: firstly, legislation which provides an antismoking legal forum, and, secondly, an information campaign which supports legislation by enhancing people's awareness of the hazards of tobacco and its harmful effects on physical and mental health, as well as its negative economic and social effects. Such a campaign should benefit by contributions from medial doctors, religious leaders, media experts, artists and people who may influence public opinion.

Such efforts must always employ innovative methods and put its message across in new styles and fresh language.

To fund such efforts, it is most appropriate that a special tax or increased custom tariff should be imposed on all tobacco products, with the revenue allocated for this purpose.

(b) Implementation

When legislation provides for different restrictions and controls falling within the jurisdiction of different departments and authorities, responsibility for its implementation will be diverse. However, in the case of tobacco control we may identify two types of authority:

(1) Authorities that are close to the public, particularly those in control of public places, such as schools, hospitals, clubs, government offices, company buildings, etc. Public transport also comes under this group. Needless to say, implementation in such places falls on the respective administration of each such place.

(2) Government authorities. Each department or authority should be assigned responsibility for the enforcement of laws and

regulations that fall within its particular jurisdiction. The legislature may assign responsibility for issuing enforcement regulations to different departments. In Kuwait, this role has been assigned to the Minister of Health. Moreover, article 9 of the Kuwaiti law gives the Prime Minister and other Ministers responsibility for implementing the law within their respective jurisdiction.

(c) Foiling attempts by the tobacco industry to circumvent the law

Sports events are used by the tobacco industry to promote smoking


محمد بن سليم يعلن عن فريق رالي 1999

أعلن محمد بن سليم الفائز ببطولة رالي الشرق الأوسط عشر مرات عن التشكيلة الجديدة للفريق الذي سيدعمه في سعيه للفوز ببطولة سباقات رالي الشرق الأوسط للمرة الحادية عشرة خلال عام 1999. فستنضم شركة ايريديوم العالمية للاتصالات عبر الأقمار الصناعية الى كل من فورد ومارلبورو، وهما الشريكان اللذان يرعيان الفريق منذ زمن طويل، لتقديم الرعاية لسيارة فورد اسكورت وورلد رالي كار.

وستوفر ايريديوم، التي تعتبر أول نظام عالمي جوال للاتصال عبر الأقمار الصناعية، الدعم المالي الإضافي للفريق وستزود الفريق أيضا بأجهزة اتصال ايريديوم، ويكمل هذا الدعم المساهمة المالية التي تقدمها فيليب موريس (مارلبورو) للفريق ومساهمة فورد الشرق الأوسط وشمال أفريقيا المتمثلة في توفيرها سيارة اسكورت وورلد رالي كار للفريق بالاضافة الى الدعم التقني الآخر.

سيارة فورد اسكورت ايريديوم التي تشارك في سباقات رالي 1999

The tobacco industry utilizes various tools and means to promote its products, circumventing the laws aimed at tobacco control. In its attempts to counter the effects of legislation, it employs highly innovative methods and allocates large budgets. Its efforts include:

- Media advertisments, particularly in papers and magazines;
- Billboards and posters on large buildings and public transport and in shops and sale outlets;
- Indirect advertising through sponsorship of sports, cultural and social events;

- Promotional products and souvenirs that carry the name of tobacco brands.

Some countries have enforced strict bans on tobacco advertising in television, while others have not imposed such a ban. This limits the effect of such bans in this age of satellite channels that are monitored across geographical boundaries. The same applies to the press as advertising bans apply to national press, while it does not apply to newspapers and magazines published in other countries. It must be said that advertising may be very seductive with certain sectors of the population. Hence very large financial and artistic resources are allocated to it. Indeed the tobacco industry provides such resources with the aim of circumventing the law and reaching the public.

This means that we need concerted international efforts, through the United Nations and its specialized agencies, to work out protocols that apply to all media channels. Even then the enforcement of such protocols by private papers and media channels is far from easy. Nevertheless efforts in this regard must continue, even if that requires making special agreements with the tobacco industry to stop advertising for a specified period.

Special efforts should be made to provide the media with alternative sources of advertising in order to compensate them for the loss of revenue that results from banning tobacco advertising.

It is my firm conviction that strict implementation of the laws banning tobacco advertising would have made such promotion efforts by the tobacco industry a definite breach of the law both in letter and spirit. It is not to be expected that the tobacco industry will stop its efforts in this regard, having realized that they are more effective than direct advertising.

(d) Model integrated legislation

When countries adopt model integrated legislation, numerous contradictions that now prevail because of the existence of many different local regulations will be removed. It is important that such model legislation should incorporate the following principles:

(1) The essential rule must be that smoking is banned in any public place, unless there is a specific exemption allowing it. This is contrary to what most existing laws provide for, making smoking in public places permissible unless it is restricted by a specific legal provision. This rule is the one adopted by the law in Finland;

(2) Countries that at present do not have tobacco growing or a tobacco industry should have the right to ban the initiation of any such activities. On the other hand, the ban should be limited to any expansion of the present scale of tobacco growing and tobacco industry in countries where such activities are at present available. This ban should apply in the latter group of countries until alternative crops or industries have been established;

(3) A ban should be imposed on all smoking in all means of transport including all flights;

(4) A ban on all tobacco advertising should be imposed, whether direct or indirect, including sponsorship by tobacco companies of any sports, social or cultural events;

(5) Strict limits should be imposed on the nicotine and tar contents of all tobacco products, including the contents in each cigarette. These limits should be published on every packet;

(6) Every packet of all tobacco products should carry a health warning. Regulations may outline the conditions that such warnings should meet. Health warnings must be varied, with several warnings given to tobacco companies for a certain period, then replaced by another set of warnings for a similar period. The warning should be prominent on both main sides of the packet, with a specified percentage of the area of the packet allocated to the health warning. The writing should be clear, with specified colours to make it very prominent.

Islamic ruling on smoking

By Professor Youssef al Qaradhawi

It is now four centuries since tobacco appeared and began to be used by people. Scholars at that time felt that they needed to issue a ruling on tobacco use. As the practice was new and without an earlier ruling by eminent scholars in previous generations, scholars differed widely in their rulings. Another factor contributing to such differences was the absence of a proper scientific study explaining the nature of tobacco and the effects of its smoking. One group felt that it should be prohibited, another considered it reprehensible or discouraged, and a third group viewed it as permissible. Some others felt unable to issue a clear ruling on it, preferring to wait for further evidence about its effects. In each one of the four Sunni schools of thought we find scholars adopting any of the aforementioned rulings. This means that no school of thought was associated with any particular ruling of permissibility or prohibition of smoking.

Weighing up the arguments

It seems to me that the controversy among scholars of different schools of thought at the time when smoking began to spread was not the result of a difference in the basis on which scholars deduced their verdicts. It was perhaps due to how they viewed tobacco and its effects. Some of them felt at the time that smoking resulted in certain benefits; others thought that its harm was limited and counterbalanced by some benefits; others still, felt that it had no benefit whatsoever, but they were unsure that it caused any harm. What this boils down to is that scholars would have not hesitated to rule that tobacco was forbidden, had they been aware that it caused definite harm.

At this point we must make it clear that the task of proving physical harm caused by tobacco or any other substance is not something that Islamic scholars should undertake. It is the responsibility of medical doctors. It is to them that we must refer in this area because they are

the experts. Islam requires us to refer to the experts on any matter: *Put your questions to someone in the know (25: 59).*

Medical doctors have made clear statements concerning the harmful effects tobacco smoking causes to man's general health, and its particular effects on the smoker's lungs and respiratory system in particular. They have emphasized that it is the major cause of lung cancer. Hence, the whole world has started recently to call for action against smoking.

In our present times, scholars should be unanimous in their verdict on tobacco smoking. A scholarly ruling on this must be based on medical evidence. Hence, when the doctor says that this practice, i.e. smoking, is harmful to health, the religious scholar must say that it is forbidden. Whatever causes harm to human health must be forbidden in religion.

Yet in respect of smoking, certain aspects of harm need neither a medical doctor nor a laboratory to confirm. They are well known to the public at large.

The rationale

Some people may ask: how can you prohibit the use of a plant without a clear statement? The fact is that it is not necessary that every prohibited matter should be mentioned by name. Religion lays down certain rules and principles which may apply to numerous matters. It is not difficult to outline the rules, but it is impossible to enumerate every single matter. It is sufficient to make a rule prohibiting what is foul or harmful to include under it a large number of harmful types of food and drink. Hence we find scholars returning a unanimous verdict of prohibition on cannabis and other drugs, although there is no statement prohibiting them in particular.

No scholar takes religious statements at face value as strictly as Imam Ibn Hazm. Nevertheless, he makes it clear that harmful food is prohibited. In this he relies on the general sense of religious statements. To quote Ibn Hazm: "Whatever causes harm is forbidden,

because the Prophet says, God has decreed that every thing to be done must be done well. Whoever causes himself or others harm does not do well. When a person does not do things well, he contravenes God's decree to do things well. Other evidence that may be cited in support of this verdict is the Prophet's statement, *There shall be no infliction or harm on oneself or others,* and the Quranic verse, Do *not kill yourselves. God is most compassionate to you (4:29).*

Among the most comprehensive statements on the prohibition of eating or drinking harmful substances is this quotation from Imam Al Nawawi "Whatever causes harm when consumed, such as glass, stone and poison, is forbidden to eat. Every substance that is not impure and causes no harm is permissible to eat except what is considered disgusting, such as semen and mucus. These are certainly forbidden. It is also permissible to take a medicine that may contain mild poison, if it is needed and it is, in the considered expert's view, safe to take.

The financial aspect

It is not permissible for man to spend his money on something that brings him no benefit either in this life or in the life to come. Man is placed as a trustee in charge of his wealth. Thus, both health and wealth are blessings God has given us. It is not permissible for any person to impair his health or waste his wealth. The Prophet has forbidden the wasting of money. A smoker pays his money to buy what causes him definite harm. That is certainly forbidden. Moreover, God says: *Do not be wasteful, for He does not like those who are wasteful. (7:31).*

The psychological aspect

The psychological aspect of harm is often overlooked by people who write on tobacco. The point is that when smoking becomes a habit, the smoker falls in the grip of this habit and cannot get rid of it easily. It soon becomes an addiction which robs smokers of their will. Smokers are thus unable to stop it, even when they need to do so, either because its physical harm becomes excessive, or to set a good

example for their children, or because they need the money wasted on tobacco for some beneficial purpose.

In actual fact tobacco enslaves smokers. Hence, a smoker sometimes gives priority to buying cigarettes rather than spending his little money on buying food and other essentials for his family. Should such a person be compelled to refrain from smoking for any reason, whether personal or enforced, his general condition suffers, and his judgement becomes easily impaired. He may become highly irritable. Such harm makes it necessary to issue a ruling concerning tobacco smoking.

Smoking is forbidden

There is no way that any scholar could issue a verdict of permissibility on smoking, after the medical evidence of the harm it causes has become so strong, and supported by a large number of medical and scientific authorities. Indeed the extent of the harm caused by tobacco is now common knowledge, supported by indisputable figures.

Since a verdict of complete permissibility of tobacco smoking cannot be given, then the only verdict possible is to consider smoking either reprehensible or forbidden. It is already clear that a verdict of prohibition is more valid and relies on stronger evidence. This is my ruling, based on the fact that habitual smoking will inevitably cause certain harm physically, psychologically and financially. Indeed whatever is harmful to health is prohibited in religion.

God says in the Quran: *Do not, with your own hands, cast yourselves to destruction.* (2:195) He also says: *Do not kill yourselves; God is ever most merciful to you. (4:29)* He also denounces wasting money in several verses of the Quran: *Do not be wasteful, for He does not like those who are wasteful.* (7:31) *Do not squander [your wealth] in the manner of a spendthrift, Indeed spendthrifts are the brothers of Satan.* (17:26-7) The harm caused to health and wealth by smoking is most definite. Indeed taking any thing that is injurious to health is forbidden on the evidence of God's commandment: *Do not kill yourselves.* (4:29) Hence we must rule that smoking is definitely forbidden.

In point of fact, medical doctors are unanimous that smoking causes certain harm. It is true that the harm in this case is cumulative, not immediate, but a slowly active harmful substance is forbidden in the same way as a rapidly active one. It is forbidden for anyone to take a slowly acting poison just in the same way as it is forbidden to take an instantly killing one. All suicide is forbidden in Islam, whether slow or instant. A smoker kills himself, or herself, gradually. Moreover, it is not permissible for a human being to harm or kill himself or others. Hence the Prophet says: "There shall be no infliction of harm on oneself or others". As it is unanimously agreed by medical doctors that smoking represents definite harm to human beings, countries of the world have required tobacco companies to include a health warning on cigarette packets, stating that tobacco is harmful to health. Hence it is not acceptable that religious scholars should issue any ruling on smoking other than its complete prohibition.

All five basic needs of human beings are adversely affected by smoking. These five needs have been identified by religious scholars as self, mind, offspring, faith and money. It is obligatory for every human being to preserve these five needs and to take no risks with them. A man's faith is adversely affected when we see that some smokers do not fast in Ramadan, when fasting is obligatory to all Muslims. Such smokers feel that they cannot refrain from smoking during the fasting day. Offspring are harmed by the tobacco consumption of either one or both of their parents. The fetus is subjected to definite harm when a pregnant woman smokes. Also, a smoker harms other people in what is known as passive smoking whereby a non-smoker inhales the smoke of other people's cigarettes when he or she is in close proximity to them. With all this harm a smoker causes to oneself and to others, it is not possible to return any verdict on tobacco smoking other than complete prohibition. Indeed all Muslim scholars should give a unanimous verdict of its prohibition.

Some scholars have tied their verdict of smoking to the financial ability of the smoker, prohibiting smoking to people who cannot afford it and making it less than prohibited to those who are easily

able to buy it. This view is incorrect, as it does not look at the problem of smoking in its totality. The long list of injuries tobacco smoking presents to physical and mental health must be considered when giving a verdict on smoking alongside its financial aspect. Moreover, it is not permissible for a rich person to squander money at will, because money belongs to God in the first place, and then to the community.

Besides, every Muslim with sound judgement should refrain from approaching this seriously harmful and foul habit. Tobacco smoking is definitely foul, not wholesome. It has no material or spiritual benefit whatsoever.

My advice to Muslim youths in particular is to make sure that they do not yield to the temptation of taking up this habit which ruins their health and weakens their bodies. They must not entertain the fallacy that smoking is glamorous or a mark of independence. Young people who have started to smoke should try hard to get rid of this habit while they are still at the beginning. Otherwise it will soon become an addiction that is hard to quit.

The media has an important role to play in the fight against tobacco. It should include in its output only material that makes people aware of the harm caused by tobacco. Writers and producers of soap operas and other entertainment programmes must stop promoting tobacco by showing smoking as socially acceptable or advantageous.

Governments should work in collaboration to curb the smoking epidemic, even though this means a loss in revenue. The physical and mental health of its people should be viewed by a government as far more valuable than any monetary gain. Indeed all states incur substantial monetary losses when tobacco smoking is allowed to spread. The expenditure a state sustains on caring for people with smoking-caused diseases is far greater than its revenue in tobacco taxation. The state also incurs loss in productivity because of the greater absenteeism of smokers.

Finally, I pray to God to give all of us His guidance on all matters, and to make our judgement sound and correct.

The Christian view on smoking

By

Father Wissa Gurguis Marcus

As a man of the church, I believe that smoking is contrary to the original form of man's creation. When God created man, He made him in the highest degree of purity and glory. According to the Scriptures, "God did not create thorns and bristles until Adam committed his sin and after his fall." We realize that Satan, the enemy of all goodness, tries to spread evil in our world. Smoking and other problems we face in life are part of that evil.

May I begin by saying that Christianity does not forbid matter, but does forbid that matter should be used for the wrong purposes. Certain drugs and wines may be used medicinally, as anaesthetists and surgeons are aware. But it is drug abuse that destroys the mind in order to give man a distorted image that differs greatly from the image of his creation. Hence, when we face things that destroy man's health and ruin his well-being and stability, such as tobacco, we remember the teachings of the Bible that make clear that while "all things are lawful, not all things are constructive". Hence, when we say that everything is lawful, it is important to remember our duty not to allow anything to hold us in slavery. Since smoking is an addiction, it certainly enslaves the smoker. The Bible states: "Whoever perpetrates a sin is a slave of that sin". Today we see how smoking holds every smoker in slavery, whether a young person, a man or a woman, youth or adult. This is clear in the fact that every smoker finds it very hard to quit.

A smoker may ruin his spiritual life and lose his relationship with God as a result of smoking. He may not be able to pray or fast or maintain a good relationship with his Lord because of smoking. The clearest example is fasting. A person who is addicted to smoking is unable to give it up in order to fast. He says: "Fasting is very difficult. How can I fast when I have to have a cigarette with my morning coffee. I cannot get through the day unless I have a cigarette. I cannot

even lift my head without it". That is the reason why we look at smoking as enslavement, because the perpetrator of sin is a slave of that sin. The same applies to adultery, alcohol and drugs. All are types of enslavement. Used properly, however, such substances may be acceptable, in the same way as we use anaesthetics in medicine.

Another point is that one's faith must be clear and free of ambiguity. Faith presents man's action in a way that glorifies God. In the Scriptures we read: "When people see your good actions, they glorify your Father in heaven". Undoubtedly when a human being resorts to doing what is improper, or doing something that degrades him in front of others, he actually gives a wrong notion of God, his faith and of what God does with his life. As such he is not honest. The Bible teaches us that honesty must remain man's guide throughout his life. It says: "Be honest until your death and I will give you the crown of life". This clearly shows that man is placed in a position of trust with regard to his body, health, property and family.

A priest is also responsible for the people in his community. This requires that honesty and faithfulness to our trust must be seen in life. We must, then, combat all bad habits so that we may be known by our dutiful and pure actions to show God's beautiful work. Honesty in human life is not limited to property and health. It also includes the spiritual aspect and rituals of worship such as prayer and fasting. It is further concerned with man's relationship with God, and his love of other human beings, and every good action. That is why we do not stand in anyone's way to prevent him from receiving what is good. On the contrary, we help people to do good works.

Smoking leads to many sinful actions, because smoking may have adverse effects on the smoker's soul, exposing him to problems and difficulties. Indeed a man may leave God's house feeling the urge to smoke, as though his cigarette is more important to him than what God says and does. That shows that we have a great mission to fulfil. We are placed in a position whereby people emulate us. This includes all of us here, whether we are priests, doctors or Islamic scholars. The task we have to undertake in our community is highly important. This is particularly true of religious leaders. In our country, an important

feature is the fact that both Christians and Muslims have great respect to priests and scholars, and respect their counsel. People know that whatever religious leaders say is meant to serve their interests. As priests, we frequently try to make people understand that it is imperative to quit smoking because it enslaves the smoker.

In the Book of Parables, the Bible says: "A person who has eaten his fill will not be tempted by honey". A person who is tempted by tobacco, drugs, adultery or drinks is a weary person defeated by Satan and by sin. Hence, we must be ready with our help to try to save him from evil and transform him to one who is self-sufficient. Our children must realize that we want them to be self-sufficient to show them the way to faith and good works. That would help them to abandon the way of sin and evil so that they may lead a life of purity, holiness and love of God and man. Thus they will grow in goodness.

One problem that encourages smoking and causes young people to turn to it is unemployment. Young people who frequent cafés that are available everywhere suffer from having nothing to do with their time. A young man may start to go to a café as a non-smoker, but he leaves it a smoker. This shows the need to help our youth to use their time in a gainful way, so that they may be engaged in work, useful hobbies, sport, noble concepts, serious reading, particularly religious books. We need to teach them how to appreciate God's blessings which He has bestowed on all of us. A mind with nothing to occupy it is a playing field for Satan. When Satan finds a person with nothing to occupy his mind, he hurries to seduce him and thus he lands him with great troubles.

Finally I would like to stress the need to continue our hard work in combating smoking and all forms of tobacco use. We must remember, however, that the task we face is a hard one which requires great perseverance. We must never lose hope. On the contrary, we must continue our struggle against all social ills, in order that our society, and human society in general, is based on goodness, peace and love.

Celebrities killed by tobacco

The following is a list of prominent international celebrities who have died from smoking, their age, and the cause of death. Please help up put together a similar list for your own country or region (Courtesy of the Entertainment Industry Council's Tobacco in the Media Project and "Cigarette Hall of Fame," a report by the Roswell Park Memorial Institute).

Nat "King" Cole	45	Lung Cancer
Mary Wells	49	Throat Cancer
Steve McQueen	50	Lung Cancer (also worked with asbestos in shipyards)
Rod Serling	51	Heart Disease (4 packs a day)
Eddie Kendricks	52	Lung Cancer
Michael Landon	54	Pancreatic Cancer (4 packs a day)
Lee Remick	55	Lung and Kidney Cancer
Betty Grable	57	Lung Cancer
Edward R. Murrow	57	Lung Cancer
Humphrey Bogart	57	Throat and Oesophagus Cancer
James Franciscus	57	Emphysema
Dick Powell	59	Throat Cancer
Gary Cooper	60	Lung Cancer
Chet Huntley	62	Lung Cancer
Dick York	63	Emphysema
Sammy Davis, Jr.	64	Throat Cancer
Walt Disney	65	Lung Cancer
Yul Brynner	65	Emphysema
Tallulah Bankhead	65	Lung Cancer
Sarah Vaughan	66	Lung Cancer
Colleen Dewhurst	67	Lung Cancer
Harry Reasoner	68	Lung Cancer
Alan J. Lerner	68	Lung Cancer

Desi Arnaz	69	Lung Cancer
Nancy Walker	69	Lung Cancer
Buster Keaton	70	Emphysema
Neville Brand	71	Emphysema
Art Blakey	71	Lung Cancer
Ed Sullivan	72	Lung Cancer
Duke Ellington	72	Lung Cancer
John Wayne	72	Had Lung Cancer and survived bypass surgery,
Lucille Ball	77	Heart Disease (aortic aneurysm)
Denver Pyle	77	Lung Cancer
Lillian Hellman	79	Emphysema
Robert Mitchum	79	Emphysema
Arthur Godfrey	81	Lung Cancer
John Huston	81	Emphysema
Bette Davis	81	Stroke

Many of these stars also appeared in ads promoting cigarettes.

Many of the victims were sick for more than ten years before dying.

Freely adapted from "Thumbs up! Thumbs Down! Advocacy Information Kit", American Lung Association of Sacramento-Emigrant Trails.

3

Tobacco Use in India: Practices, Patterns and Prevalence

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Appendix Chemistry and Toxicology of Tobacco Products Used in India 73

In this chapter, an attempt is made to understand the magnitude of the problem of tobacco use in India in qualitative as well as quantitative terms. This would require focus on two aspects—the types of tobacco used in India and the actual prevalence of the different types of tobacco used by the population.

In India, tobacco is used in a wide variety of ways: smoking, chewing, applying, sucking, gargling, etc. For each type of tobacco use, a wide range of tobacco products may be available. Some of these products are industrially manufactured on a large scale, some locally on a small scale, some may be prepared by a vendor and some may be prepared by the user himself or herself. Newer imperishable forms of tobacco with areca nut have become very popular and the industry has grown phenomenally within a few decades. *Beedi* smoking is the most popular form of smoking, while cigarettes form a major tobacco industry.

While looking at the prevalence of tobacco use in the population, the pattern among specific subgroups would be of special interest. In almost every study, tobacco use was found to be higher in the lower socioeconomic groups and that aspect has been dealt with in Section 7.6. Subgroups that are dealt with in this chapter are: rural–urban, geographic areas, occupational groups, etc. Many surveys on tobacco use have

been carried out in specific areas—almost everywhere tobacco use is quite prevalent, especially among men. Two specific population groups—youth and women—are given special attention. On the basis of studies that provide the prevalence of tobacco use for the entire country, the number of tobacco users has been estimated for India. The scientific reasons for the harmful effects of tobacco are briefly discussed in terms of its toxic constituents.

3.1

Tobacco Use Practices

Tobacco smoking

Tobacco smoking has been in vogue for hundreds of years. With the spread of tobacco to Europe and other parts of the world from the sixteenth century, tobacco smoking soon gained popularity in India.[1] Tobacco can be smoked in a wide variety of ways.

Beedis

Beedis are the most popular smoking form of tobacco in India. Thirty-four per cent of the tobacco produced in India is used for making *beedis*. *Beedis* are puffed more frequently than cigarettes to prevent them from going out. *Beedis* are made by rolling a dried, rectangular piece of *tendu* leaf with 0.15–0.25 g of sun-dried, flaked tobacco.[2]

Cigarettes

Cigarette smoking is the second most popular smoking form of tobacco used in India after *beedis*. In India, cigarette use seems to be confined to the use of manufactured cigarettes; there are no reports on the use of roll-your-own cigarettes. The prevalence varies greatly among different geographic areas and subgroups such as rural–urban.

Cigars

Cigars are made of air-cured, fermented tobacco, usually in factories, and are generally expensive. Cigar smoking is predominantly an urban practice.

Cheroots

A *cheroot* is a roll made from tobacco leaves.

Chuttas

Chuttas are coarsely prepared *cheroots*. They are usually the products of cottage and small-scale industry, or are made at home. Nearly 9% of the tobacco produced in India is used for making *chuttas*. It is estimated that about 3000 million pieces of *chuttas* are made annually in India. *Chutta* smoking is widespread in the coastal areas of Andhra Pradesh, Tamil Nadu and Orissa.

Reverse *chutta* smoking

The term 'reverse smoking' is used to describe smoking while keeping the glowing end of the tobacco product inside the mouth. Reverse *chutta* smoking is practised extensively by women in the rural areas of Visakhapatnam and the Srikakulam district of Andhra Pradesh. In the Srikakulam district, 46% of the 10,169 individuals surveyed smoked reverse and this practice was more common among women (62%) than men (38%).[3]

Dhumti

Unlike *beedis* and *chuttas*, *dhumtis* are not available from vendors but are prepared by the smokers themselves. *Dhumti* is a kind of a conical cigar made by rolling tobacco leaf in the leaf of another plant. In a random sample of about 5400 villagers in Goa, 4% were *dhumti* smokers.[4]

Reverse *dhumti* smoking

Dhumtis may be occasionally smoked with the lighted end inside the mouth. The overall prevalence of this form of smoking is 0.5% in Goa.[4]

Pipe

Pipe smoking is one of the oldest forms of tobacco use. The different kinds of pipes used for smoking range from the small-stemmed European types made of wood to long-stemmed pipes made from metal or other material.

Hooklis

Hooklis are clay pipes commonly used in western India. Once the pipe is lit, it is smoked intermittently. On an average, 15 g of tobacco is smoked daily. *Hookli* smoking was practised by 11% of the 5227 men studied in the Bhavnagar district of Gujarat.[5]

Chillum

Chillum smoking is an exclusively male practice; it is limited to the northern states of India, predominantly in rural areas. *Chillum* is a straight, conical pipe made of clay, 10–14 cm long, held vertically. In a survey on 35,000 individuals in the Mainpuri district of Uttar Pradesh, 28% of the villagers were found to be *chillum* smokers. *Chillum* smoking requires a deep pulmonary effort. Often, one *chillum* is shared by a group. They are made locally, are inexpensive and easily available. *Chillum* probably predates the introduction of tobacco to India and was used for smoking opium and other narcotics.[6]

Hookah

The *hookah* is an Indian water pipe in which the tobacco smoke passes through water before inhalation.

In a random sample of 4859 men and 5481 women from the Darbhanga district of Bihar, 2% and 28%, respectively, reported smoking the *hookah*.[5] The reason given for this female predominance is that it is inconvenient for men to carry a *hookah*, whereas women remain at home most of the time. There has been a considerable fall in the reported consumption of *hookah* tobacco. *Hookah* smoking thus appears to be on the decline in India.[1]

Non-tobacco smoking products

Non-tobacco smoking products are also available. An herbal cigarette (brand name *Nirdosh*) has been available for a long time. Recently a herbal *beedi* (brand name *Vardaan*) has been launched. Ostensibly, these products are marketed as aids to smoking cessation. No scientific evaluations have been carried out and little is known about their efficacy.

Smokeless forms of tobacco

The term 'smokeless tobacco' is used to describe tobacco that is consumed without heating or burning at the time of use. Smokeless tobacco can be used orally or nasally. For nasal use, a small quantity of very fine tobacco powder mixed with aromatic substances called dry snuff is inhaled nasally. This form of smokeless tobacco use, although still practised, is not very common in India. No scientific report is available in the literature and therefore nasal inhalation of snuff will not be further dealt with in this chapter.

The oral use of smokeless tobacco is widely prevalent in India; the different methods of consumption include chewing, sucking and applying tobacco preparations to the teeth and gums. Smokeless tobacco products are often made at home but are also manufactured. Recently, a variety of smokeless tobacco products have been produced industrially on a large scale, commercially marketed and are available in small plastic and aluminium foil packets.

Paan (betel quid) with tobacco

Paan chewing, or betel quid chewing, is often erroneously referred to as 'betel nut chewing'. *Paan* consists of four main ingredients—betel leaf (*Piper betle*), areca nut (*Areca catechu*), slaked lime [$Ca(OH_2)$] and catechu (*Acacia catechu*). Betel leaves contain volatile oils such as eugenol and terpenes, nitrates and small quantities of sugar, starch, tannin and several other substances.[7] Condiments and sweetening agents may be added as per regional practices and individual preferences. Some time after its

introduction, tobacco became an important constituent of *paan*, and currently most habitual *paan* chewers include tobacco.

Tobacco is the most important ingredient of *paan* for regular users. It is used in the raw state (as in Kerala) as well as after processing. Processing, additives and names differ from place to place. Tobacco is referred to as *kaddipudi* and *hogesoppu* in Karnataka, *kadapan* in Orissa and West Bengal, and *pattiwala* in Uttar Pradesh. *Zarda* and *kiwam* are commercially manufactured varieties often used as ingredients in *paan*.

Paan masala

Paan masala is a commercial preparation containing areca nut, slaked lime, catechu and condiments, with or without powdered tobacco. *Paan masala* contains almost all the ingredients that go into the making of a *paan*, but are dehydrated so that the final product is not perishable. It comes in attractive sachets and tins, which can be stored and carried conveniently. *Paan masala* is very popular in urban areas and is fast becoming popular in rural areas. Although the actual prevalence of this practice is not known, its popularity can be gauged by the production figures: according to commercial estimates, the Indian market for *paan masala* is now worth several hundred million US dollars.

Tobacco, areca nut and slaked lime preparations

Combinations of tobacco, areca nut and slaked lime are chewed in several regions of north India, where they are known by different names.

Mainpuri tobacco

In the Mainpuri district of Uttar Pradesh and nearby areas, this preparation is very popular. It contains mainly tobacco with slaked lime, finely cut areca nut, camphor and cloves. In a study of 35,000 individuals in Mainpuri, 7% of the villagers used this product.[6]

Mawa

This preparation contains thin shavings of areca nut with the addition of some tobacco and slaked lime. Its use is becoming popular in Gujarat, especially among the youth. *Mawa* use is also prevalent in other regions of the country. The prevalence of *mawa* chewing has increased tremendously in recent years. Its magnitude can be assessed from the fact that the Bhavnagar city administration appealed to the people not to litter the streets with the cellophane wrappers of *mawa*, as they clogged the city drains!

Tobacco and slaked lime (*khaini*)

Use of a mixture of sun-dried tobacco and slaked lime, known in some areas as *khaini*, is widespread in Maharashtra and several states of north India. A regular *khaini* user may carry a double-ended metal container, one side of which is filled with tobacco and the other with slightly moistened slaked lime. A small quantity of tobacco is taken in the palm and a little slaked lime is added. The ingredients are then mixed vigorously with the thumb and placed in the mouth. In Maharashtra and Gujarat, *khaini* is placed in the premolar region of the mandibular groove, whereas in Bihar and Uttar Pradesh, it is generally held in the lower labial groove. In the Singhbhum district of Bihar, this product is often kept on the dorsum of the tongue. In a study of over 100,000 villagers in Pune, Maharashtra, 28% used tobacco–slaked lime; the practice was more common among men (52%) than women (10%). In the Singhbhum and Darbhanga districts of Bihar, 27% and 44% of the 4800 and 4856 men, respectively, used *khaini* and of the 5248 and 5481 women, 10% and 7%, respectively, used *khaini*.[8]

Chewing tobacco

Small pieces of raw or commercially available finely cut tobacco are used for this purpose.

Chewing of tobacco alone, however, does not appear to be very common in India. Among the 10,000 dental outpatients in Lucknow, Uttar Pradesh, and 57,000 industrial workers in Ahmedabad, Gujarat, 2.1% and 2.6% chewed tobacco alone, respectively.[9,10]

Snus

Swedish snuff called *snus* is available in teabag-like pouches. The pouch can be kept in the buccal or labial groove and sucked. It is marketed in India by the Swedish Match Company under the brand name Click.

Tobacco products for application

Several smokeless tobacco preparations such as *mishri*, *gudhaku*, *bajjar* and creamy snuff, are intended primarily for cleaning the teeth. Such use, however, soon becomes an addiction. In India, there is a widespread misconception that tobacco is good for the teeth. Many companies take advantage of this misconception by packaging and positioning their products as dental care products without explicitly stating so. The reason is that by law, oral care products cannot contain tobacco. The law is not strictly enforced and some oral care products may still contain tobacco.

Mishri

Mishri is a roasted, powdered preparation made by baking tobacco on a hot metal plate until it is uniformly black. Women, who use it to clean their teeth initially, soon apply *mishri* several times a day. This practice is common in Maharashtra. In a survey of 100,000 individuals in a rural area, 22% were *mishri* users; the prevalence was 39% among women and 0.8% among men.[8] *Mishri* use is also prevalent in Goa.

Gul

Gul is a pyrolysed tobacco product. It is marketed under different brand names in small tin cans and used as a dentifrice in the eastern part of India. In the Global Youth Tobacco Survey (GYTS), *gul* use was reported by 6% in Bihar, 3% each in Arunachal Pradesh and Nagaland, 2% each in Assam, UP and Uttaranchal.[2,5] In similar surveys of school personnel in several northeastern states of India, female school personnel reported significantly higher *gul* use than males; Assam (13.5% vs 0.1%), Meghalaya (25% vs 1.9%), Nagaland (6.2% vs 1.4%) and Sikkim (46.5% vs 3.9%).[11,12]

Bajjar

Bajjar is dry snuff (also known as *tapkeer)* applied commonly by women in Gujarat on the teeth and gums. In a survey of 4844 women in Bhavnagar district, 14% reported using *bajjar*.[4]

Lal dantmanjan

Lal dantmanjan is a dentifrice; a red-coloured tooth powder. Traditionally, it contained tobacco but after the passage of a law banning the use of tobacco in dental care products, the listing of tobacco as an ingredient was stopped. A laboratory test of five samples of red tooth powder that did not declare tobacco as an ingredient found a tobacco content of 9.3–248 mg per gram of tooth powder.[12] The GYTS, which focuses on school students in the age group of 13–15 years, found the prevalence to be 49% in Bihar, 29% each in UP and Uttaranchal, 25% in Orissa, 9% in Mizoram, 5% in Nagaland, 4% each in Arunachal, Assam and Meghalaya, 3% in Tripura, and 2% each in Goa, Maharashtra, Manipur and Sikkim.[12]

Gudhaku

Gudhaku is a paste made of tobacco and molasses. It is available commercially and is carried in a metal container but can be made by the users themselves. It is commonly used in Bihar, Orissa, Uttar Pradesh and Uttaranchal. *Gudhaku* is applied to the teeth and gums, predominantly by women. In the GYTS, the prevalence in these states ranged from 4% to

16%.[10,11] In a survey in the Singhbhum district of Bihar, 1% of men and 16% of women used *gudhaku*.[5]

Creamy snuff

Commercial preparations of tobacco paste are marketed in toothpaste-like tubes. They are advertised as possessing anti-bacterial activity and being good for the gums and teeth. These products are thus used like regular toothpaste, but users soon become addicted. This practice seems popular with children in Goa.[13]

Tobacco water

Tobacco water (known as *tuibur* in Mizoram and *hidakphu* in Manipur) is manufactured by passing tobacco smoke through water. Its use was reported by 872 persons (7.2%) among the 12,185 adults surveyed in the Aizawl district of Mizoram and 139 persons (6.5%) among the 2137 adults surveyed in the Churchandpur district of Manipur; use was similar among males and females. The frequency of tobacco water use varied from 1–30 times/day; in Aizawl and Churchandpur districts, 36.7% and 92.1% reported being frequent tobacco water users (more than five times a day), respectively.[14]

Nicotine chewing gum

Nicotine chewing gum containing 2% nicotine (brand name *good-kha*) has been launched as a help for tobacco cessation. For chewers, it is available in *gutka* flavour and for smokers, in mint flavour.

Areca nut preparations

Some areca nut preparations are chewed without the inclusion of tobacco, but this practice may be present concurrently with the use of smokeless tobacco or tobacco smoking. Alkaloids present in areca nut are known to give rise to carcinogenic nitrosamines and areca nut has recently been evaluated as a human carcinogen by the World Health Organization (WHO).[15] The use of areca nut by itself appears to be mildly addictive but when used with tobacco, the effect multiplies manifold. Chewing of areca nut products is very common in India; therefore, a brief resume of these products is included here.

Areca nut

In addition to being an ingredient of *paan*, occasional chewing of areca nut (usually processed) alone is quite common in India, but habitual chewing is comparatively rare. Exclusive areca nut chewing was observed in 2% of 100,000 villagers in Maharashtra.[8] In other rural areas of India also, areca nut chewing was reported to a limited extent. In Assam, a fermented form of areca nut, known as *tamol* or *bura tamol*, is chewed extensively. This is prepared by preserving raw areca nuts together with areca leaves in an underground pit with an inner lining of straw for four months. *Bura tamol* is often infected with fungus. This product contains high levels of arecoline.

Supari

Areca nut is known as *supari* in several parts of north India. Some commercial *supari* preparations are made by cutting dried areca nuts into bits and roasting them in fat to which flavouring, sweetening agents and condiments are added. *Supari* is marketed in attractive aluminium foil packs, in tins and in simple paper packets. Offering *supari* to guests, especially after meals, is a prevalent and well-accepted social custom.

Meetha mawa

Meetha (sweet) *mawa* consists of thin shavings of areca nut, grated coconut, dried fruits and other sweetening agents. It is used commonly in Gujarat and similar preparations with different names are used widely in other regions.

Paan without tobacco

Occasional *paan* chewers generally prefer *paan* without tobacco. Chewing *paan* without tobacco, known as *tambula* in Sanskrit, is an ancient practice in India. Areca nut is an indispensable ingredient of *paan*. In addition, a wide range of chewing products including a chewing gum that may not contain either areca nut or tobacco but contains strong betel quid flavours is available in the market.

3.1 TOBACCO USE PRACTICES

KEY MESSAGES

- In India, *beedi* smoking is the most popular form of tobacco smoking.
- *Paan* with tobacco is the major chewing form of tobacco.
- Cigarette smoking is the second most popular form of tobacco smoking.
- Dry tobacco–areca nut preparations such as *paan masala*, *gutka* and *mawa* are also popular and highly addictive.
- Tobacco dentifrice is popular, especially in some areas and children also use it.

3.2

Prevalence of Tobacco Use

Surveys conducted with the objective of providing the prevalence of tobacco use are rare in India. Population-based surveys in limited areas conducted to study risk factors for various diseases and mortality have reported information on tobacco use. Additionally, three major national surveys have collected limited tobacco use information. This section presents the prevalence and trends of tobacco use from some of these studies, mostly on populations 15 years of age and above.

Local studies

The most detailed tobacco use information comes from large local surveys (5000–200,000 respondents). Cross-sectional surveys on heart disease in local communities have mainly collected smoking information (1000–2000 respondents), as have surveys on lung diseases (300–15,000 respondents). Studies on lifestyle-related factors and drug abuse also report on smoking and sometimes on all forms of tobacco use (n=100–25,000). The age groups covered by the various types of studies are diverse and since tobacco use varies greatly with age, comparison is problematic.

In Delhi, a city with a diverse population, two large sample surveys were conducted, one in 1985–1986 and the other in 1992, intended to be representative of the city. In the first, with 14,770 persons in the age group of 25–64 years, smoking prevalence among men was 45% and among women it was 7%.[16] In the second (10,312 persons, 10 years of age and above), 27.7% of males and 2.7% of females were smokers.[17] The lower prevalence reported from the second survey could be in part due to the inclusion of children in the survey. In the rural part of Delhi, in a small study conducted in the 1960s, 63.5% of males aged 25 years and above were smokers.[18]

Data collected in small surveys in Uttar Pradesh show a high tobacco use, smoking being more popular than chewing. In the Sentinel Survey of individuals 10 years and above in rural Uttar Pradesh (Allahabad, Bijnor and Mainpuri districts), 51% of males were tobacco users (28.2% smokers and 24.5% smokeless users), while 9.2% of females used tobacco, mainly in smokeless forms. In the urban areas of the same districts, 45% of males were tobacco users (24% smoked; 22.5% used smokeless tobacco), and 8.2% of females were users, again, mainly in smokeless forms. Smoking in these three districts consisted mainly of *beedi* smoking, especially in rural areas.[19] In an earlier study in Mainpuri district, 82% of men and 21% of women were tobacco users, mostly in the smoking form or combined smoking and smokeless forms.[5]

Several rural areas studied in central and north India appear to have high rates of tobacco usage. In a survey in rural Nagaur, Rajasthan, 51% of males and 5% of females were tobacco users among 3148 respondents 21 years of age and above.[20] In urban Jaipur, in three successive studies about 39% of men and 17% of women 20 years and above were tobacco users.[21–23] In Ballabgarh, Haryana, among men 87.6% were tobacco users and among women 52.9% (55 years and above).[24]

Low rates in Punjab contrast with the high rates in other areas of north India. In rural Amritsar, Ferozepur and Gurdaspur districts, among 3600 persons 15 years and above, 19.3% of males and 4% of females were tobacco users.[25]

In two large house-to-house surveys of over 10,000 persons in rural Bihar conducted during 1966–1969, about 80% of the men 15 years and above were tobacco users. Among villagers in Singhbhum district, 64% of the men smoked and in Darbhanga district, 50% men smoked. In

Darbhanga, about half the male smokers also chewed, while in Singhbum, less than a third of smokers also chewed, demonstrating that combined use was common. For women, chewing was more common in Singhbum and smoking in Darbhanga.[26,27] Thus, Bihar has been shown to have a high prevalence of tobacco use.

In a recent survey of 12,000 individuals aged 18 years and above in urban Kolkata, smoking among men was 38% and chewing 36%. Women users were nearly exclusively chewers (19%).[28]

In the Sentinel Survey in three districts of Karnataka of persons 10 years of age and above, 49.2% of males and 16.4% of females in the rural areas were tobacco users. In the urban areas, 32.7% of males and 8.5% of females were tobacco users. In both urban and rural areas, about two-thirds of male users smoked, while most female users chewed tobacco.[19] In another study in Kolar district, 30.9% of males were tobacco users with nearly equal prevalence of smoking and chewing. Some 38.5% of females reported chewing tobacco.[29]

Among rural inhabitants 15 years of age and above in Ernakulam district, Kerala during 1966–1969, 81% of males and 39% of females used tobacco in some form.[26,27] Smoking by itself was practised by 45% of males (15+ years); additionally, 22% both smoked and chewed, and 14% chewed only. Women's tobacco use was essentially confined to chewing (38%). Another survey in Ernakulam in 1971 showed very similar results.[30] In the 1990s, in rural Thiruvananthapuram (Trivandrum) district, about half the men aged 35 years and above were smokers.[31] In urban Thiruvananthapuram, 43.9% and 55.8% of men smoked in two adjacent areas, while 26.4% and 26.8% practised smokeless use.[32] The emerging picture from Kerala is one of high levels of tobacco use, where at least three-fourths of men use tobacco in some form: about half the men smoke and about one-fourth use smokeless tobacco; and among women, a third to one-fifth chew *paan* (betel quid) while smoking is almost negligible among them.

A recent survey in South Arcot district, Tamil Nadu, among men aged 35–69 years, found that nearly 47% had ever been smokers. During the same period, a survey in urban Chennai found that 38% men were ever-smokers.[33]

In two large surveys in Bhavnagar, Gujarat, conducted in the late 1960s[26,27] and late 1990s,[34] overall tobacco use prevalence among men aged 15 years and above was around 70% in both surveys (71% and 67.6%). Smoking by men, however, appeared to have significantly decreased over the years (56% to 35%) and smokeless tobacco use to have increased (9% to 27%), while mixed use remained nearly the same (6% and 4.8%). In women, where smoking remained negligible, smokeless use may have decreased slightly (15% to 12%). *Mawa* chewing was found to have become highly popular among young men (15–35 years).

In a large survey conducted in rural Pune district in Maharashtra in the late 1960s, total tobacco use was 62% among men and 49% among women aged 15 years and above.[7] Most tobacco use consisted of smokeless forms. Similarly, in the city of Mumbai, a survey of residents 35 years and older from the middle and lower socioeconomic classes found 69% of men and nearly 58% of women using tobacco, and smokeless tobacco use predominated.[35] Some 24% men smoked, while smoking was negligible among women.

Occupational group studies

Occupational groups studied for tobacco use have included skilled and unskilled industrial workers, policemen, educational personnel, doctors, and white-collar workers/professionals, as shown in Table 3.1. The larger studies are described here.

In a survey of 57,518 industrial workers in Ahmedabad, Gujarat aged 35 years and above (95% men), 35.6% smoked exclusively, 22.1% smoked and chewed *paan/supari* and 27.1% practised tobacco use in other ways (chewing tobacco with or without lime paste, chewing *paan/supari* or

Table 3.1 Tobacco use prevalence data from urban occupational group studies

Urban workers	*n*	Age (years)	Smoking (%)		Chewing (%)	
			M	F	M	F
Industrial workers[50]						
Ludhiana: Machine tool factory and woollen hosiery mill	473	17–64	50.2	–	NR	–
Ahmedabad: Textile workers (mainly)[36] 1967–1971	57,518	≥35	35.6 22.1 smk+ chew	–	27.1	–
Policemen[51]						
Bombay (in 1969)	3674	≥26	26.9 11.6 smk+ chew	–	47.0	–
Media personnel[52]						
Patna: Press employees	300		10 27 smk+ chew	–	52	–
Educational personnel						
Chandigarh: Teachers[53]	347 M 295 F	30–64	19.3 0.0	–	NR	–
Hooghly District, West Bengal: Teachers[54]	257		Any tobacco 73.9	Any tobacco 13.9	NR	–
Aligarh: University staff and research scholars[55]	2159 M 280 F		33.3	–	20.6	30.4
Lucknow: University teachers[56]	471 M 102 F		21.4 –	–	NR	NR
Professionals and college students[57]						
Siliguri			Sex not stated			
Professionals	588	NR	53.0		NR	
College students	600	18–25	48.8		NR	
Doctors[39]						
Chandigarh	218	NR	31.6 current 23.3 former	–	NR	–
All-India meeting[40]	120 102 M 18 F		10 current 9 occasional 14 former	0.0	8	8
All-India meeting[41]	256 221 M 35 F	26–70	2.3	0.0	NR	NR

NR: not reported; smk: smoking; chew: chewing; M: male; F: female

inhaling snuff). Smoking included *beedi*, cigarette, cigar, *hookah*, *chillum* and pipe.[36]

In the Global School Personnel Survey (GSPS), carried out in 2000 in Bihar, 77.6% of the 502 male school personnel interviewed and 77% of the female personnel interviewed said they were tobacco users. The break-up by type of tobacco use was smoking: 47.4% of men (cigarette smoking: 40.5%) and 31.0% of women (cigarette smoking: 26.9%). Some 58.7% of men and 53.4% of women said they used smokeless products.[37]

The GSPS was also conducted in eight north-eastern states of India during January–March 2001 (Table 3.2). The prevalence of *beedi* smoking varied 10% to 40% among school personnel in this region from. In four of the

Table 3.2 Prevalence of current tobacco use among school personnel in eight northeastern states: Global School Personnel Survey (GSPS), India[38]

State	Total	Men		Women	
	n	Smoking (%)	Smokeless (%)	Smoking (%)	Smokeless (%)
Assam	782	55.3	44.4	33.8	50.5
Arunachal Pradesh	533	45.2	47.9	34.4	49.0
Manipur	395	79.5	75.0	61.4	75.8
Meghalaya	447	69.6	51.3	31.6	56.6
Mizoram	307	75.3	79.2	76.2	87.2
Nagaland	426	55.1	49.8	18.1	32.5
Sikkim	342	52.5	54.2	39.7	73.6
Tripura	562	56.6	55.5	9.2	24.5

Note: Usages were not mutually exclusive and values include daily and occasional users.
Source: Sinha *et al.* 2003[38]

states, cigarette smoking predominated, while in four other states, *beedi* smoking predominated. Other forms of smoking were also found in the region, like *kamchung* (a small pipe) smoking in 6 states and *hookah* smoking as well as marijuana smoking with tobacco.[38]

During a survey conducted in 1986–1987 among 218 doctors in three institutions in Chandigarh, 31.6% were current smokers and 9.6% ex-smokers.[39]

Results of two surveys of professional meetings of doctors from different parts of India showed that about 2% and 10% were current smokers among the male doctors, while none of the women smoked. In the study with the higher proportion of smokers, about 8% of men as well as of women chewed *paan* with tobacco.[40,41]

Studies of medical students have shown that the prevalence of smoking (in all studies) and intensity of smoking progressively increased with the number of years in medical college.[42] Knowledge of the harmful components of cigarettes and *beedis,* and of the health effects beyond bronchitis and lung cancer was poor, even among the final-year students.[43,44]

Regional differences in specific tobacco practices

Very few studies have reported on specific types of tobacco use. *Beedi* smoking was common in six rural areas surveyed during 1966–1969 (Andhra Pradesh, Bihar [two areas], Kerala and Gujarat) and in 1974 (Goa).[4] About 60% of men smoked *beedis* in Ernakulam, Kerala; Singhbum, Bihar and in Goa. However, only 12% of men smoked *beedis* in Srikakulam, Andhra Pradesh where 57% of men smoked *chuttas.* In Bhavnagar, Gujarat 11% of men smoked clay pipes (*hookli*). In all six areas, only a small fraction of men smoked cigarettes (up to 6% in Ernakulam and 5% in Goa), the *hookah* or *chillum.*[5] Chewing was not very prevalent among men in these areas except in Darbhanga, where 44% of men chewed tobacco with lime, and in Kerala, where 33% of men chewed *paan* with tobacco.[2,26]

Box 3.1 Education and tobacco use

A high prevalence of tobacco use among school personnel in the states of Bihar and the Northeast, teachers in Hooghly district and doctors in Chandigarh, demonstrates that education alone is no guarantee of a low prevalence of tobacco use. The prevailing social environment has its own influence.

In rural and urban surveys in Maharashtra, smokeless tobacco use consisted of the application of *mishri* (especially among women) and the chewing of tobacco, mainly in *paan.*[8,35]

Trends with age and time

Tobacco use increases with increasing age. In

the Sentinel Survey, tobacco use prevalence crossed the 50% level among men in the age group of 35–39 years in Karnataka, but in Uttar Pradesh, where the overall prevalence was higher, it crossed that level in the age group of 25–29 years. Among women in Karnataka and Uttar Pradesh, the highest prevalence was reached in the age group of 70 years and above, at levels of 27.6% and 42.6%, respectively, suggesting that in areas with a high prevalence of tobacco use, initiation may occur at an early age.[19]

Types of tobacco use also change with time in succeeding generations. House-to-house surveys conducted in random samples of villages in five districts of Andhra Pradesh, Bihar (2 districts), Gujarat and Kerala during 1966–1969 among 50,915 villagers aged 15 years and above indicated that smoking was becoming more popular among the male youth of those areas because the average age of men who smoked was lower than the average age of men in the entire area's study population. In all five areas, the average age of women smokers was higher than that of the women in the entire study population, indicating that smoking was becoming less popular among younger women in all the areas. On the basis of similar age considerations, chewing appeared to be becoming less popular among both men and women in Ernakulam and Darbhanga, and among women in Bhavnagar.[2] Thus, tobacco use patterns change with time.

Traditional forms of tobacco chewing such as in *paan* now appear to be mainly an indulgence of the older generation; the younger generation is taking up newer forms of tobacco use such as *gutka*, tobacco toothpaste and cigarette smoking.[45] In a survey of 1200 college students, most tobacco users used multiple tobacco products as well as alcohol.[46]

National surveys

Efforts to understand the tobacco use scenario in India by patching together prevalence data collected in various localities in different age groups highlight the utility of national survey data.

The National Household Survey of Drug and Alcohol Abuse in India (NHSDAA), conducted in 2002 among males, covered over 40,000 individuals aged 12–60 years in nearly 20,000 households in 25 states.[47] The overall prevalence of current tobacco use from the NHSDAA was 55.8%.

Table 3.3 gives the age-wise break-up of the NHSDAA data, showing an increase in tobacco use with age, levelling off after 50 years of age. This confirms the trend with age shown in the Sentinel Survey and local surveys.

In India, the National Sample Survey Organization (NSSO) has been conducting yearly surveys since 1950–1951.[48] Tobacco use is part of the consumer behaviour component of the National Sample Survey (NSS), conducted every five years. Another nationwide survey, the National Family Health Survey (NFHS), in its second round (1998–1999), collected information on tobacco use. It found that tobacco use among men was 46.5% and 13.8% among women aged 15 years and above in 1998–1999.[49]

Table 3.3 Tobacco use by age category, NHSDAA, 2004[47]

	12–18 years	19–30 years	31–40 years	41–50 years	51–60 years
Sample (*n*)	8587	13216	7805	5920	5168
Tobacco users (*n*)	1860	7026	5186	4193	3638
Prevalence	55.8	54.9	67.6	72.0	71.5

Source: Srivastava *et al.* 2004

Table 3.4 Available national data for India on tobacco use prevalence among adults, for 1995–1996 and 1998–1999[49]

Survey	Strata	National Sample Survey, 52nd Round, 1995–1996	National Family Health Survey-2, 1998–1999
Age group		15+ years	15+ years
No. surveyed	Urban+ Rural	396,546	315,597
Regular tobacco users	M (%)	51.3	46.5
	F (%)	10.3	13.8
Regular smokers	M (%)	35.3	29.3
	F (%)	2.6	2.4
	All (%)	19.2	NR
Regular smokeless users	M (%)	24.0	28.1
	F (%)	8.6	12.0
	All (%)	16.4	NR

NR: not reported; M: male; F: female
Note: Confidence intervals were not available for any national survey data
Source: Rani *et al*, 2003

While the two surveys have similar sampling methods, it should be kept in mind that in the NSS, the male head of the household responded for all members, while in the NFHS, the female head of the household responded for all members, an important difference in methodology. Prevalence rates of tobacco use were calculated from both the recent NSS 52nd Round and NFHS-2 for the population aged 15 years and above to permit comparison[49] and are presented here (Table 3.4).

The surrogate respondent may underreport tobacco use by younger individuals and the opposite sex either due to ignorance or for fear of social disapproval. Thus, in the NFHS where the respondents were mainly females, the prevalence of smoking among men was reported to be lower than the NSS (29.3% vs 35.3%) where most respondents were males, and the prevalence of smokeless tobacco use among women higher (12% vs 8.6%). Part of the differences may be due to time trends as the surveys were 3–4 years apart. A time trend of overall decreasing tobacco use and a specific increase in smokeless tobacco use is in consonance with the trends in tobacco consumption indicated by the NSS from 1987 (*see* Chapter 2).

Geographic variation

State and regional differences suggested in local studies have generally been confirmed by the national studies, with some exceptions. For example, the NHSDAA found the highest prevalence of tobacco use in South Bihar (94.7%), followed by Uttar Pradesh (87.3%) and high rates in the northeastern states, similar to findings in local surveys and in the GSPS. The lowest rate was found in Kerala (20.6%), which is in contrast to the findings of other recent local studies.

State-wise prevalence using the data of the NFHS-2 are shown in Table 3.5 and for men, graphically displayed in maps (Fig. 3.1). Overall tobacco use increases towards the centre of the country, the north and east. Smoking has an increasing gradient towards the north, northwest, northeast and in the two states of Andhra Pradesh and Kerala.

Table 3.5 State-level prevalence of tobacco smoking and chewing in India by sex (age 15 years and above)[49]

Region/state	Smoking				Chewing			
	Men		Women		Men		Women	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI
North								
New Delhi	23.9	22.0–25.9	1.8	1.4–2.2	13.1	11.5–14.9		
Haryana	40.4	37.7–43.1	3.5	2.8–4.3	8.1	6.7–9.8	2.5	1.9–3.2
Himachal Pradesh	38.6	36.6–40.6	2.4	1.8–3.1	7.8	6.7–9.1	0.9	0.6–1.3
Jammu and Kashmir	44.3	42.0–46.6	8.3	7.1–9.7	7.3	5.8–9.1	0.5	0.3–0.8
Punjab	13.9	12.2–15.8	0.3	0.2–0.5	9.3	8.0–10.8	0.9	0.6–1.3
Rajasthan	37.8	35.7–39.9	4.1	3.2–5.2	19.0	17.7–20.4	0.2	0.1–0.4
Central						38.7–42.0	3.8	2.9–4.9
Madhya Pradesh	29.4	27.6–31.1	0.9	0.6–1.2	40.3	34.6– 38.0	14.4	12.7–16.2
Uttar Pradesh	33.8	32.5–35.2	3.0	2.6–3.5	36.3	50.1–53.5	10.9	10.1–11.8
East								
Bihar	26.3	24.8–27.9	6.2	5.5–7.0	51.8	46.7–51.4	6.7	6.0–7.6
Orissa	25.2	23.2–27.2	0.9	0.7–1.2	49.0	20.9–25.6	34.3	31.9–36.9
West Bengal	39.4	37.4–41.5	2.5	2.0–3.2	23.2	44.7–51.0	15.1	13.5–17.0
North-East								
Assam	31.5	28.4–34.9	2.6	2.0–3.4	47.8	47.9–55.3	24.3	22.1–26.6
Arunachal Pradesh	25.6	23.1–28.2	5.6	4.2–7.3	51.6	31.1–37.3	33.1	29.6–36.7
Manipur	35.0	32.0–38.1	12.0	10.0–14.2	34.1	13.8–20.5	19.2	15.5–23.5
Meghalaya	55.2	50.6–59.7	6.7	4.2–10.6	16.9	56.5–63.8	27.6	23.8–31.7
Mizoram	59.4	57.0–61.8	22.0	19.6–24.6	60.2	41.3–48.8	60.7	57.2–64.0
Nagaland	38.0	34.3–41.8	2.4	1.3–4.5	45.0	36.5–42.7	16.5	13.7–19.7
Sikkim	19.4	17.1–22.0	8.2	6.9–9.7	39.5	8.9–13.1	18.6	16.2–21.2
Tripura	48.5	44.9–52.2	9.7	6.7–13.9	10.8	6.0–9.9	5.2	3.3–8.1
West								
Goa	17.8	16.1–19.6	2.0	1.2–3.2	7.7	22.8–26.4	8.0	6.3–10.2
Gujarat	25.3	23.5–27.2	1.4	1.0–1.8	24.6	32.3–36.0	8.0	7.0–9.2
Maharashtra	13.3	12.1–14.6	0.2	0.1–0.4	34.1	9.4–12.0	18.0	16.1–20.0
South								
Andhra Pradesh	35.4	33.4–37.5	4.2	3.5–4.9	10.7	12.1–15.6	9.9	–
Karnataka	25.7	24.1–27.4	0.3	0.2–0.4	13.8	12.7–15.7	14.1	12.7–15.7
Kerala	28.2	26.5–30.0	0.4	0.3–0.7	9.4	9.1–11.2	10.1	9.1–11.2
Tamil Nadu	27.0	25.4–28.8	0.3	0.2–0.6	12.9	9.3–12.2	10.7	9.3–12.2

CI: confidence interval

Source: Rani *et al.* 2003

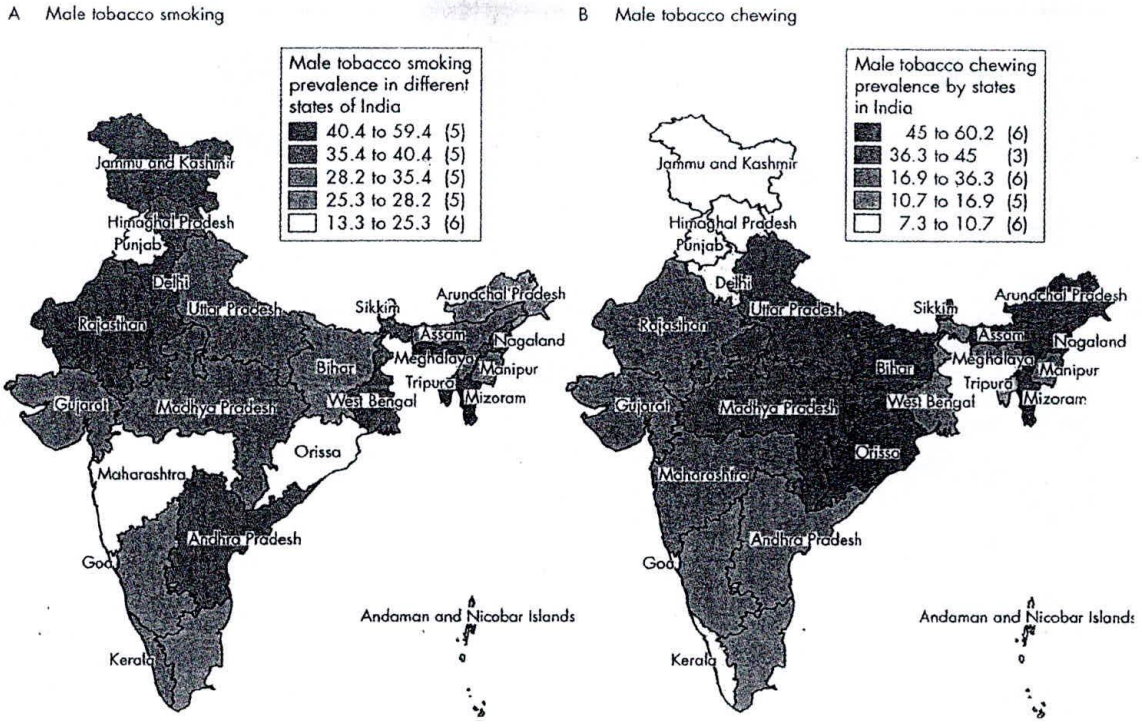


Fig. 3.1. Prevalence of tobacco smoking and tobacco chewing among men aged 15 years and above in different states of India (brackted numbers denote the number of states)

Source: Rani *et al.* 2003[49]

3.2 PREVALENCE OF TOBACCO USE IN INDIA

KEY MESSAGES

- About 45 surveys conducted since the 1960s in limited urban and rural areas are available, covering different age groups, but only a handful were large enough to be representative of the area studied.
- Male tobacco use prevalence in 1995–1996 was 51.3% and in 1998–1999 it was 46.5% according to the National Sample Survey 52nd Round and National Family Health Survey-2. The prevalence of tobacco use among females was 10.3% and 13.8% in the two successive surveys.
- The National Household Survey of Drug and Alcohol Abuse conducted in 25 states (excluding Jammu and Kashmir) in 2002 reports that 55.8% of males 12–60 years of age currently use tobacco.
- Trends seen in the data include higher tobacco use prevalence among males compared to females and among older age groups compared to younger.
- Geographic area is a determinant of the type of tobacco use and prevalence of usage; overall tobacco use increases towards the centre, the north and east. Chewing follows this pattern. Smoking has an increasing gradient towards the north, northwest, northeast and in the two states of Andhra Pradesh and Kerala.

3·3

Prevalence of Tobacco Use Among Women

Why focus on women? A global perspective

Tobacco use plays a pivotal role in perpetuating health inequalities among different socio-economic groups and between genders. Women tobacco users not only share the same health risks as men, but are also faced with health consequences that are unique to women, including those connected to pregnancy and cervical cancer.

Smoking among women in most high-income countries has increased over the past 20 years, though there has been a fall in smoking among men over the same period.[58] The number of women smokers worldwide is projected to almost triple over the next generation, from the current 200 million to more than 500 million.[59] The biggest rise in female smoking is projected to be in the less developed countries.

Gender-based psychosocial aspirations are blatantly exploited to promote tobacco. Almost all cigarette and chewing tobacco advertising imagery in India includes women, taking advantage of the changing position of women in society, and their increasing socioeconomic independence. As a result, many educated young women perceive smoking as a symbol of liberation and freedom from traditional gender roles. Peer and advertising pressure encourages even knowledgeable women to smoke.

Prevalence and trends of tobacco use among women in India

Tobacco use among women is prevalent in all regions of India and among all sections of society—overall, 2.4% of women smoke and 12% chew tobacco.[49] The prevalence of smoking among women is low in most areas due to social unacceptability, but is somewhat common in parts of the north, east, northeast and Andhra Pradesh (Fig. 3.2).

A few available studies on pregnant women suggest that tobacco use prevalence among them is not different from that of women in the general population.[60–62] This is a cause for concern, as it indicates no specific tobacco use prevention efforts during antenatal care. In a report from a large teaching maternity hospital in Mumbai, 33.4% of women in the reproductive age group were smokeless tobacco users.[62] Women in many rural areas believe that tobacco has many magical and medicinal properties; keeping the mouth clean, getting rid of a foul smell, curing toothache, controlling morning sickness, during labour pains, etc.[63]

Anecdotal evidence points to an increase in smoking among Indian women[64] although the national surveys do not show a definite trend in women's smoking prevalence. (The proportion of women smokers of all women tobacco users was about 20% in 1987–1988 and 1993–1994,[48] about 25% in 1995–1996 and 17% in 1998–1999.[49] Though the prevalence of smoking among Indian women is low at this point of time, it needs to be tracked carefully due to the increased marketing efforts and impact of globalization. There is already an indication that *beedi* and cigarette smoking is high (at least 30%) among women in Bihar and the northeastern states.[37,38]

In the NFHS 1998–1999, the proportion of

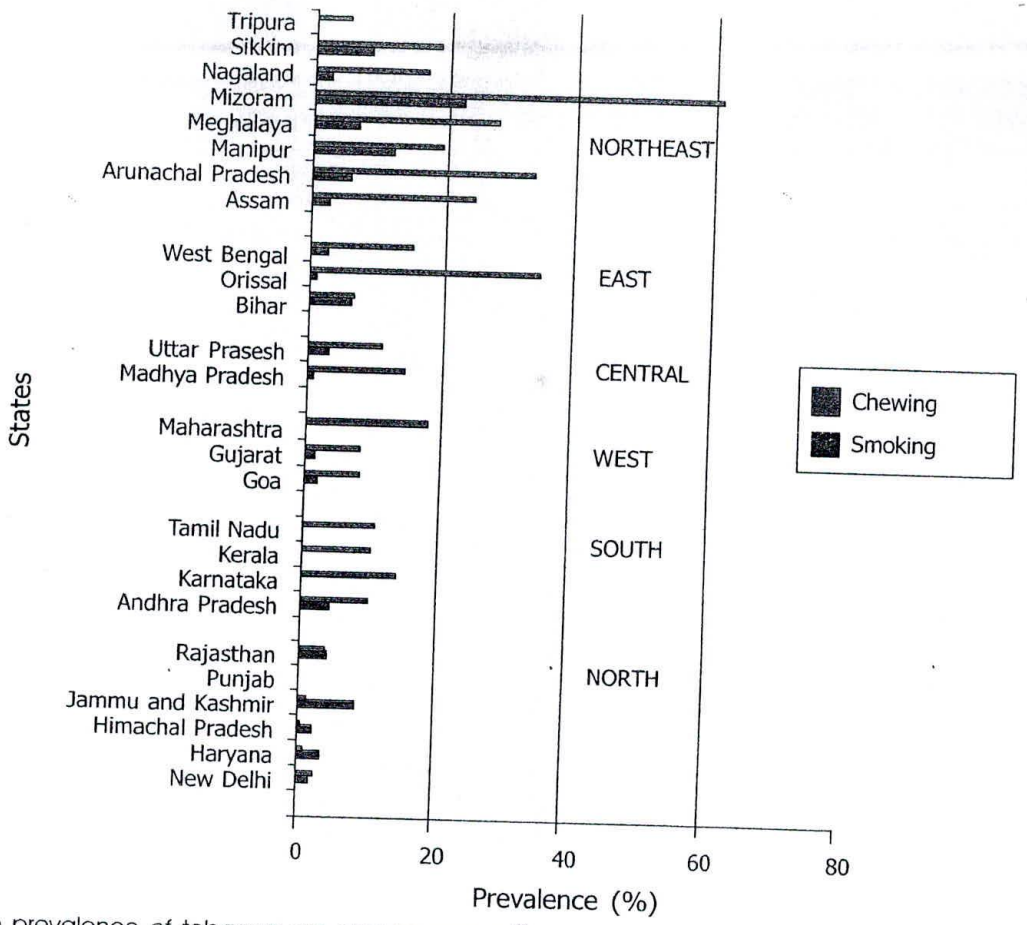


Fig. 3.2 The prevalence of tobacco use among women[49]

regular smokers and chewers among females increased up to the last age group, 60+, while that for males increased up to the age of 45–59 years and then tended to flatten out (Fig. 3.3).[49] A similar finding has been consistently observed in the other national surveys and the Sentinel Survey, as well as in several smaller-scale studies. Among women in Delhi, the prevalence of smoking increased with age up to the last age group, but among men, smoking prevalence was highest in those aged 35–44 years.[16] Thus, initiation of tobacco use in females may not be limited to childhood and the teenage years.[19]

Box 3.2 Women and smoking

It has been suggested that with young women increasingly taking up newer forms of smokeless tobacco use and smoking, it is likely that there will be a new peak at 15–24 years of age.[45]

Regional differences

Region-specific differences in tobacco use practices are shown in several large population-based studies. In seven rural surveys conducted during 1966–1969 (Andhra Pradesh, Bihar [two areas], Gujarat and Kerala), in Pune district, Maharashtra and in Goa in 1974, tobacco use prevalence among women aged 15 years and above varied from 15% (Gujarat) to 67% (Andhra Pradesh).[2,4,8,27]

Among the seven areas, the prevalence of smoking was 64% among women in Srikakulam district, Andhra Pradesh (64%), where reverse *chutta* smoking was common (59%). Forty-five per cent of women in Darbhanga district, Bihar smoked, where *beedi* (13%) and *hookah* smoking (28%) were the most common forms. In these two areas of high smoking prevalence among women, smokeless tobacco use was uncommon,

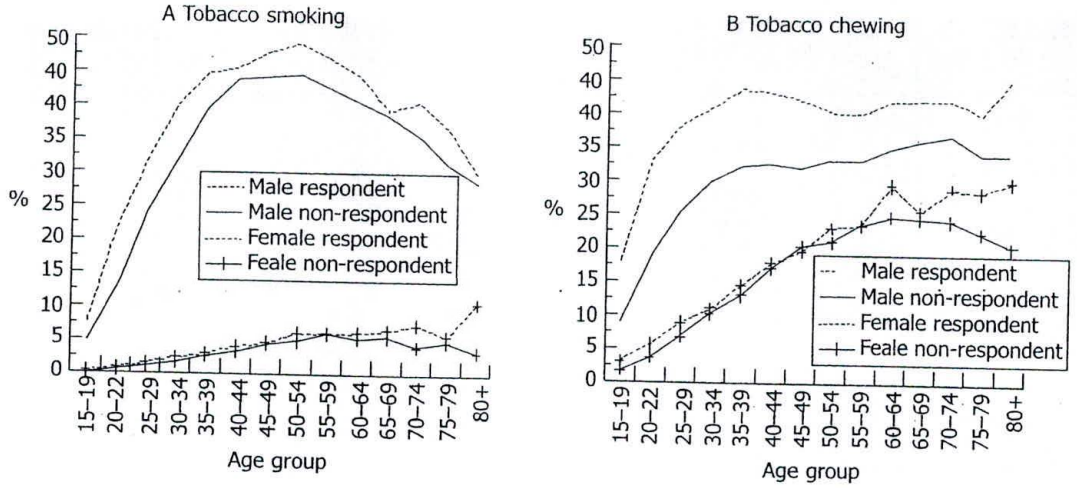


Fig. 3.3 Age-specific prevalence of tobacco smoking and chewing by men and women in India, aged 15 years and above, during 1998–1999 (NFHS-2)[49]

but in all the other areas, smokeless use (mainly chewing) was the most prevalent. Women's smoking prevalence was 19% in Goa, where *beedi* (12%) and *dhumti* smoking (6%) were favoured. Women who smoked *dhumti* generally smoked one or two per day. *Beedi* smoking among women varied from 4% to 13% in the different districts, while cigarette smoking was negligible.[2,4,8,27]

Smokeless tobacco use was more common among women in all the other areas. The prevalence of chewing tobacco use, especially *paan* with tobacco, was as high as 27% in Goa and 35% in Kerala. In Bhavnagar, Gujarat, 14% of women applied *bajjar* to the gums, in Singhbum (Bihar) 16% applied *gudhaku* to their gums and in Darbhanga 7% used tobacco with lime.[2,26] In Pune district, Maharashtra, almost no women smoked but 49% of women were smokeless tobacco users; altogether 39% used *mishri*.[2,4,8,27]

In an urban survey conducted during 1992–1994 in Mumbai, 57.5% of women in the age group of 35 years and above were current tobacco users, almost all of smokeless tobacco (only 0.4% smoked).[35] The most common form of smokeless tobacco use was *mishri*, sometimes combined with other smokeless tobacco. Over 90% of women who used *mishri* applied it less than 3 times a day. This low frequency is consistent with the practice of its use as a dentifrice. *Mishri* use tended to begin in childhood, while *paan* chewing tended to begin later.

According to NFHS 1998–1999 data, regions in order of increasing prevalence of tobacco use among women are the north, south, west, central, east, and the northeast (Fig. 3.3). Chewing in various states in 1998–1999 among women was as follows:

- Up to 61% in Mizoram
- Between 30% and 40% in Orissa and Arunachal Pradesh
- Between 20% and 30% in Meghalaya and Assam
- Between 15% and 20% in Manipur, Sikkim, Nagaland, Madhya Pradesh, Uttar Pradesh, West Bengal and Maharashtra
- Between 10% and 15% in Karnataka, Kerala and Tamil Nadu
- Between 5% and 10% in Andhra Pradesh, Goa, Gujarat, Tripura and Bihar
- Between 2% and 4% in Delhi and Rajasthan
- Less than 1% in Punjab, Himachal Pradesh, Haryana, and Jammu and Kashmir.

Smoking in various states among women in 1998–1999 was as follows:

- Between 10% and 25% of women currently smoked in Mizoram and Manipur.
- Between 5% and 10% of women currently smoked in Jammu and Kashmir, Bihar, Tripura, Sikkim, Meghalaya and Arunachal Pradesh.
- Less than 5% of women currently or ever smoked in the large majority of states.

Socioeconomic and demographic trends

As covered in some detail in Chapter 2, women's tobacco use is higher in the less educated and poorer social strata. Yet, the socioeconomic gradients for tobacco use are steeper for women than for men.[49] In a large study in Delhi, being a housewife, a student, or being retired had a protective effect in comparison to being a professional.[16]

3.3 PREVALENCE OF TOBACCO USE AMONG WOMEN

KEY MESSAGES

- India has a huge problem of widespread smokeless tobacco use among women, particularly among disadvantaged women.
- The prevalence of smoking is higher among rural women, and women in the north and northeast.
- Tobacco use in pregnant women is similar to that in non-pregnant women of the same age.
- The difference between male and female smoking rates is narrowing in some areas where smoking among women has been hitherto uncommon.
- Differentials in the prevalence of tobacco use among various socioeconomic groups are much more acute in women compared with men.

3.4

Prevalence of Tobacco Use Among the Youth

A literature review on tobacco use among the youth revealed that information is limited to the district or township level and the methodologies used vary. The Sentinel Survey of the World Health Organization–South-East Asia Regional Office (WHO-SEARO) and Indian Council of Medical Research (ICMR)[19] provided detailed population-based tobacco use prevalence data for youth in the age group of 10–14 years in two states—Uttar Pradesh (boys 3%; girls 0.6%) and Karnataka (boys 1.3%; girls 0.1%). The Global Youth Tobacco Survey (GYTS), supported by the WHO and the Centers for Disease Control and Prevention (CDC), conducted during the years 2000–2004, is the first survey that provides data on youth (13–15 years) for national and international comparison with standardized methodology. The GYTS data are available for 26 major states, which represent 94% of the Indian population.

This section provides estimates of tobacco use among the youth specifically using the school-based GYTS for India.

Objectives and methodology

The objectives of the GYTS were to examine the prevalence of tobacco use among school-going youth in the age group of 13–15 years, their knowledge about the harmfulness of tobacco, access to tobacco, attitudes towards tobacco use, social beliefs and perceptions, cessation behaviour, exposure to tobacco advertisements and attitudes towards tobacco control.

The GYTS is a school-based, cross-sectional survey that was independently conducted in different states of India, using a uniform methodology.[65] In brief, GYTS employed a two-stage cluster sample design to produce a representative sample of students in grades eight to ten in both government and private schools, which roughly corresponds to the age group of 13–15 years. At the first stage, the probability of schools being selected was proportional to the number of students enrolled in the specific grades. At the second stage, classes within the selected schools were randomly chosen. All students from selected classes attending the school on the day of the survey were eligible to participate. For estimating the prevalence rates, weighting factors were applied to each student record to adjust for non-response (school, class and student) and variation in the probability of selection at the school, class and student levels. For the GYTS data presented here, the school response rate ranged from 92% to 100% and the student response rate ranged from 70.1% to 90.6%. This sample provided responses from 53,654 individual students in 26 Indian states, namely Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chandigarh, Delhi, Goa, Gujarat, Haryana, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram; Nagaland, Orissa, Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh, Uttaranchal and West Bengal.

Results

Tobacco use prevalence and other variables

The summary of the countrywide results for GYTS India, 2000–2004, are presented in this section under important variables:

Ever tobacco use: Ever tobacco use (ever consumed any tobacco product) was reported by one-fourth of students (25.1%); the prevalence ranged from 4.0% (Himachal Pradesh) to 75.3% (Mizoram).

Current use of tobacco in any form: Students consuming any tobacco products within 30 days preceding the survey were

considered current tobacco users. Among students in the age group of 13–15 years, 17.5% were current users of tobacco in any form, and current use ranged from 2.7% (Himachal Pradesh) to 63% (Nagaland).

Current smokeless tobacco use: Among students aged 13–15 years, 14.6% were current smokeless tobacco users. Users ranged from 2% (Himachal Pradesh) to 55.6% (Bihar).

Current smoking: Current smoking in India was reported by 8.3% of students. It ranged from 2.2% in Himachal Pradesh to 34.5% in Mizoram.

Box 3.3 Tobacco use among students (Grades 8–10)

- 17.5% were current users of tobacco in any form (range: 2.7%–63%);
- 14.6% were current smokeless tobacco users (range: 2.0%–55.6%);
- 8.3% were current smokers (range: 2.2%–34.5%).

(GYTS 2000–2004)

Smokeless vs smoking: Clearly, current smokeless tobacco use was significantly more common than current smoking among students aged 13–15 years (Table 3.6). It is to be noted that the total of smokers and users of smokeless forms is higher than that of current users of

Table 3.6 Tobacco use prevalence and related issues, GYTS India, 2000–2004

	India		Lowest (State)		Highest (State)	
	%	(95% CI)	%	(95% CI)	%	(95% CI)
Prevalence						
Ever tobacco use	25.1	(±1.8)	4.0	(±0.9)[5]	75.3	(±5.3)[26]
Current tobacco use	17.5	(±1.5)	2.3	(±1.1)[5]	62.8	(± 3.4)[27]
Current smokeless	14.6	(±1.5)	2.0	(±0.8)[5]	55.6	(±7.5) [16]
Current smoking	8.3	(±1.2)	2.2	(±0.7)[5]	34.5	(±4.5)[26]
Current cigarette smoking	4.2	(±1.2)	0.5	(±0.3)[19]	22.8	(±3.3) [26]
Current use of non-cigarette	13.6	(±1.0)	1.6	(±0.9)[5]	47.4	(±10.6)[24]
Smoker needs tobacco first thing in the morning	57.8	(±5.8)	53.7	(±4.1)[26]	94.9	(±3.8)[29]
Second-hand smoke						
Exposure (inside home)	36.4	(±1.6)	9.9	(±2.9)[8]	79.0	(±10.9)[24]
Exposure (outside home)	48.7	(±1.6)	23.5	(±3.9)[8]	84.4	(±6.1)[25]
Favours smoking ban in public places	74.8	(±1.2)	31.4	(±7.3)[24]	90.9	(±1.9)[21]
Access and availability						
Purchased cigarette in store	65.8	(±7.2)	12.1	(±8.7)[1]	95.7	(±5.6)[10]
Not refused because of age	55.1	(±14.1)	4.2	(±1.7)[13]	98.1	(±2.1)[22]
Tobacco promotion						
Percentage who have seen a lot of advertisements						
For cigarettes on billboards	42.1	(±1.4)	2.8	(±1.9)[16]	73.2	(±5.6)[29]
For *beedi* on billboards	38.3	(±1.6)		NA		NA
Offered free sample of cigarette	8.1	(±1.3)	0.6	(±0.5)[16]	100.0	(±0.0)[24,26,28,29]
Belongings with cigarette logo	12.4	(±1.3)	1.1	(±0.8)[16]	26.1	(±7.3)[28]
Offered free sample of *beedi*	8.0	(±1.3)		NA		NA
Belongings with *beedi* or *paan masala* logo	14.6	(±1.4)		NA		NA
Cessation						
Wants to stop smoking	68.5	(±7.2)	19.6	(±12.5)[24]	88.9	(±6.9)[1]
Tried to quit smoking	71.4	(±11.7)	8.4	(±3.3)[28]	97.8	(±3.5)[10]
Curricular teaching						
Taught dangers of smoking in class	50.9	(±1.6)	2.7	(±1.9)[16]	75.5	(±5.2)[8]
Taught effects of tobacco in class	47.4	(±1.5)	3.1	(±2.1)[16]	71.4	(±5.4)[8]

States: Chandigarh[1] Chhattisgarh[2] Delhi[3] Haryana[4] Himachal Pradesh[5] Jammu and Kashmir[6] Madhya Pradesh[7] Punjab[8] Rajasthan[9] Uttar Pradesh[10] Uttaranchal[11] Andhra Pradesh[12] Karnataka[13] Kerala[14] Tamil Nadu[15] Bihar [16] Orissa[17] West Bengal[18] Goa[19] Gujarat[20] Maharashtra[21] Assam[22] Arunachal Pradesh[23] Manipur[24] Meghalaya[25] Mizoram[26] Nagaland[27] Sikkim[28] Tripura[29]

NA: not available

tobacco in any form due to overlap, as a small proportion of students used both forms.

Current cigarette and non-cigarette tobacco use: The GYTS India results show that current non-cigarette tobacco use (13.6%) was three times more common than current cigarette smoking (4.2%). The current prevalence of cigarette smoking ranged from 0.5% in Goa to 22.8% in Mizoram, whereas the prevalence of current non-cigarette tobacco use ranged from 1.6% in Himachal Pradesh to 47.4% in Manipur.

Second-hand exposure: Over one-third of students (36.4%) were exposed to second-hand smoke inside their homes and nearly half (48.7%) outside their homes. The exposure to second-hand smoke inside the home ranged from 9.9% (Punjab) to 79.0% (Meghalaya) and outside the home it ranged from 23.5% in Punjab to 84.4% in Meghalaya.

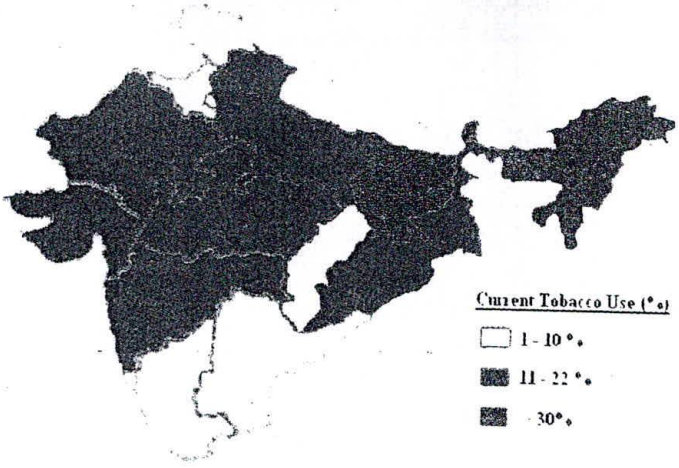


Fig. 3.4 Levels of current tobacco use in different states of India, GYTS 2000–2004

Factors associatd with tobacco use

The determinants of tobacco use among the youth are many and varied. First of all, socio-demographic factors such as gender, state and region, and rural versus urban residence were found to be related to tobacco use among these youth. Factors affecting social norms are described next: family influence and tobacco use by friends; curricular teaching; exposure to advertisements in the media and community; access and availability of tobacco products in the area of residence; concurrent alcohol and tobacco smoking; nicotine dependence; desire to quit tobacco use; levels of awareness about the harmfulness of tobacco and attitudes towards government tobacco control policies on access and availability of tobacco products to minors; school policies; tobacco control strategies and tobacco industry tactics to attract the youth.

Gender: Positive responses to all the questions on tobacco use were reported significantly more commonly among boys than girls: ever tobacco use (boys 30.4 [±2.3], girls 16.8 [±2.2]), current any tobacco use (boys 22.0 [±2.1], girls 10.3 [±1.9]), current smokeless tobacco use (boys 18.5 [±2.1], girls 8.4 [±1.9]), and current smoking (boys 10.5 [±1.6], girls 4.4 [±1.0]).

State and region: High prevalence (>30%) was reported in the northeastern states and Bihar, intermediate prevalence (11%–22%) in Gujarat, Maharashtra, Madhya Pradesh, Orissa, Rajasthan, West Bengal, Uttar Pradesh and Uttaranchal, and low prevalence (1%–10%) in Andhra Pradesh, Chandigarh, Delhi, Goa, Haryana, Himachal Pradesh, Karnataka, Punjab, and Tamil Nadu (Fig. 3.4).

Rural versus urban residence: The GYTS results from Karnataka, Bihar and Rajasthan revealed that there was no statistical difference in overall current tobacco use among rural and urban students (rural 59.4%, urban 58.2%); however, current *beedi* smoking in rural areas (5.0%) was significantly higher than in urban areas (2.4%) in Bihar. Such information was not available for any other state.

Family, home, friends and school: Comparing the GYTS data from 26 states, current tobacco use was significantly correlated with variables such as (i) the percentage of students who have one or more parents using

tobacco (Spearman correlation coefficient=0.77, p<0.001); (ii) smoking at home was reported by 36.7% (average) of students, ranging from 8.8% in West Bengal to 96.1% in Uttar Pradesh;[65] (iii) the percentage of students who have most or all friends who smoke (Spearman correlation coefficient = 0.85, p<0.001); and (iv) exposure to second-hand smoke inside the home (Spearman correlation coefficient = 0.67, p<0.001) and outside (Spearman correlation coefficient = 0.70, p<0.001); (v) at school, the level of curricular teaching on topics such as the dangers of smoking and chewing (Spearman correlation coefficient = −0.75, p<0.001), and the effects on appearance of smoking and chewing (Spearman correlation coefficient = −0.46, p<0.001) were inversely associated with current tobacco use.

The GYTS data from eight northeastern states of India showed that tobacco users were more likely than never-tobacco users to admit that most or all of their friends smoke. Additionally, parental tobacco use was reported two to three times more often by tobacco users as compared to never-tobacco users.[11]

Curricular teaching: About half of all students agreed that they had been taught about the dangers of smoking (ranging from 2.7% in Bihar to 75.5% in Punjab) and the effects on appearance of tobacco use (ranging from 3.1% in Bihar to 71.4% in Punjab) (Table 3.6).

Media and advertisements: The GYTS revealed that 42.1% and 38.3% of students reported seeing pro-cigarette and pro-*beedi* advertisements 'a lot', respectively. Students reported being equally exposed to *gutka* advertisements on billboards and community events.[66] Over 12% and 14% students reported having some object with a brand logo of cigarettes/*beedi* or *paan masala,* respectively (Table 3.6). Among the GYTS participants in India, about 8% of students were offered free samples of cigarettes and *beedis* by tobacco companies (Table 3.6).

Access and availability: Among current smokers, 65.8% purchased cigarettes in a store (ranging from 53.1% [Nagaland] to 95.7% [Uttar Pradesh]) (Table 3.6). Among students who bought cigarettes in a store in the past 30 days, over 55.1% (average) were not refused purchase by anyone because of their age (range: 6.2% in Uttar Pradesh to 98.1% in Assam) (Table 3.6).

Tobacco and co-morbid alcohol use: The GYTS data from the eight northeastern states showed that co-morbid smoking and drinking ranged from 6.9% in Meghalaya to 13.1% in Sikkim. Among boys it ranged from 8.5% in Meghalaya to 19.6% in Manipur, and among girls from 2.9% in Manipur to 7.7% in Mizoram.[67]

Nicotine dependence: Nicotine dependence, was assessed by one question on whether the respondent needed tobacco first thing in the morning. In the northeastern states, over two-thirds of cigarette-smoking students (especially among boys) and nearly half of smokeless tobacco users reported needing tobacco first thing in the morning.[11]

Desire to quit tobacco use: Attempts and social support

The GYTS results revealed that over 68.5% (average) of students who smoked wanted to stop (range: 19.6% in Manipur to 88.9% in Chandigarh), whereas 71.4% (average) had already tried to stop smoking during the past year (range: 8.4% in Sikkim to 97.8% in Uttar Pradesh). For all India, 84.6% of cigarette-smoking students had received help or advice to stop smoking from family members, community members, health personnel or friends (range: 10.5% in Sikkim to 97.8% in Uttar Pradesh). In the northeastern states, however, compared to the national point estimate, such help was reported to be low (<39% in 5 of 8 states).[11]

Awareness of the dangers of tobacco and attitudes towards tobacco control

Awareness: Nationwide GYTS data show that 57.9% students agreed that smoke from others is harmful to them (range: 5.1% to 86.3%). Lower awareness levels were seen in the northeastern states as compared to the rest of India.

Attitudes: An assessment of attitudes towards tobacco control showed that nearly three-fourths (74.8%) of students (31.4% in Manipur to 90.9% in Maharashtra) thought that smoking should be banned in public places (Table 3.6).

Discussion

A review of the GYTS data throws up an extremely wide range of variations regarding tobacco use. India, being a country of over one billion people, has the highest and lowest rates for current use of any tobacco product in the world: 3.3% in Goa to 62.8% in Nagaland.[68] These wide differences in prevalence within a country underscore the importance of subnational or regional data, for national estimates can obscure important regional differences within the country.

Many studies conducted during 1989–2004 using different methods have shown that tobacco use among girls students in schools,[13,69–77] colleges[76,78] and medical and dental colleges[42,44,79–84] was low relative to boys and adults in the general population. The results of the India GYTS 2000–2004 are consistent with the above studies; however, in some of the states, there is no statistical difference in the use of cigarette and non-cigarette products between boys and girls.[85] This indicates a breakthrough in social norms in India, where tobacco use by girls and women is considered taboo.

The average percentage of ever-smoker students in the GYTS who smoked their first cigarette before the age of 10 years was 54% (average for 13 states: 8 northeastern states, Bihar, Goa, Maharashtra, Tamil Nadu and West Bengal [range: 12.0% in West Bengal to 87.8% in Manipur]).[68] Early initiation before 10 years of age was reported to be high in the states where tobacco use prevalence was high. In the northeastern states, ever-tobacco users who first used tobacco before the age of 10 years was more than 65% in all the states except Mizoram (23.9%).[68] In the present review it is clear that early initiation is increasing and demands that environmental factors be properly regulated. A definite strategy for curricular teaching at all academic levels is required.

The GYTS in Bihar and Karnataka revealed that there was no statistical difference in rural–urban current tobacco use among students 13–15 years of age. This may be because of the increasing reach of the tobacco industry in rural areas.

In the GYTS, among students of grades 8–10 in 26 states (53, 654), about 14% of never-smokers (average 13.8%) (range: 4.55% in Punjab to 46.1% in Sikkim) expressed the opinion that they were likely to initiate smoking next year. In Karnataka among college students, although female students interviewed were non-smokers, several suggested that in the future, smoking might be an acceptable behaviour among college-going females.[78] This indicates that the marketing effect of tobacco industry is overriding prevention strategies.

When asked about their perceptions of smoking among the youth in western countries, the majority of college students from different colleges in Karnataka believed that three-quarters of male and female youth in the West smoked and this perception has been largely formed through media images, including satellite television and films. With regard to addiction, it was widely believed that filter-tipped cigarettes were one of the most addictive products because they are made of better quality tobacco, and are milder and smoother to smoke. Therefore, a person could easily smoke more of them, which would lead to addiction. Another widely held belief was that the more expensive the cigarette, the less harmful it was for one's health.[78]

In India the misconception is widespread that tobacco is good for the teeth or health. Specific teeth-related problems have been assigned as the reason for starting tobacco use. In the GYTS reports from the northeastern states of India, tobacco users reported significantly more often that tobacco relieves toothache and helps in morning motions, etc. than did never-tobacco users.[11]

Many companies take advantage of these misconceptions by packaging and positioning their products as dental care products. In India, the 1992 amendment to the Drugs and Cosmetic Act, 1940 prohibits the use of tobacco as an ingredient in dental care products.[12] Tobacco products are used as a dentifrice in different parts of India.[13,70,75] A laboratory test of five samples of red tooth powder that did not declare tobacco as an ingredient, 10 years after the law had been amended, found a tobacco content of 9.3 to 248 mg per gram of tooth powder.[12] A clear strategy addressing this specific issue needs to be planned and implemented. In a GYTS report for 14 states, namely Bihar, Goa, Maharashtra, Uttar Pradesh, Uttaranchal and eight northeastern states, current use of tobacco products as a dentifrice ranged from 6% in Goa to 68% in Bihar.[12]

Parents and teachers are the initial role models for young children. In the northeastern states and Bihar, tobacco use among adults[48,49,86,87] and schoolteachers[37,38] was found to be high and so is the current tobacco use prevalence among students 13–15 years of age. Over 80% of tobacco users in these states showed that they received help from someone within the community.[11] This is one example where preaching does not work unless the role models change themselves too, and practise what they preach. The GYTS revealed that those states having higher levels of curricular teaching have a low prevalence of tobacco use by students. Bihar (teaching 3%, tobacco use by students 59%) and Punjab (teaching 75% and tobacco use by students 3%) may be taken as examples of two extremes.

From different reports on the Global School Personnel Survey (GSPS) in India[37,38,88] conducted simultaneously with the GYTS, it has been revealed that tobacco policies in schools restricting student smoking (28%) and school personnel smoking (26%) are rarely adopted and enforced. Tobacco prevention instruction by teachers on six different teaching and training measures was low (<35%). A special striking feature was the lack of teaching material and training for teachers regarding tobacco legislation (5%). However, there is evidence that central government schools that adopt tobacco control policies had a low prevalence of current tobacco use among students[89] and school personnel[90] as compared to state schools, which had no policies.

A study[91] from Kolkata found that increased tobacco use was associated with government schools versus private schools. A survey in 45 schools in Mumbai found that tobacco use among boys in their final year in English medium private schools (22.5%) was significantly higher as compared to students from Indian language private (6.9%) and municipal schools (13.8%).[73] The GYTS data show that students in schools under State Government boards reported significantly higher current tobacco use than Union Government board schools in Bihar.[75]

Goa, Delhi and a few other states have policies on tobacco control and these states have a low prevalence of tobacco use among the youth. However, in Delhi and Goa, over 30% and 20% students, respectively, reported that they experienced exposure to second-hand smoke outside their homes in the week preceding the GYTS. Apart from this, there is other evidence that indicates that legislation for tobacco control is not properly implemented in India.[92] About 90% of students in the age group of 13–15 years supported banning smoking in public places. For preventing exposure in public places, the existing law 'The Cigarettes and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Act, 2003 No. 34 of 2003' needs to be implemented vigorously, while the public needs to be informed about the dangers of second-hand smoke.

3.4 PREVALENCE OF TOBACCO USE AMONG THE YOUTH

KEY MESSAGES

- Tobacco is used by the youth all over India with a wide range of variation among states.
- Two in every ten boys and one in every ten girls use any tobacco product.
- There is no statistical difference in rural–urban current tobacco use among students aged 13–15 years.
- Many youth believe that tobacco is good for the teeth or health.
- Early initiation before the age of 10 years is increasing.
- States having higher levels of curricular teaching have a low prevalence of tobacco use by students.

3.5

Key Selected Studies and Estimation of the Number of Tobacco Users

In this section, key studies selected as a basis for estimation of the number of tobacco users are described and an estimate of this number is attempted.

Key selected studies

The major source material used for this study is tabulated data from the special report: *Consumption of tobacco in India, 1993–1994* of the National Sample Survey Organization (NSSO).[48] This nationwide survey was undertaken as the 50th round of the National Sample Survey (NSS), using statistical sampling techniques. A total of 115,354 households located in 6951 villages and 4650 urban blocks were visited and information on tobacco use including product types were obtained for all members aged 10 years and above residing in each surveyed household. In the survey, tobacco use among a total of 432,393 individuals of all ages was recorded. This information was obtained from one member of the household, usually the male head. The NSSO tabulated the survey results for urban and rural residents gender-wise and age-wise for 32 states and union territories. In the report the age groupings were as follows: 10–14, 15–29, 30–44, 45–60 and 60+ years. The NSSO report also contains prevalence by type among various social groups.

The second National Family Health Survey (NFHS-2) was also a nationwide household survey conducted according to strict statistical sampling procedures during 1998–1999, on health-related practices and behaviour in 26 states. Over 90,000 households were surveyed and information on *paan*/tobacco chewing and tobacco smoking were obtained for 315,597 persons aged 15 years and above. Information was collected from the female head on members aged 15 years and above on tobacco use, and tabulated data are presented as tobacco chewers and tobacco smokers in the report. Data are not presented on the prevalence of combined use in that report, thus there is an overlap and the prevalence of chewing and smoking cannot be added together. However, some combined data have been published elsewhere.[49] In the NFHS-2 report, the age categorization adopted was 15–19,20–24,25–29, 30–39, 40–49, 50–59 and 60 years and above. These data were obtained from 25 states in the country.

Other than the above two nationwide survey reports, the results of a complete rural population survey have also been used to estimate the national prevalence in this section. This survey was conducted in the entire Karunagappally population located in Kollam district of Kerala during 1990–1998. These results were also used for estimating prevalence as this was a complete population survey conducted by face-to-face interviews with results tabulated for 5-year age groups by gender, which made it possible to obtain age-specific prevalence rates for males and females. This area is 'rural' according to the government census. The survey was undertaken to obtain the prevalence of lifestyle factors associated with cancer occurrence (personal communication Dr P. Jayalekshmi, P. Gangadharan and V.S. Binu, Karunagapally Cancer Registry).[93]

In Table 3.7 the number of persons interviewed in the NSS are shown gender-wise and according to urban–rural residence. The rural population was only 62% of the total studied.

Table 3.7 Number of persons covered in the NSS, 50th round (1993–1994) of all ages[48]

	Rural	Urban	Total
Male	137,265	86,144	223,409
Female	130,357	78,627	208,984
Total	267,622	164,771	432,393

Source: National Sample Survey Organization, 1998–1999

Table 3.8 Percentage of household members above 10 years of age who regularly use tobacco, by gender 1993–1994 - NSSO 50th round[48]

Residence	Males			Females		
	Chewers	Smokers	Any form	Chewers	Smokers	Any form
Rural	19.3	29.3	43.0	9.3	2.3	10.9
Urban	9.9	20.2	27.7	4.3	0.7	4.7

Source: National Sample Survey Organization, 1998–1999

In the survey of the rural Karunagappally population, information was obtained by interviewing 117,240 men and 138,883 women above 15 years of age.

Overall urban and rural prevalence

According to the NSSO report, overall in India in the population aged 10 years and above, 43% of rural males and 28% of urban males are regular tobacco users (Table 3.8). Among females the prevalence in rural areas was 11% and in urban areas it was 5%. It is evident that rural prevalence is higher than urban prevalence for both males and females and that male prevalence is higher than female prevalence overall.

Table 3.9 shows the observed prevalence rates of the NFHS-2 in rural and urban areas for tobacco chewing and smoking among males and females.

The prevalence in rural areas was 50% higher than in urban areas for both males and females, and for chewing tobacco and smoking. Smoking prevalence among rural females compared to urban females was more than 3 times higher. On an all-India level, the NFHS-2 estimated that 21% of persons aged 15 years and above chew *paan masala* or tobacco and only 3% of the women are reported to have ever smoked but 29% of men are current smokers. This survey also noted higher rates among rural and less educated men and women compared to urban residents.

In the rural Karunagappally population, current tobacco use prevalence figures in the population 15 years of age and above were 53.8% among males and 14.2% among females.

Table 3.9 Percentage of household members above 15 years of age who currently chew tobacco or smoke by gender 1998–1999 - NFHS-2[94]

Residence	Male		Female	
	Chew tobacco	Currently smoke	Chew tobacco	Currently smoke
Rural	31.3	32.6	13.8	3.1
Urban	20.8	21.4	8.8	0.9
Total	28.3	29.4	20.5	16.2

Source: International Institute for Population Sciences, 2000

Age-specific prevalence

Table 3.10 shows that the prevalence increased with age. Among males the rates decreased after 60 years but not in females.

Table 3.10 Age-specific prevalence (%) among males and females of regular tobacco users in rural and urban areas, NSS 1993–1994[48]

Age Group	Male		Female	
	Rural	Urban	Rural	Urban
10-14	1.3	0.4	0.9	0.2
15-24	19.1	8.7	4.6	1.2
25-44	61.3	40.7	12.2	4.5
45-59	72.3	50.9	20.4	11.4
60+	65.0	39.5	21.2	13.0
Total	43.0	27.7	10.9	4.7

Source: National Sample Survey Organization, 1998–1999

A similar pattern is seen in the age-specific prevalence distribution from the NFHS-2, as shown in Table 3.11.

Table 3.11 Age-specific prevalence of tobacco use in males and females, NFHS-2[94]

Age group (years)	Male		Female	
	Chew tobacco	Currently smoke	Chew tobacco	Currently smoke
15–19	9.4	4.4	2.1	0.2
20–24	20.3	13.7	4.3	0.6
25–29	28.0	25.1	8.0	1.1
30–39	34.1	37.6	12.3	2.2
40–49	35.6	45.0	18.6	4.0
50–59	35.4	45.3	22.8	5.7
60+	37.6	38.6	25.0	5.3
Total	28.3	29.4	20.5	16.2

Source: International Institute for Population Sciences, 2000

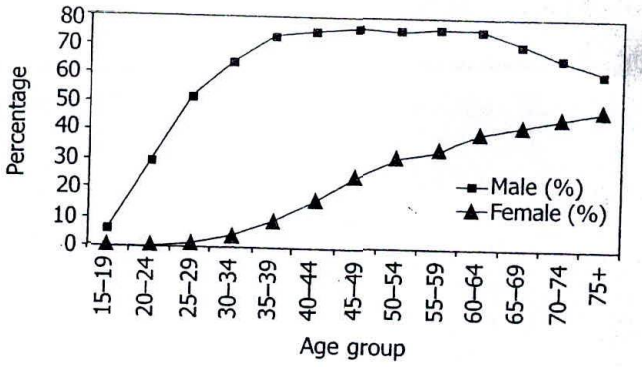


Fig. 3.4 Age-specific prevalence rates among current tobacco users Karunagappally *taluk*, 1990–1998

Table 3.12 Prevalence of tobacco use in any form by ever-users per 1000 rural and urban males and females (10+ years of age), States and Union Territories, India, NSS, 1993–1994[48]

State	Male		Female	
	Rural tobacco users (%)	Urban tobacco users (%)	Rural tobacco users (%)	Urban tobacco users (%)
Andhra Pradesh	43.9	26.2	12.3	4.1
Arunachal Pradesh	47.9	37.5	28.8	16.2
Assam	52.7	44.6	11.1	5.3
Bihar	47.6	33.0	6.0	3.6
Goa	22.0	23.8	5.5	4.2
Gujarat	42.9	28.6	9.1	3.5
Haryana	46.8	33.7	6.2	2.1
Himachal Pradesh	41.7	28.1	3.8	3.1
Jammu and Kashmir	38.2	19.8	3.2	0.5
Karnataka	36.6	24.0	9.6	3.2
Kerala	34.6	31.5	6.7	4.6
Madhya Pradesh	54.0	33.6	12.0	7.2
Maharashtra	45.4	25.4	24.0	8.0
Manipur	45.5	35.4	21.5	13.2
Meghalaya	62.2	53.2	31.9	13.1
Mizoram	69.8	66.9	63.2	57.4
Nagaland	31.9	34.1	1.7	–
Orissa	56.2	41.8	44.8	24.1
Punjab	12.8	18.0	0.3	0.3
Rajasthan	45.8	31.4	4.8	3.8
Sikkim	52.6	36.2	4.6	0.6
Tamil Nadu	28.4	23.4	9.2	4.0
Tripura	56.1	50.7	21.1	24.6
Uttar Pradesh	47.6	31.5	7.7	3.0
West Bengal	52.7	44.4	10.6	6.6
Andaman and Nicobar	53.3	43.4	19.9	9.7
Chandigarh	38.1	30.2	1.3	1.3
Dadra and Nagar Haveli	56.7	28.2	5.6	3.1
Daman–Diu	26.8	21.0	7.2	0.5
Delhi	43.4	25.2	3.5	1.4
Lakshadweep	38.3	43.5	21.4	14.9
Pondicherry	23.2	16.6	4.8	2.1
All India	45.3	29.9	11.8	5.1

Source: National Sample Survey Organization, 1998–1999

In Fig. 3.4, the age-specific prevalence curves plotted against age for males and females are shown for the population of Karunagapally *taluk*, Kollam district, Kerala. Among males, the prevalence was above 70% in the age range of 35–69 years. As in the NFHS-2 and the NSS-50th, the prevalence declined at older ages in men but not in women.

State-wise prevalence

In Table 3.12, the prevalence of tobacco use per 1000 individuals (not percentage) aged 10 years and above in each state and territory is given. The variations in tobacco use prevalence that exist between states are evident. Among rural males in Punjab, the prevalence was 12.8% but it was 69.8% in Mizoram. Among urban males, the lowest rate was seen in Pondicherry at 16.6% and the highest prevalence of 66.9% was noted again in Mizoram. Similar variations in prevalence were noted among women also. Among the rural and urban women of Punjab only 0.3% were tobacco users but the prevalence among rural females in Mizoram was 63.2% and urban 57.4%. The higher prevalence in rural areas and among males is true for most states and territories. Only in Goa, Nagaland, Punjab and Lakshadweep, the rates in urban males were higher than in rural males. In Tripura, urban females had a higher rate than rural ones.

Estimation of tobacco use prevalence

Methods

A simple method is adopted for estimating the number of tobacco users in India for the year 2004. It was thought sufficient to consider only three variables: rural versus urban residence, age and gender. State-wise differences and socioeconomic differences were not considered in the estimation procedure for the whole country, given the difficulties involved. The available rates were projected onto the 2004 population estimated for India in the Registrar General's report 1996.[95] In this report, the

estimated population of India (all ages) on 1 March 2004 was 547,556,000 males and 512,468,000 females. The distribution of the population by 5-year age groups is also given in the publication. This estimated population was proportionately assumed to be composed of 27% urban and 73% rural in each age group and the urban and rural age distribution was obtained.

The prevalence of tobacco use for rural and urban areas of residence obtained from the NSSO age-specific rates were directly used to estimate the number of users. These were obtained separately for males and females in each age group. A similar compilation was also done using the Karunagappally age-prevalence rates of tobacco users for comparison purposes.

Estimations

By using the NSSO age-specific rates, regular consumers of tobacco (aged 10 years and above) were 186,482,598 in rural India and 49,337,216 in urban areas. Thus, the total number of tobacco users was 235,819,814 in 2004.

Age-specific estimation based on the Karunagappally 5-year age-specific prevalence rates of current tobacco use yields a total of 195,446,246 male users and 44,607,056 female users in 2004, totalling 240,053,302 users in India. It is essential to mention here that the Karunagappally rates are obtained for the age groups of 15 years and above, whereas the NSSO reports are for the ages of 10+ years and above. Thus, the Karunagappally rates would be lesser by the number of male and female users in the 10–14 years age group, which would be 4–5 million.

A further estimation was done of the number of tobacco users (smokers, chewers) among persons aged 30 years and above. This was used to estimate chronic disease burdens (Table 3.13).

Table 3.13 All-India tobacco use prevalence and estimated number of users (chewers, smokers) in the 30+ age group[94]

Men		Women	
Chewers	Smokers	Chewers	Smokers
35.4%	41.2%	18.2%	3.9%
75,479,712	87,873,798	36,762,373	7,833,853

Source: National Family Health Survey-2 age-specific data from International Institute for Population Sciences, 2000

Discussion

Prevalence studies of tobacco use in India have shown wide variations between urban and rural areas, regions, age, gender, education, and other sociodemographic variables across the country. Urban–rural differences are an especially important consideration for estimation, as several surveys have shown that the prevalence of tobacco use is higher in rural populations compared to urban areas and, in India, 73% of the population lives in rural areas. Also, tobacco use is more common among men than women (NSSO, NFHS-2).[48,49]

The two estimates of prevalence of the number of users differ by around 10 million when the age considered is 10+; thus, the estimated number indicates that in 2004 there are about 250 million users aged 10+ years in the country.

The NSSO is a nationwide study and is thus important for such national estimation. The NSSO estimates gave the number of tobacco users as 235.8 million.

The Karunagappally area is rural, hence using this the prevalence may have inflated the estimated number. However, it must be pointed out that in Kerala there is no 'rural' area as seen in other parts of the country. Sometimes the entire state is termed as an extended suburban area. It may also be underscored that there was a high literacy rate—more than 85% in Karunagappally, which is unusual in a rural setting. The prevalence of tobacco use was also high. Using the age-specific prevalence of Karunagappally, the estimated number is 250 million users in 2004 in the 10+ years age group.

By a direct estimation using the prevalence percentage of the NFHS-2, Rani *et al.*[49] estimated

that the total number of users were 195 million—154 million men and 41 million women, probably using the base year 1998–1999.[49] The NSSO survey was done earlier in 1993–1994 and the Karunagappally population survey was undertaken during 1990–1998. Because it was based on house-to-house visits and face-to-face interviews it took 8 years to complete.

An earlier estimate made for 1996 was 184 million tobacco users (150 million males and 34 million females).[96]

It is clear that the estimates obtained here suffer from limitations. The most important limitation is that the surveys were not designed to collect information on tobacco use. Surrogate responses were used, which can introduce inaccuracies and biases. Also, the household was used as a sampling unit rather than an individual, and it was not possible to make appropriate statistical adjustments for that while doing the estimation. It is thus imperative that national-level surveys be undertaken periodically with the objective of finding out the prevalence of tobacco use in India.

3.5 KEY SELECTED STUDIES AND ESTIMATION OF THE NUMBER OF TOBACCO USERS

KEY MESSAGES

- There are currently an estimated 250 million tobacco users aged 10 years and above in India.
- There are currently about 240 million tobacco users aged 15 years and above (195 million male users and 45 million female users) in India.

6.6

Health Education and Mass Media Efforts

The primary tool for tobacco control is comprehensive and active awareness of the population about the ill effects of tobacco use, with special emphasis on all aspects of this impact, i.e. social, physical, financial and environmental. In the 1960s, when the word 'prevention' was added to the health discourse, the concept referred to a multipronged approach to disseminate warnings about products and practices that health professionals considered potential health hazards along with educating the youth through school curricula.[52]

Efforts made by the government and non-governmental organizations (NGOs) for educating the community on issues related to tobacco control have intensified in the past few years. Well-conducted research globally has established that it is necessary to reduce demand through such education married with changes at the policy level, which also serves to countervail the industry's efforts to promote tobacco. These mass education efforts along with policy changes are targeted at reinforcing and changing the social norms towards no tobacco use. The Centers for Disease Control's (CDC) best practice guidelines suggest that public education is an integral part of the efforts to both prevent initiation of tobacco use and to encourage tobacco cessation.[53]

Effectiveness of health education in India

Research studies evaluating the effectiveness of health education in India have shown successful results among the youth and adults. Intervention research on awareness related to tobacco avoidance and control have shown to positively alter tobacco use practices among the youth in India.[54] Health education intervention at the school level has also shown positive results in India. In a group randomized trial conducted with seventh grade students in 30 elementary schools of Delhi, intervention provided at the school and home level had a significant positive impact on tobacco use. This intervention lowered the offers, experimentation and intentions to use tobacco in the intervention group as compared to control schools. The intervention was provided in the form of classroom curricula, posters, booklets and debate at the school level, and informative and engaging materials for families at the home level.[54]

An intervention study in 3 places—Ernakulam, Kerala; Bhavnagar, Gujarat; and Srikakulam, Andhra Pradesh—reported the decline of tobacco use by 2%, 1% and 5%, respectively, after 1 year. Additionally, 1%–6% of people had reduced their tobacco use. The intervention was a mix of one on one discussion along with the use of IEC materials, individual discussions with a social scientist, film shows and exhibition of posters.[55]

In an intervention study among 36,471 tobacco users, substantially more people stopped the habit and reduced the frequency of tobacco use in the intervention cohort than in the control cohort in Ernakulam (Kerala) and Srikakulam (Andhra) whereas in Bhavnagar (Gujarat) the intervention group showed a lesser proportion of people stopping their tobacco use and there was no difference in the proportion reducing them after 5 years. The interventions were in the form of health education from dentists at the point of health care delivery. Information was also disseminated via films, posters, radio broadcasts and newspaper articles.[56]

A cohort study was undertaken in Ernakulam. It showed (on follow up after 8 years) a greater reduction of tobacco use among intervention cohort compared to control cohort. Among men, the decrease was more in smokers and those with mixed habits compared to chewers. The intervention cohort was subjected to a concen-

trated programme of health education which included personal as well as mass media communication concerning tobacco use in various forms.[57]

Communication inputs designed for these interventions were personal communication, films, folk dramas, radio programmes, cessation camps, etc. and the population was exposed to them in measured doses. These approaches brought about cessation in 14% of the tobacco users. Personal communication that included one-to-one interaction was the most preferred input by the population.[58]

Another study was done in Kolar (Karnataka) to assess the efficacy of anti-tobacco community education programmes. Here, health education including screening of films, exhibition and a display of photographs on the harmful effects of tobacco were used. The decline rates in tobacco use were 10.2% in males and 16.3% in females, and the quit rates were 26.5% in males and 36.7% in females compared to the baseline in the intervention cohort.[59]

Health education efforts in India have been few but effective. These efforts have been effective mainly due to the paucity of information among the population on the impact of tobacco use. However, efforts at the national level are required to counteract this menace which can be largely curtailed through prevention and successful quitting as a result of health education.

Initiatives takes by the Central and State Government

Under the Ministry of Health and Family Welfare (MOHFW), the Government of India has set up the Central Health Education Bureau (CHEB) and its state chapters called the State Health Education Bureaus. Every year, the CHEB conducts an activity of 4–6 weeks around the World No Tobacco Day on 31 May. Similarly, the Directorate of Advertising and Visual Publicity (DAVP) and the Song and Drama Division, under the Ministry of Information and Broadcasting (I&B) are creating awareness among the masses on various public and social health issues.

Traditionally, tobacco never had a prominent place in the public awareness education programmes of the Central or State Governments in India. Immunization, tuberculosis and malaria, alcohol and drug addiction took pride of place. Tobacco control awareness education got the least attention, and there is no evidence of any systematic and concerted effort by either the Central or State Governments to educate the masses on tobacco. Its is only recently, after the setting up of the National Tobacco Control (NTC) cell under MOHFW, that awareness education through the media such as print and television has begun in a strategic manner. However, a sustained visible media awareness programme or campaign is yet to begin. Allocation of dedicated funds for tobacco control education is a major deterrent in achieving this goal of mass awareness.

Before the establishment of the NTC cell, merely symbolic tobacco control efforts were made by the Central and State Governments during the World No Tobacco Day. On that day, the print and electronic media carried anti-tobacco messages issued by the government and the World Health Organization (WHO), as well as news of seminars and conferences organized by government agencies to commemorate the day. The government also conducted a few sporadic activities against tobacco that appeared on the national channel (Delhi Doordarshan [DD]) through the DAVP. However, due to non-sustained and disjointed efforts, no tangible results were gained at the national level.

Efforts undertaken by the Ministry of Health

In 1984, the Union Ministry of Health launched the National Cancer Control Programme, which included a component for educating the public about the dangers of tobacco to eliminate

tobacco-related cancers.[60] This was, however, a relatively small component of the programme, which mainly focused on providing clinical care, establishment of cancer registries and screening for some cancers.

Collaboration between the Ministry of Health and WHO

In addition to a few events on the World No Tobacco Day, the Ministry of Health has reached out to the rural audience through programmes such as those listed below.

(i) The South-East Asia Anti-tobacco Flame rally covered a large number of states in India during 2000–2001 and later, in its second phase, in the year 2002. This campaign was coordinated by the Nehru Yuva Kendra. Anti-tobacco messages were disseminated using street plays performed in the local language, targeting the tobacco products used locally. This led to greater penetration of the programme, even in the remotest parts of the country. All aspects of tobacco use were targeted. Apart from the health impact, concomitant social and economic burdens of tobacco use were also highlighted in this anti-tobacco campaign.
(ii) Awareness dissemination was carried out through 268 field units of the Directorate of Field Publicity (DFP), which are located at grassroots levels in villages throughout the country.
(iii) The World Health Organization–South-East Asia Region (WHO-SEARO) initiated a year-long campaign in January 2000 to curb tobacco consumption in South-East Asia. This campaign included educational programmes on television in these countries, including India.

National Tobacco Control cell

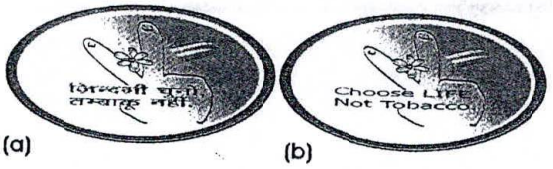
The NTC cell is supported by WHO's India Office and is physically located in the MOHFW at New Delhi. This cell has streamlined and intensified the health education and mass media efforts related to tobacco control in India in the past few years. This cell was set up as a result of collaborative efforts by the Ministry of Health and WHO in February 2001 to provide impetus to the tobacco control efforts and to coordinate these activities at the national level. It also facilitated the development of a strategic media plan to provide health education among the masses. The media plan of the NTC cell focused specifically on protecting vulnerable segments such as the youth and passive smokers. There is no analogous cell in any other ministry. The Tobacco Free Initiative (TFI) in WHO's India Office is one of the largest programmes worldwide, clearly highlighting tobacco control to be a high priority for the country and WHO in India. The focus areas of work in the TFI are:

(i) Planning and executing a comprehensive information, education and communication plan;
(ii) Capacity-building among NGOs working in the field of tobacco control;
(iii) Establishment and strengthening of tobacco cessation clinics; and
(iv) Undertaking research on policy issues related to tobacco.

Efforts undertaken by the National Tobacco Control cell

Developing an India-specific anti-tobacco logo

In 2001, the NTC cell developed an India-specific logo and slogan to highlight India's tobacco control efforts. The logo is a red circle surrounding a hand in the gesture of a victory sign and holding a flower. On the blue background there are three brushstrokes, of the three colours in the Indian national flag (saffron, white and green). This logo has a slogan 'Choose Life, Not Tobacco'. The slogan has been translated into Hindi and other regional languages as well (Fig. 6.13a and b).



(a) (b)

Fig. 6.13 The logo of the National Tobacco Control programme

Television and audio advertisements

During 2001–2002, the NTC cell developed 13 anti-tobacco television advertisements (30 seconds and 15 seconds, duration) targeting the entire spectrum of tobacco products used in India—cigarettes, *beedis* and chewable forms. Anti-tobacco radio advertisements have also been developed under the auspices of this cell and aired on various popular radio channels. The Ministry of Health regularly releases anti-tobacco advertisements on Prasar Bharti (the independent broadcast corporation that has replaced the state television and radio services). The frequency of airing of these advertisements is sparse, due to the paucity of funds. It usually is a month-long campaign carried out mostly around the World No Tobacco Day through the CHEB. The TV advertisements and infomercials aired during 2002 aimed extensively at popular youth channels on cable and satellite and on the national channel to ensure a wider reach of these health messages.

Production of information, education and communication (IEC) materials

The DAVP, Ministry of I&B, in coordination with the NTC cell designed and produced IEC materials related to tobacco control in all Indian languages. The IEC materials designed include posters, flip charts (Fig. 6.14), brochures

Fig. 6.14 A flip chart having an anti-tobacco message created and distributed by the National Tobacco Control Cell

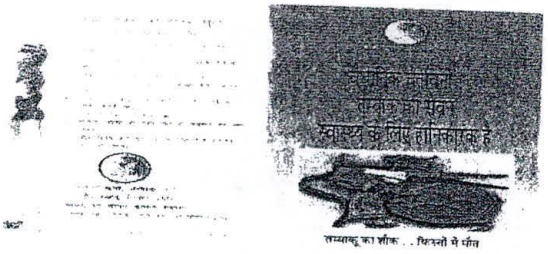


Fig. 6.15 Sample of a brochure on the ill-effects of tobacco

(Fig. 6.15; in 16 regional languages), bus panels (Fig. 6.16), mobile exhibition kits, and stickers with the logo of the Indian Tobacco Control Programme. These materials were produced in 2002 and distributed to stakeholders through DAVP. These are also disseminated across the country through various health institutions, NGOs, etc.

Outdoor publicity

Display of anti-tobacco slogans and visuals through bus panels was coordinated by the NTC cell in collaboration with the outdoor publicity unit of the DAVP.

Development of an anti-tobacco mass media plan

The NTC cell assisted the Ministry of Health in devising a seamless mass media plan to reach the rural, semi-urban masses and vulnerable audience—passive smokers and urban youth.

(i) Doordarshan: Anti-*beedi* and anti-*gutka* TV commercials are aired on the national TV channels to reach the semi-urban, rural and marginal populations.

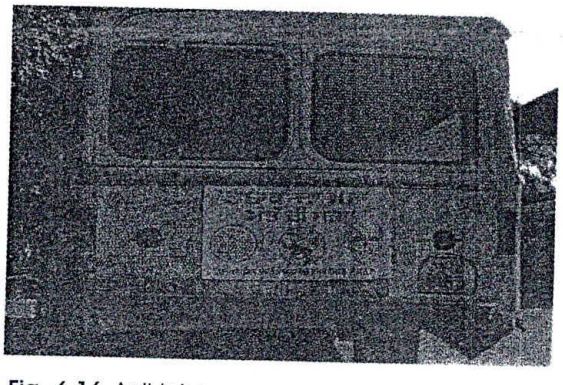


Fig. 6.16 Anti-tobacco message on a bus

60

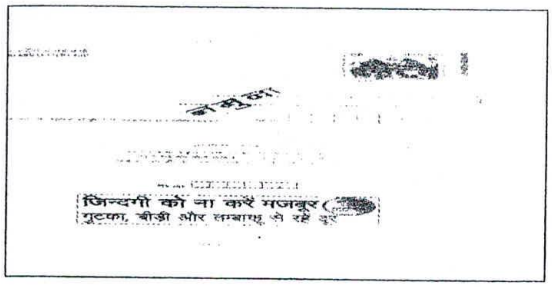


Fig. 6.17 Sample of an inland letter bearing an anti-tobacco message

(ii) Media post: The Department of Posts has launched an innovative means of taking messages to the masses called the Media Post. This media vehicle offers the option of printing health messages on postal stationery, i.e. postcards, inland letters (Fig. 6.17), aeorgrammes, etc. Each postal stationery item reaches at least 6–7 persons all over the country and therefore the impact of the messages is manifold. Since 2003, inland letters bearing anti-tobacco messages have been used by the postal department.

(iii) Kalyani Programme: In 2001–2002, the Ministry of Health, in collaboration with Prasar Bharti, decided to launch a weekly health show to be telecast on various regional Doordarshan *kendras*. Kalyani is a health programme aired on the regional channels of Doordarshan between 7.00 pm and 7.30 pm for half an hour once a week. Each of the eight states covered makes its own programme in the local dialect revolving around a common theme. It covers issues related to six diseases including those related to tobacco use. The NTC cell contributed to the discussions on the communication strategy and also coordinated for inputs in the various regional workshops. The programme was launched on the eve of World No Tobacco Day, 2002. Several anti-tobacco commercials are aired during the show and detailed discussions on the ill-effects of tobacco use are shown. This programme is largely for rural audiences in the Hindi-speaking belt, where tobacco prevalence is high.

Organizing health melas

The Ministry of Health conducts health *melas* (fairs) in 543 parliamentary constituencies of the country. In these *melas*, information is disseminated about various diseases including non-communicable diseases (NCD) and those caused due to use of tobacco. These *melas* include mobile exhibitions on tobacco, displaying posters, handouts, audiovisual aids, projectors, movies, etc.

Counter-advertisements in the print media

Other than the regular yearly feature of a half page advertisement released on the World No Tobacco Day in all major newspapers, the print media has been selectively utilized for specific campaigns, e.g. campaign against passive smoking. Full page colour advertisements were released in magazines such as *India Today, Outlook, Femina,* etc. The intent of this campaign was to create public awareness against passive smoking and empowerment of non-smokers. This intervention was successfully implemented and evaluation revealed that the recall level of both smokers and non-smokers for the campaign was high (Fig. 6.18).

Felicitation of role models

The World Health Organization recently awarded Vivek Oberoi, a well-known film star

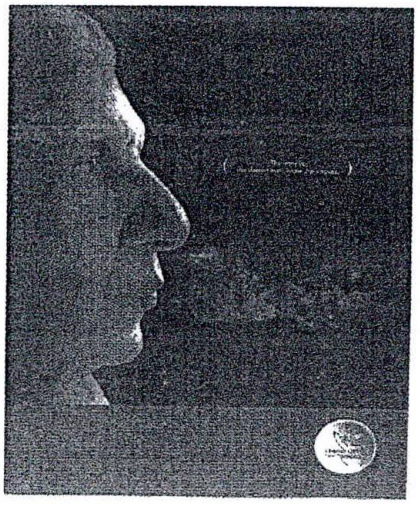


Fig. 6.18 A counter-advertisement on passive smoking that appeared in *India Today*, 2 June 2003

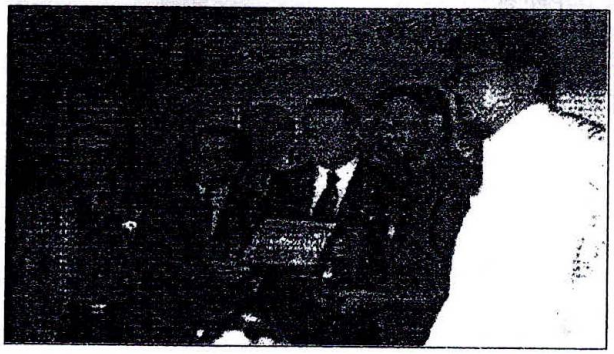


Fig. 6.19 Felicitation of Bollywood actor Vivek Oberoi with the World No Tobacco Award 2004

in India, with the 'World No Tobacco Award' for the year 2004 (Fig. 6.19). Vivek Oberoi is a role model for the Indian youth and has been felicitated with this award for his efforts in and commitment to fighting the tobacco menace. He was also instrumental in the production of an anti-tobacco advertisement featuring other film stars, which was developed by the Cancer Patients Aid Association (CPAA) in collaboration with WHO on World No Tobacco Day 2003.[61]

Evaluation of these programmes

Evaluation of all these activities is undertaken on a regular basis to assess the reach it has on the masses. The print medium, in that context, loses to the audiovisual channels such as television and radio, due to its usage being limited to the literate population only. Television has a greater reach, even to the rural people of the country who form the majority of the Indian population. For them, the impact of such messages is greater when it can be easily comprehended through visual aids. Therefore, television and radio have to be the primary media for carrying out such activities.

Other efforts in collaboration with the Ministry of Information and Broadcasting

Radio-DATE

In 1990, the Indian Council of Medical Research (ICMR) and All India Radio (AIR) embarked on an innovative and ambitious project called Radio-DATE (DATE standing for Drugs, Alcohol and Tobacco Education). The idea was to produce a series of episodes on drugs, alcohol and tobacco, intended to reach out to youth across the country and involve them in interactive and educational programmes. The ICMR with assistance from the Voluntary Health Association of India (VHAI) and several technical experts developed IEC materials for the programme, which were mailed to all registered radio listeners. VHAI designed posters and informative leaflets on the hazards of using tobacco. In all, 84 radio stations of AIR broadcast 30 weekly episodes of the programme. Regional stations also translated the episodes into their respective regional languages as per the guidelines of AIR and ICMR. Listeners were requested to participate in poster painting competitions and VHAI was invited to judge the entries.

Two community-based surveys in rural areas with no organized anti-tobacco programmes showed that about 4% of tobacco users in rural Goa and about 6% of users in rural Karnataka quit their habit after hearing the programme. Of the potential listeners, about 32% in Karnataka and about 27% in Goa had heard at least one episode on tobacco.

Commemoration of the World No Tobacco Day

The Ministry of Health and WHO collaborate with various agencies to commemorate the World No Tobacco Day on a large scale each year for wider dissemination of the theme for that year. The Union Health Ministers as well as several State Ministers and Governors have been involved in the events organized in Delhi and other states of India on this day.

Health institutions and NGOs in almost every state of India organize events around the theme of the World No Tobacco Day every year. The array of activities ranges from awareness through rallies, street plays, seminars to advocacy events, such as submission of anti-tobacco signature

campaigns to government officials and policy-makers.

Efforts undertaken by State Governments

The Public Health Department of Maharastra initiated its tobacco control drive in the year 1986 with a campaign against smoking.

The Public Health Department adopted a slogan and displayed posters on the impact of passive smoking. The slogan, 'Your smoking is injurious to our health' was effectively used by non-smokers to counter the indifference of smokers.

Statewide cancer control programmes

The two-day workshop on cancer, conducted in Bombay (now Mumbai) by the Tata Memorial Hospital in 1987, in collaboration with the UICC (The International Union against Cancer), led to the formation of statewide cancer control programmes. One of the strategies developed under this programme was to initiate aggressive anti-smoking campaigns in every state of India.

Efforts made by NGOs in education

Interventions made by NGOs in different states have had different outcomes. Considerable publicity gets generated locally when there is press coverage, and serves as the cheapest medium for generating awareness about tobacco. Some NGOs also use the local cable network for making people aware about the tobacco menace.

Box 6.13 Preferring education over legislation

The Director of Health Services, Government of Maharashtra stated that the reason for laying emphasis on public education rather than advocating for strong legislation is that 'It has been our experience that legislation without proper public awareness and commitment will not be successful.'

Around the World No Tobacco Day, celebrities from different walks of life, such as cricketers and film stars come together to conduct awareness campaigns. The World No Tobacco Day celebrations begin almost one month in advance. Different themes are selected by WHO every year, around which programmes are conducted in India.

The CPAA developed three TV advertisements using popular film stars as messengers for anti-tobacco messages. These commercials were done free of charge by these film stars and the technical charges were supplemented by WHO. The Indian Cancer Society also took the initiative of adapting internationally acclaimed tobacco control campaigns to the Indian scenario with the help of WHO/Ministry of Health. All these advertisements are being widely used not only through the mass media but also through dissemination of the same through school- and community-based interventions.

Initiatives taken by State Voluntary Health Associations

Many civil society organizations have, on their own or with support from WHO and the Ministry of Health, taken up tobacco education in their constituencies. Many State Voluntary Health Associations (SVHAs), which are federal units of the VHAI, have integrated tobacco as part of their ongoing training programmes, are implementing and monitoring Health Ministry- and WHO-supported projects, have conducted surveys, brought out IEC materials, approached legislatures and have taken up tobacco awareness education programmes.

Education to aid enforcement

Though many states have anti-tobacco laws, their implementation is hardly visible. Political compulsions overtake public health concerns. In most states from which information was sought (Himachal Pradesh, Madhya Pradesh, Bihar, Gujarat, Sikkim, Kerala, Karnataka, West

Bengal, Orissa, Punjab and Rajasthan), the law-enforcing agency officials were not aware of all the provisions of the State Act, while most of the officers were not aware of any such Act. After the notification of the Tobacco Control Act in May 2004, the Ministry of Health has initiated a nationwide public awareness campaign during August 2004 through television and radio to educate the public on the provisions of the Indian Tobacco Control Act, 2003. The IEC Bureau of MoHFW, Government of Rajasthan issued posters giving information about the Act, its provisions and the officers empowered to take action, to all the ministries and put them up at public places. It is also interesting to note here that the Government of Rajasthan has in place an Act dating back to 1950, called the Prevention of Juvenile Smoking Act. An effort is required by the Union Ministry of Health to sensitize the health ministries of all State Governments to ensure effective implementation of the Act. Efforts need to be made to involve law-enforcing agencies and related departments of other Central Government ministries as well.

To promulgate the provisions of the Indian Tobacco Control Act, civil society groups have launched efforts to educate the public about the provisions of the State and Central legislations. In Delhi, for example, Student Health Action Network (SHAN), the advocacy wing of Health Related Information Dissemination Amongst Youth (HRIDAY), distributed information brochures detailing the provisions related to the ban on smoking in public places, to hotels and restaurants in Delhi and nine other cities of India, and conducted public awareness campaigns on the rights of non-smokers.

An effective public education campaign must use multiple channels to reach the target audience with messages that are based on research regarding what is most effective. A well-designed public education campaign that is integrated with community- and school-based programmes, has been demonstrated to lower smoking among young people. Such effects also last for a longer time.[62]

The Massachusetts tobacco control campaign, which has a sizeable public education component, has been effective in increasing public perception of the harms of cigarette smoking and was associated with a substantial decline in cigarette consumption.[63,64]

Considering these best practices, a concerted effort between the government and civil society groups needs to be planned to ensure development and implementation of a comprehensive health education programme on tobacco avoidance and tobacco control in India.

6.6 HEALTH EDUCATION AND MASS MEDIA EFFORTS

KEY MESSAGES

- The primary tool for tobacco control is to impart comprehensive information to the population about the ill-effects of tobacco use.
- Public education is an integral part of the efforts to both prevent initiation of tobacco use and encourage tobacco cessation.
- Efforts made by the government and NGOs for educating the community on issues related to tobacco control, although few, have intensified in the past few years.
- NGOs have played a major role in organizing educational activities on the ill-effects of tobacco.
- Evaluation of some of the educational intervention studies has shown a positive impact on the reduction of tobacco use.
- Various governmental and non-governmental organizations should come together to ensure the development and implementation of a comprehensive health education programme on tobacco avoidance and tobacco control in India.

6.7

Indian Experience with Tobacco Cessation

Tobacco cessation services are among the areas that have to be addressed as per the Framework Convention on Tobacco Control (FCTC). With the establishment of the National Tobacco Control Cell as part of the Government of India and World Health Organization (WHO) initiative on tobacco control in India, it was felt that tobacco cessation services have to be developed to help tobacco users in India give up their habit. The Ministry of Health and Family Welfare, Government of India, in recognition of this need, has started such clinics on a pilot basis in 13 centres.

In 2002, the WHO supported the setting up of 12 tobacco cessation clinics (TCCs) in diverse settings (cancer treatment centres, psychiatric centres, medical colleges and non-governmental organizations [NGOs]) to help people stop tobacco use.

Methodology

Initially, 12 centres across India were selected in various settings such as regional cancer centres, psychiatry centres, medical colleges and NGOs. After initial training in Thailand, the individuals involved were further trained at the Institute of Human Behaviour and Allied Sciences, New Delhi. All centres were provided with support for additional human resources in the form of a clinical psychologist and medical social worker. Infrastructure augmentation in the form of computer and audiovisual equipment were supplied. Cotinine test kits and bupropion tablets were also provided. An algorithm was developed for cessation services at the various centres. The algorithm consisted of initial assessment, three steps of intervention and evaluation at regular intervals, preferably with urinary cotinine estimation as an objective measure of cessation.

Extensive community interaction programmes were organized by all the centres. The clinics were physically placed within major hospitals except at the Goa centre. This helped to attract subjects who presented themselves to the hospitals as patients or as attendants. Patients who presented with various co-morbidities were referred to these clinics for tobacco cessation. Periodic monitoring of the centres was carried out and mid-course corrections were introduced as required. The thirteenth centre was added in a specialty centre for chest diseases.

Behavioural change counselling was the most common intervention. Given the varied setting, pharmacotherapy with bupropion was not uniformly utilized. Some of the centres with strong support of the clinical psychiatry department did introduce pharmacotherapy. Cotinine tests were tried initially, but did not add to self-reported cessation.

Self-help tips and behavioural change counselling modules were developed and over a period of one year, the centres were stabilized with regard to the cessation services. Some centres had large numbers of tobacco chewers and similar interventions as for tobacco smoking were used in this group.

The intake and follow-up proforma has been standardized and will be made available on the internet shortly with data entry and analytical facilities. A resource manual for tobacco cessation services is also being developed. The centres have developed modules for tobacco cessation in Indian languages, as per local needs.

Outcome

The tobacco cessation clinics were established in 2002 and, over the past two years, they have aggregated a large number of subjects, which

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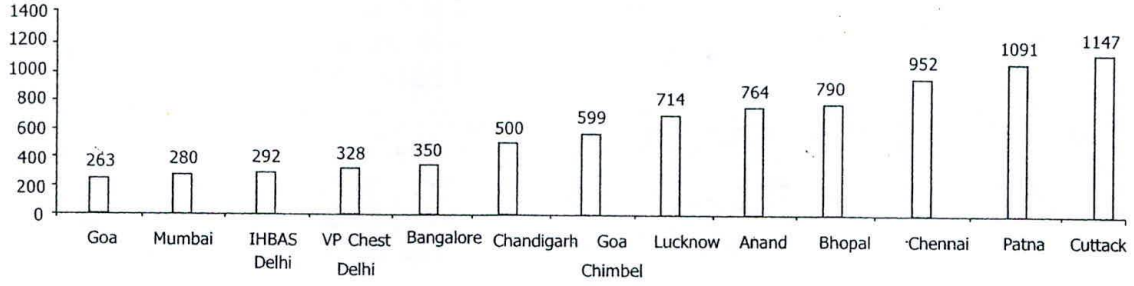

Fig. 6.20 Number of subjects seen at various centres

has provided strength to this initiative. As on 30 September 2003, 8070 subjects were seen in these clinics with a total of 9551 follow-up visits. There were 7494 men and 576 women. The distribution of the subjects seen at the various centres are given in Fig. 6.20.

As per the original algorithm, a step-wise approach was suggested, but given the variation at the centres, an analysis based on the level of intervention was not carried out. The interventions were grouped into counselling alone, and counselling and pharmacotherapy. The outcome of the intervention was ascertained at 6 weeks and was classified as complete abstinence or reduced to more than 50% of the initial use. The prevalence of tobacco use by type is given in Fig. 6.21. The outcomes at 6 weeks are shown in Figs 6.22–6.24.

Discussion

Tobacco cessation services have been found to be feasible in Indian settings (Table 6.6). The quit rates achieved with behavioural change

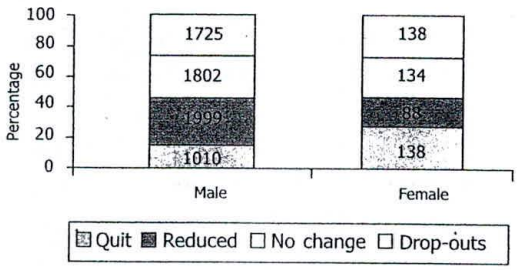

Fig. 6.22 Outcome at 6 weeks by gender

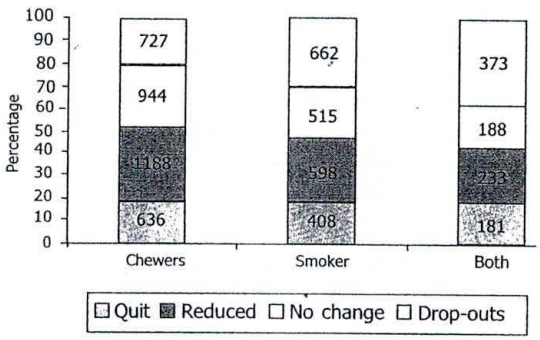

Fig. 6.23 Outcome at 6 weeks by type of tobacco use

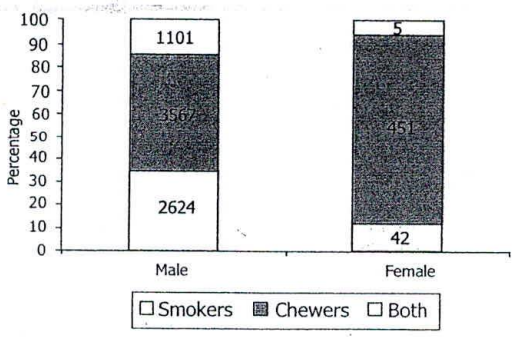

Fig. 6.21 Prevalence of tobacco habits among attendees

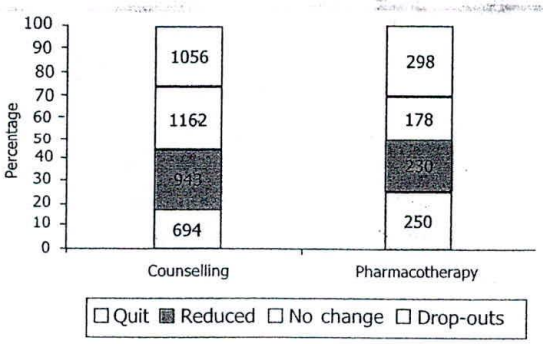

Fig. 6.24 Outcome at 6 weeks by type of intervention

counselling, which is the least expensive and most feasible option, are satisfactory and provide scope for further improvement.

The overall quit rate at 6 weeks was around 16%. The addition of pharmacotherapy improved the quit rates. Counselling is cost-effective and can be the preferred option for expanding the services. Pharmacotherapy may be limited to services which have good clinical support.

Table 6.6 List of 13 tobacco cessation clinics in India

S. No.	Contact person(s)	Name of the centre	Contact details
1.	Dr Surendra Shastri Professor and Head	Tata Memorial Hospital Department of Preventive Oncology Dr Ernest Borges Road, Parel, Mumbai 400012	Tel 022-24154379 email: shastri@vsnl.com
2.	Dr Savita Malhotra Professor and Head Department of Psychiatry Dr Anil Malhotra De-addiction Centre	Postgraduate Institute of Medical Education and Research Chandigarh 160012	Tel 0172-2744503 email: savita@ch1.dot.net.in
3.	Dr Nimesh G. Desai Professor and Head of the Department of Psychiatry Dr S. N. Sengupta Additional Professor Dr R. A. Singh Associate Professor Dr Uday K. Sinha Associate Professor Dr Deepak Srivastva Assistant Professor Dr Rupali Shivalkar Senior Resident	Institute of Human Behaviour and Allied Sciences G.T. Road, Dilshad Garden, Post Box No. 9250, Delhi 95	Tel 011-22113395 email: tccihbasrc@hotmail.com
4.	Dr Girish Mishra Professor and Head of the ENT and Head and Neck Surgery	Pramukhswami Medical College and Shree Krishna Hospital Karamsad 388325, Gujarat *Satellite centres* • Mayank Jayant Foundation, Anand • Urban Health Centre Petlad • Rural Health Centre, Ardi	Tel 02692-223010 Contact nos. 02692-223254, 223256 email: dakshagiri@yahoo.com
5.	Dr U. R. Panja Head of the Department of Head and Neck Oncology Division	Acharya Harihar Regional Cancer Centre Medical Road, Manglabad, Cuttack 753007 *Satellite centres* • Tobacco Cessation Clinic, Sub-centre, Bentkar PHC, Cuttack • Tobacco Cessation Clinic, Sub-centre, Kishore Nagar PHC Cuttack	Tel 0671-2302535 email: urparija@csmti.com
6.	Dr Mahabir Das Principal Investigator	Indira Gandhi Institute of Cardiology	Tel 0612-2532848 email: mdasnotebihar@sify.com
7.	Dr Rama Kant Department of Surgery	Chatrapati Shahuji Maharaj Medical University Lucknow 226016	Tel 0522-358230 email:ramakant@globallink.org
8.	Dr B. Sanyal Radiation Oncologist Dr K. S. Saluja Medical Officer	Jawaharlal Nehru Cancer Hospital and Research Centre P.O. Box No. 32, Idgah Hills, Bhopal 462001 Madhya Pradesh	Tel 0755-2666611 email: jnchwhotcc@sify.com

Table 6.6 (*cont.*) List of 13 tobacco cessation clinics in India

S. No.	Contact person	Name of the centre	Contact details
9.	Dr Shekhar Salkar Surgical Oncologist General Secretary NOTE India	Salgaokar Medical Research Centre Chicalim, Goa 403711, Vaidya Hospital, 1st Floor, Panaji, Goa 403001 *Satellite centres* • Bambolim: Medicine OPD of Goa Medical College • Bicholim: Cairo's Hospital • Chicalim: Salgaoncar Medical Research Centre (SMRC) • Vasco: Goa Shipyard Ltd., Vasco • Margao: Dr Gopal Vaidya's clinic • Canacona: Dr Sadanand Prabhu's clinic • Chimbel: Lifeline Foundation (Community-based unit) • Mapusa: Teldulkar Hospital	Tel 0832-2423366 email: sssalkar@yahoo.co.in
10.	Dr Vivek Sharma Consultant Physician	Bhagwan Mahaveer Cancer Hospital and Eradication Jawahar Lal Nehru Marg, Jaipur 302017 *Satellite centres* • Ayurvedic Clinic, University Campus Dispensary, University of Rajasthan, Jaipur • Room No. 217, OPD Block, Santokba Durlabhji Memorial Hospital and Research Centre, Bhawani Singh Marg Jaipur 302015	Tel 9829049363 email: vivek_9sharma @yahoo.com
11.	Dr Mohan Issac Professor of Psychiatry Dr Partima Murthy Associate Professor Dr Vivek Benegal Associate Professor	National institute of Mental Health and Neuro Sciences (NIMHANS), Bangalore	Tel 080- 26995311 email: mki@nimhans.kar.nic.in
12.	Dr Rohini Prem Kumari Professor of Radiation Oncology	Cancer Institute (WIA) Adyar, Chennai 600020 *Satellite centres* • Dr Anitha's Clinic, Ashok Nagar, Chennai (private clinic) • Unique Psychological Research and Development Centre, Velachery Chennai-42 (NGO) • Sugam Psychological Counselling and Research Centre Anna Nagar (private clinic) • Counselling Centre, National Service Scheme, University of Madras, Chennai • Presidency College, Chennai 05 • Corporation Dispensary, Kamarajar Nagar, Thiruvanmiyur, Chennai • Corporation Maternity and Child Welfare Centre, Thiruvanmiyur, Chennai • Shree Ramakrishna Institute of Oncology and Research, Coimbatore 44 • Shree Chandraprabhu Jain College, Minjur 03 • Professor of Radiation Oncology, Cancer Institute 18 Sardan Palil Road, Adyar, Chennai 600029	Tel 044-24910754 email: drpremkumari @rediffmail.com
13.	Dr Raj Kumar Senior Lecturer	Department of Respiratory Medicine Vallabhbhai Patel Chest Institute University of Delhi, Delhi 110007	Tel 011-27667102 email: rajkumar_27563 @yahoo.co.in

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7.4

Policy Interventions: A Comprehensive Ban on Advertising

'Cigarettes are the most marketed products in the world. There is no reliable estimate of global cigarette marketing expenditures, but roughly it is estimated to be in tens of billions of US dollars a year. Cigarette marketing is bolder and more aggressive in developing countries than in developed countries. Tobacco advertising is common in television, radio, sports, arts, music, fashion and street events, adventure tours, contests, give-aways and the internet. There are also hidden advertisements such as showing of cigarette smoking scenes and other tobacco products in films, sponsorship of universities, good-will donations to community events, and advertising of other goods and products bearing the brand name of tobacco products.'[73]

It has long been recognized that reducing or eliminating advertising of tobacco products is important for tobacco control. Many countries have taken steps to reduce tobacco advertising, including prohibition of advertising at the point of sale.[74] Several countries, including India, have banned the advertising of tobacco products to a variable extent. Recognizing the impact of tobacco advertisements and promotional activities, the Framework Convention on Tobacco Control (FCTC) (Article 13) has called upon countries to undertake a comprehensive ban of all tobacco advertising, promotion and sponsorship to reduce the consumption of tobacco products.[75] The Indian Act for tobacco control (Cigarettes and Other Tobacco Products Act, 2003) banned all forms of advertising of tobacco products—except at the point of sale.[76]

Tobacco advertising and promotion

In places where advertising is permitted, the largest single expenditure of tobacco companies is devoted to advertising and promotion, which exceeds the amount spent on purchasing tobacco leaf.[77] A majority of studies have shown that tobacco advertising leads to an increase in consumption. Tobacco advertising also has a powerful effect on young people. Tobacco promotion activities are causally related to the onset of smoking in adolescents, and exposure to cigarette advertising is predictive of smoking among adolescents. There is an increase in the prevalence of use of brands, as well as in the prevalence of smoking altogether, after the introduction of brand advertisements that appeal to young people.[78]

The impact of tobacco advertising on consumption

Econometric research evidence

Most econometric studies have found that increased expenditure on tobacco advertising increases the demand for cigarettes, while banning advertising leads to a reduction in tobacco consumption. A meta-analysis of such studies found that tobacco advertising significantly increased tobacco sales.[79]

Research evidence within a country before and after a ban on advertisements

Several studies have yielded convincing data that a complete ban on advertising makes an important contribution towards reducing the prevalence of smoking.[79] Some of them are summarized in Table 7.8.

International comparison of trends in tobacco consumption and anti-tobacco measures

A study by the New Zealand government, which examined the trends in consumption and

Table 7.8 Study results within a country before and after a ban on advertising[79]

Country, year	Description of anti-tobacco measures	Effect
Norway, 1975	Complete ban on advertising and sponsoring coupled with health warnings, public information and age limits on sales	Long-term reduction in the prevalence of smoking by 9%
Finland, 1977	Complete ban on advertising, no smoking in public buildings, age limit on sales, strong public information campaigns	Reduction of cigarette consumption by 6.7%
Canada, 1989	Complete ban on advertising and sponsoring, with higher tobacco prices	Corrected for price increases, a long-term reduction of 4% on the prevalence of smoking
New Zealand, 1990	Ban on advertising and sponsoring, higher tobacco prices	Reduction in tobacco sales by 7.5%, of which 5.5% can be attributed to the ban on advertisements
France, 1991	Complete ban on advertising, limiting smoking in public buildings, removal of tobacco from the consumer price index	Reduction of smoking prevalence by 7% in 1991–1993

advertising of tobacco in 33 countries during 1970–1986, demonstrated that the higher the degree of governmental control on tobacco advertising and sponsorship, the larger the annual reduction of tobacco consumption. A cross-sectional time series analysis in 22 Organization for Economic Cooperation and Development (OECD) countries, during 1960–1986, concluded that increasingly strict regulation of advertising causes corresponding reduction in tobacco consumption.[79]

When countries ban tobacco advertising in one medium, such as television, the industry can substitute advertising in other media with little or no effect on overall marketing expenditure. If the most comprehensive restrictions were in place, tobacco consumption would fall by more than 6% in high-income countries. Modelling based on these estimates suggests that the European Union's ban on advertising could reduce cigarette consumption within the European Union by nearly 7%.[80] Another study in 102 countries compared consumption trends over time in countries with relatively complete bans on advertising and promotion, and those with no such bans. In the countries with nearly complete bans, the downward trend in consumption was much steeper (Fig. 7.4). In Fig. 7.4, it can be noted that the group with comprehensive bans starts at a higher consumption level than the non-ban group but at the end of the study period, has a lower consumption level. This change was due to the higher negative growth in the countries where the ban was operable.[80,81]

The effect of tobacco advertising on young people

Advertising and promotion of tobacco products attract children's attention, and they remember its messages. There is also growing evidence that

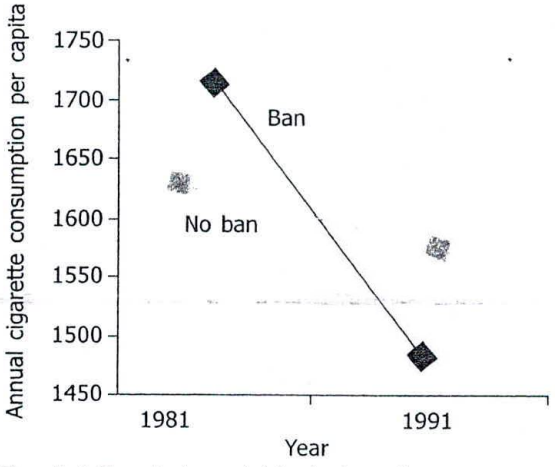

Fig. 7.4 Trends in weighted cigarette consumption per capita in countries with a comprehensive ban compared with countries with no ban[80,81]

Source: Saffer, Henry. The control of tobacco advertising and promotion. Background paper, cited by Jha and Chaloupka

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the industry is directing increasing shares of its advertising and promotion activity toward markets where there is judged to be growth or potential for growth, including some youth markets among whom smoking has until recently been uncommon.[80]

An Indian study showed very high exposure of children to tobacco product advertisements. In Uttar Pradesh, 8 in every 10 boys and girls saw a tobacco product (cigarette or *gutka*) advertisement on billboards and 6 in every 10 saw such advertisements in other media. One in every 5 students was offered free cigarettes from a tobacco company representative. Six out of every 10 students in Uttar Pradesh said they saw cigarette advertisements on TV, in the newspapers and at social events.[82]

Current cigarette smokers are significantly more likely than never-users to report watching cigarette advertisements in the print media, including newspapers. Current cigarette smokers were 12 times more likely than never-users to report being offered free cigarette samples by a tobacco company. Even exposure to *gutka/paan masala* advertisements on billboards was reported to be very high.

Current smokeless tobacco users are significantly more likely than never-users to report watching *gutka/paan masala* advertisements in the print media, including newspapers. Current smokeless tobacco users were five times more likely than never-users to report being offered free *gutka/paan masala* samples by a tobacco company. In Uttar Pradesh, over half of the students (53%) had seen several *beedi* advertisements on billboards and nearly one-third saw them at social events (31.1%). Current *beedi* smokers (69.7%) were significantly more likely than never-users (36.1%) to report watching *beedi* advertisements at social gatherings.[82]

To achieve an impact on tobacco consumption by the youth, measures such as increased health education should be combined with a ban on advertising. A combination of an increase in tobacco prices and a complete ban on advertising has proved to be more effective than either measure on its own.[79]

Outdoor advertising

Outdoor advertising (e.g. billboards or posters) has always been heavily used by the tobacco industry. Voluntary restrictions on outdoor advertising, such as agreements not to place advertisements on billboards within a certain distance of schools, have not been effective in international experience. One study showed that despite such an agreement, during a 6-month period in 1994, tobacco advertisements were posted on two-thirds of the billboards near schools. In 1995, tobacco advertisements were posted near 40% of the schools.[79]

Tobacco advertising and display of tobacco products at the point of sale

Point-of-sale advertising and promotion directly influence the products and brands that children buy and use. Point-of-sale advertising and promotions target and attract shoppers right at the places where they can immediately buy the specific products or brands. More specifically, point-of-sale tobacco advertising and promotion may have a direct impact not only on which brands of cigarettes children buy but also on the number of children who buy cigarettes.[83]

Any weakness in the legislation regarding advertisements would lead to misuse of the gaps in the tobacco lobby. It has been recommended that the following fundamentals be incorporated into legislative drafts:[74]

- Prohibit any advertisements of any kind everywhere, including at the point of sale.
- Prohibit advertising of price discounting; for example, no 'was/is' signs, no crossed out prices with the new price underneath. Price discounting is attractive to children and teenagers who are price sensitive.
- Ensure that the prohibition covers all potential and actual gimcracks, baubles and gimmicks.

Ensure that it precludes flags, banners, clothing, mobiles, wall hangings, carpets, coin mats, clocks, watches, internally lit revolving cabinets and objects in associated colours and themes, as well as colour coding, etc.

- Prohibit lighting directed at product displays.
- Prohibit value-added marketing devices such as give-aways with products; for example, cigarette lighters, calendars, books, maps, diaries, CDs, toys or cosmetics. These are particularly attractive to children.
- Prohibit display in association with or near products marketed for children (such as toys, videos, candy, sweets, crisps).
- Prohibit toys or confectionery that resemble tobacco or cigarettes.
- Prohibit audible as well as visual advertising.
- If possible, prevent misleading statements such as 'light' or 'mild'.
- If possible, prohibit the industry from making false or misleading statements to retailers about display legislation. This particular provision in the Tasmanian legislation has proved invaluable in preventing tobacco representatives from telling retailers that a particular display is lawful, when it is not. This provision has substantially enhanced the efficacy of enforcement mechanisms.

There are other useful legislative actions that should be tied or linked to the primary tobacco legislation. Licensing of tobacco product sellers might help to find the seller, cancel the license in case of violation of legislation and generate revenue from the licensing process, which can be used for the enforcement process. Infringement notices improve compliance rates, allow swift and sure 'punishment' for breaches of display provisions, without the complexity and cost of launching prosecution action, and have an immediate 'educative' effect on retailers.[74] There should be large notices in shops regarding the legislation and should include health warnings (both graphic and written), as well as information about who to contact in the government regarding breaches and access to cessation programmes.[74]

Nominated officers might be appointed and trained to undertake enforcement and education work, and empowered by legislation to issue on-the-spot fines. Such an enforcement regimen markedly enhances community involvement in tobacco control activities, and reduces reliance on governments.[74]

Other forms of tobacco promotion

As more and more countries impose total or partial bans on tobacco advertising, the industry is finding new ways to publicize their brands, especially among the youth. Such 'indirect advertising' methods include: sponsorship of sports or cultural events; displays at points of sale; 'brand stretching', where tobacco brand names are used as part of other product names; product placement in television and film shows; direct mailing, special sales promotions and samples.[78]

Tobacco companies consistently predict that bans on advertisement will have a severe adverse impact on advertisers, the media and the economy as a whole. In most cases, however, tobacco advertising constitutes only a small percentage of the total advertising revenue, minimizing the economic impact on media outlets currently accepting tobacco advertisements. Several studies have shown that despite a total ban on tobacco advertising on television and radio, the advertising revenue went up by 500% in Hong Kong and 42% in Thailand.[78]

Implications for India

The Cigarettes and Other Tobacco Products Act, 2003 has banned direct and indirect advertising of all tobacco products. However, advertising has been permitted at the 'point of sale' of tobacco products. The restrictions placed on display boards at such sites are not being strictly observed by vendors and the tobacco industry. Further, there is the danger that the industry may rapidly increase the number and type of outlets where tobacco products are sold and

festoon markets with display boards at supposed 'points of sale'. It is, therefore, ideal if the Act is amended to extend the ban to such 'point-of-sale' advertising as well. The danger of cleverly disguised surrogate advertising also exists and needs to be carefully monitored and countered through effective enforcement of the Act.

It has been found that only restrictions on content and placement of advertisements or bans in one or two categories of the media are not effective. However, the evidence suggests that tobacco control programmes with comprehensive advertising bans would reduce tobacco consumption. Counter-advertising, where the media is used to promote public health, also reduces cigarette consumption. The taxation on advertising has also been found to reduce total advertising with the additional advantage of raising revenue that could be used to fund counter-advertising. Therefore, policy options for a comprehensive ban on tobacco advertising might include limitations on the content of advertisements, restrictions on the placement of advertisements, restrictions on the time that cigarette advertising can be placed on the broadcast media, total bans in multiple media, counter-advertising, taxation on advertising, and prevention and penalizing of cross-border advertising (as discussed in Section 6.3).[81]

7.4 POLICY INTERVENTION: COMPREHENSIVE BAN ON ADVERTISING

KEY MESSAGES

- There is convincing evidence that tobacco advertising plays an important part in encouraging non-smokers to begin smoking.
- When countries ban tobacco advertising in one medium, such as television, the industry can substitute advertising in other media with little or no effect on overall marketing expenditures.
- Comprehensive bans on tobacco advertising and promotion can result in a considerable reduction of tobacco consumption at the national level.
- A complete ban on advertisements coupled with an intensive public information campaign on the ill effects of using tobacco products will lead to a reduction in tobacco consumption by 6%.[79]
- In India, surrogate advertisements are still prevalent in the media and the existing laws need to be strengthened and enforced.

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7.5

Policy Interventions: Packaging and Labelling of Tobacco Products

Several studies have revealed that many smokers still do not know that tobacco causes disease and premature death, while many others know little beyond a vague notion that 'smoking is bad for you', even in developed countries such as the USA. [84] This is even more true of developing countries and of non-smoking forms of tobacco use. Thus, in developing countries such as India, there is a clear need for effective ways to alert tobacco users about tobacco-related health risks associated with all forms of tobacco use and inform them about the benefits of quitting.[84]

Consumer protection laws in some countries require that information be provided to smokers about the health effects of tobacco use.[84] A tobacco product manufacturer generally has a legal duty to warn consumers of any foreseeable hazards associated with the product so that consumers may exercise 'informed choice' in deciding to use the product. While many tobacco users in the world generally know that tobacco use is harmful, studies have shown that most smokers are unaware of the true risks, even in countries in which there is a great deal of publicity about the health hazards of tobacco. Smokers tend to be even less aware of the risks of tobacco smoke on others.[85] The information provided on the packaging of tobacco products is an obvious and essential mode of communicating these messages to tobacco users.

Many countries have introduced regulations related to the packaging and labelling of tobacco products. The Government of India, in the Cigarette Act, 1975 had called upon all packages and advertisements of cigarettes to carry a statutory warning, 'Cigarette smoking is injurious to health'. The Act provided specific instructions related to minimum font size, colour contrast, etc. However, these guidelines were often not followed.[85] A recently enacted legislation for tobacco control, the Cigarettes and Other Tobacco Products Act, 2003 contains provisions such as inclusion of a mandatory health warning, which is legible and conspicuous (detailed in Section 6.1).[86]

The FCTC has provided guidelines for the packaging and labelling of tobacco products and called upon countries to adopt and implement, in accordance with their national laws, effective measures to ensure that tobacco product packaging and labelling do not promote a tobacco product by any means.[87]

Effectiveness of health messages

There is sufficient evidence to show that prominent health warnings and messages on tobacco product packages increase both the awareness of risks and the desire to quit among smokers. The rotation of messages has been found to help in keeping this information from becoming stale and boring. Health messages continue to be effective, even if the population has become more informed about the dangers of tobacco use over time, provided the messages are sufficiently prominent and contain hard-hitting factual information. It was reported that, in Brazil, calls to the Quit Tobacco hotline for cessation assistance increased by almost 300% after picture-based warnings were introduced.[88]

The tobacco industry has responded to these packaging regulations by devising methods to evade or subvert the spirit of health warnings and reduce their efficacy. In recognition of such industry tactics, it is advisable to include prescribed messages on individual sticks of smoked products and individual portion pouches of smokeless products.[88]

In Canada, there has been widespread support for the health warnings on cigarette packages.

For most people, these warnings are an accurate and important source of information. Most smokers have been found to read the health messages every day. More than 7 in 10 adult smokers and almost 9 in 10 youth smokers consider health warnings to be effective as they inform them about health effects, compel them to smoke less around other people, make smoking less attractive and increase their desire to quit smoking.[89]

Smokers who read, think about and discuss health warnings are more likely to quit, attempt to quit or reduce their smoking. Health warnings would be more effective if their content is more positive and if the negative messages about the health impacts of smoking are combined with positive messages about the benefits of quitting smoking.[89]

Experience from other countries shows that for youth smokers, cigarette packaging is a major source of information about the health effects of smoking. It is reported that youth smokers look at the packaging more often than adult smokers and they are frequent readers of health information messages on the back panel of cigarette slide-and-shell packs.[89]

Studies from Canada indicate that tobacco labelling should be such that even people with low literacy skills are able to read and understand the messages. If the words, images and concepts used in the health warnings are unable to communicate the message effectively to this group, they are more likely to reject the messages than make an effort to understand them.[89]

In developing countries, it is important to target people who consume tobacco products, as not many of them have access to information about the hazards of smoking. Large health warnings are likely to detract them from the glamour and appeal of tobacco packages, making them less likely to be seen as stylish accessories. Strong warnings might also help to create a social milieu where non-smoking is the norm. They might motivate smokers to find help if they want to quit.[84]

Health warnings are weak, small or non-existent in many other parts of the world, especially in developing countries. It has been reported that more than 40 developing countries do not require any warnings at all.[84] Developing countries receive inferior information about the hazards of smoking, which is not justifiable, especially since about 80% of the world's smokers live in developing countries. Therefore, there is a need for detailed specifications to be included in the legislation or regulations governing the information required on tobacco packs, to prevent companies from making health warnings difficult to read or weak in content.[84]

Health warning message labelling on the product package is a critical component of a comprehensive tobacco control strategy. Health warning message labels are a cost-effective way to inform the public, especially smokers, of the hazards of tobacco use. The impact of health warning messages should be regularly evaluated for their effectiveness.[90]

Characteristics of effective health warnings

The WHO and World Bank recommended that effective health warnings should have the following characteristics.[84]

Content

To be effective, health warnings should contain a clear and unequivocal message about the dangers of tobacco use, in simple and stark terms (Box 7.7).[84] The wording of the message should be simple, in the principal languages of the country. The nature and extent of risk, and how to avoid or reduce the risks should be explained and addressed directly to the reader using the word 'you'. Technical language should always be avoided. The use of marker words, such as 'WARNING', has been suggested.[84]

Information about sources for help in cessation (e.g. a toll-free quit line number, an Internet

Box 7.7 Examples of good warning messages[84]

- Cigarettes are highly addictive
- Quitting now reduces your risk of serious disease
- Tobacco smoke hurts babies
- The smoke from your cigarette harms people around you
- Smoking causes lung cancer
- Tobacco can make you impotent
- Children who see adults smoking are more likely to start smoking
- Smoking when pregnant harms your baby
- Smoking causes bad breath, tooth loss and mouth cancer
- Smoking can cause a slow and painful death
- Smoking clogs your arteries and causes heart attacks and strokes

and/or physical address where more information is available, quitting tips, and/or advice which helps in quitting) should also be included. Misleading terms, such as 'light', 'low tar', or 'mild', which give the wrong impression that tobacco at lower tar and/or nicotine concentrations is safer, should be banned.[84]

Format and font

The warning message should be printed in easy-to-read black type on a white background (or vice versa) and large, upper case letters should be used. Glossy surface coatings and metallic inks should be avoided. A flat or matte finish will make the warnings legible under a wide range of lighting conditions. The text should be indelible and irremovably fixed, and a black border should surround the message in a way that does not interfere with the text of the warning or the information given.[84] There is also evidence that limiting colour choices to black and white, to achieve maximum contrast, also enhances recall. Regulations should be based on performance standards designed to ensure that consumers achieve recall rates of the health warning information comparable to recall rates for other aspects of the package, including brand name.[91]

Location

The health warnings should be on the top of the front and back of the package. The warning should not be hidden or obscured by other written or pictorial matter, or when the packet is open.[84]

Pictures

Experience with pictograms in Canada and Brazil shows that large warnings combined with photos are effective in discouraging smoking and increasing public awareness of the health effects of smoking. In a study conducted among 633 Canadian smokers nine months after new, large pictorial warnings were introduced, 58% reported that the pictures had made them think more about the health effects of smoking; 44% said that the new warnings had increased their motivation to quit smoking; and 38% of the smokers who tried to quit said that the new warnings were a factor in motivating their attempt.[84] In a study conducted in 2002 among 2216 Brazilians 18 years or older, 3 months after the introduction of new pictorial warnings, 73% of smokers approved of them, 54% had changed their opinion on the health consequences of smoking and 67% said that the new health warnings made them want to quit.[84] There was a strong impact on low-income and -education groups. In Australia, it was found that stronger warning labels resulted in a 29% increase in the percentage of people who 'always noticed' the warnings, and a 7% increase in people who did not smoke at least once due to the warnings.[84]

In Canada, the top half of the front as well as back of cigarette packages must show one of 16 picture-based warnings. One of 16 additional detailed messages is required inside the package, either on an insert or on the inner 'sliding' part of the package.[84]

Health warning messages with pictures are accessible to illiterate people, and provide significantly more encouragement to quit and to not start smoking than messages without pictures. Pictures will help ensure that even illiterate people receive important information, empowering them to better protect their health. Apart from delivering new information, pictures elicit a visceral response in viewers, so their

Box 7.8 Examples of good pictures[84]

- Human heart with damaged muscles as a result of myocardial infarction
- Healthy lung and a lung with cancer
- Children and pregnant women
- Human brain showing the effects of a stroke
- Diseased mouth

impact is both cognitive (intellectual) and affective (emotional) (Box 7.8). The pictures should always be colourful and of the largest size possible to be effective.[84]

Recently, the European Union come up with 42 hard-hitting picture warnings for cigarette packs to deter people from smoking. Some of picture-based health warnings in Canada and the European Union are illustrated in Figs 7.5–7.8.

Package inserts

Additional health information could be provided through inserts similar to those used with prescription drugs, or on the inner 'sliding' part of packages that have them. Along with textual information on tobacco addiction and tips for quitting, inserts should also contain pictures that illustrate the hazards of tobacco.[84]

Timing

The time given to companies to implement new warnings should be just enough to use up existing stocks and print new packages. Although tobacco companies will typically ask for a longer time, a time allowance of 3–6 months has been found to be sufficient.[84]

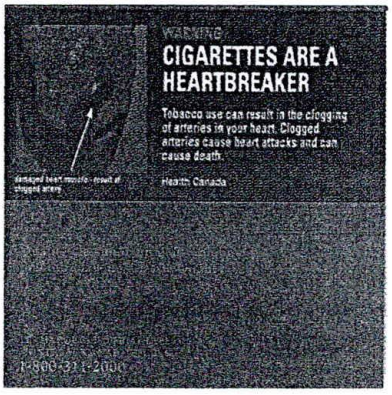

Fig. 7.5 Canadian health warning providing information on the relationship between smoking and heart attack in Canada[92]

Fig. 7.6 Canadian health warning providing information on the harmful effects of smoking during pregnancy[92]

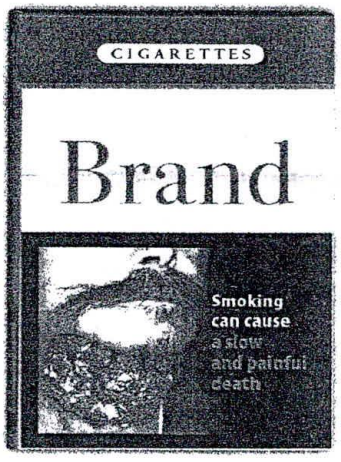

Fig. 7.7 European Union health warning providing information on the relationship between smoking and death[93]

Fig. 7.8 European Union health warning providing information on the relationship between smoking and heart diseases[93]

Disclosures of toxic substances

Among more than 4000 constituents of tobacco smoke, over 60 are known or suspected carcinogens. Studies from other countries have reported that many smokers are confused about the constituents of tobacco smoke. Therefore, to exercise informed choice, it is essential that tobacco product packages provide tobacco users with prescribed factual information on the toxic substances contained in the products and their smoke.[84]

However, it is important to recognize the problem with tar, nicotine and carbon monoxide (CO) measurements, and disclosures of these based on current testing methods.[88] These measure-ments are now recognized to be misleading. Firstly, human smoking patterns vary greatly and are not mimicked by the machine. Secondly, modern cigarette designs facilitate compensatory smoking (over-inhalation), which may lead to the smoker taking in much greater amounts of tar and nicotine than are measured by the machine. The tobacco industry uses the measurement for its own benefit by using descriptors such as 'light' and 'mild' on packages. Such terms falsely reassure smokers who might otherwise have quit the habit.[94]

Experiences from other countries suggest that the machine-measured figures for tar, nicotine and CO should be removed from the packet, and a realistic measure must be established for regulatory purposes. The health warnings qualitatively deal very well with the risks of smoking, whereas misleading figures on the packet can only do harm.[94] The WHO's Scientific Advisory Committee on Tobacco Product Regulation (SACTob) also recommends that placing quantitative estimates of tar and nicotine on tobacco products should be avoided. However, consumers should be informed of the existence, if not the levels, of these and other hazardous constituents, such as tobacco-specific nitrosamines, polycyclic aromatic hydrocarbons and a host of others, and of the dangers they pose.[88]

Studies have found that smokers clearly support the inclusion of toxic emissions' information on packaging. One-half of adult smokers and 6 in 10 young smokers look at or read the toxic emissions statements on the side of cigarette packages.[89]

A qualitative study has reported that the most effective texts were short, clear and simple, and presented only one substance with information on the impact that the substance has on health.[89]

Generic packages

From the tobacco industry's perspective, the primary job of the package is to create a desire to purchase and try the product. Therefore, cigarette packaging can act as an advertisement. When advertising is banned or strictly regulated, the package could become a very important marketing tool. With more and more regulations coming up for controlling tobacco, tobacco companies will focus on new areas of opportunity which do not rely on conventional media, such as new types and forms of packaging that can act as a means of communication as well as using famous trademarks from other fields on tobacco products and sponsorships.[88]

Generic packaging is an important tobacco control measure. Generic packaging for tobacco products is plain, standardized packaging stripped of its marketing appeal. The objective of generic packaging is to 'denormalize' tobacco product use and prevent the tobacco package from being an alluring advertisement that undermines health messages, confuses consumers about the risks of tobacco use and otherwise detracts from the government's attempts to ensure that consumers are aware of the hazards of tobacco use. It has been suggested that packages should be generic both inside and outside.[88]

Studies in many countries have found that that plain packaging would reduce experimentation and ongoing smoking among adolescents.[88] A significant majority of adults refused to buy

Marlboro cigarettes at half-price when they were packaged in generic brown boxes, despite the fact that they were assured of the original quality. Apart from these, health messages on plain packages were found to be more noticeable and their presence more easily recalled than messages on traditional tobacco packages.[88]

Labelling as a measure to control smuggling

Tracking and tracing labelling requirements such as manufacturer identification, countries of origin and destination, tax stamp markings, etc. are important to prevent smuggling. Tracking is the systematic monitoring of the movement of tobacco products from the place of manufacture, where all relevant duties and taxes have been paid, for the purpose of assisting the competent authorities to detect, investigate and analyse illicit manufacture and illicit trafficking. Tracing means the ability of competent authorities to recreate the route taken by a tobacco product from the place of manufacture through the distribution chain to the point where all relevant duties and taxes have been paid.[88]

Package size

Many countries have prohibited the sale of single or unpackaged tobacco products, or packages below a minimum size, which tend to be more affordable and accessible to the youth, who are especially price sensitive. Selling tobacco products in packages also ensures that consumers are provided with the prescribed messages, toxic substance disclosures and other important labelling information. If sales of single cigarettes are prevalent because of a large informal sector, it has been suggested that the manufacturers should place prescribed messages on individual sticks of smoked products as well as on packages.[88]

Size of health warnings

Belgium has the world's largest tobacco warnings (roughly 55% of the package, front and back) whereas in Brazil, 100% of one principal display panel must consist of a pictorial health warning. In Canada, health messages comprise at least 50% of the package's front and back panels, and provide graphic pictorial depictions showing the health effects of tobacco use.[88]

Ideally, the warning/information label should cover at least 50% of both the front and back of the package. Warnings must be large enough to be easily noticed and read. The credibility of warning messages, as well as the perceived risks from tobacco use, increases proportionately with increases in the size of the warnings.[84]

The tobacco industry's tactics

When Brazil enacted its law requiring graphic pictures on tobacco product packages to accompany its health warnings, the tobacco industry tried to delay implementation, arguing that it did not have the technical capacity to comply with the new requirements for pictures. The tobacco industry often uses such tactics to delay or prevent the implementation of stringent laws against tobacco (discussed in Section 6.5). The industry also argues that there will be economic and job losses in the packaging and printing industries, as well as increased smuggling due to labelling requirements. However, these arguments are without basis and are merely delaying tactics.[88]

Experience from many countries shows that the tobacco industry usually tries to delay or block more effective warnings. Governments should be prepared to face these legal challenges, which are often based on constitutional rights such as free speech, or trade practices. The case for tobacco control measures, including stronger health warnings, is compelling, especially from a human rights' and consumer rights' perspective. Health-warning regulations should specify that displaying health warnings on tobacco products does not relieve tobacco companies of their liability for damage caused by the use of their tobacco products.[84]

Fig. 7.9 Examples of proposed health warnings on tobacco products in India, which are being field-tested[95]

Health warnings on smokeless tobacco products

In India, apart from cigarettes or other smoking tobacco products, smokeless tobacco products should also carry the most effective labels possible, due to the serious risk of disease and addiction they pose, and because smokeless tobacco use is widely prevalent among children and adolescents.[91] Studies on Canadian labels have found 51% higher total recall rates for oral snuff packaging, and 65% higher total recall rates for chewing tobacco packaging, which justifies the requirement of labels that are at least as large as those in Canada.[91]

The size of current smokeless tobacco products packages in India is such that they can easily be carried in the pockets and it is very difficult to recognize the warning messages on them. Therefore, it is advisable to considerably increase the size of smokeless tobacco packages. In addition to conveying proper health warning messages and making them difficult to carry, bigger packages also increase the cost of production for tobacco companies.

Health warnings in India

The Cigarettes and Other Tobacco Products Act, 2003, has asked for the inclusion of a mandatory health warning, which should include a picture of a skull and cross-bones and may include other pictorial warnings.[86] Figure 7.9 shows some of the proposed health warnings to be used on Indian tobacco packages, which are being field-tested for their effectiveness.

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7.5 PACKAGING AND LABELLING OF TOBACCO PRODUCTS

KEY MESSAGES

- The WHO and the World Bank recommended warning labels on tobacco products, which are an effective way to inform smokers about the hazards of tobacco consumption, encourage smokers to quit, and discourage non-smokers from starting to smoke.
- Warnings are effective only if they contain multiple, strong and direct messages that are prominently displayed.
- Health warning message labelling on the product package is a critical component of a comprehensive tobacco control strategy. Health warning message labels are a cost-effective way to inform the public, especially smokers, of the hazards of tobacco use.

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7.6

Protection of Vulnerable Groups: A Human Rights' Approach to Tobacco Control

Good health should be an entitlement of every citizen. However, it is widely recognized that social, economic, and political conditions and forces influence both the underlying determinants of health and public policy, with conflicts of interest and contradictions featuring as causes and consequences. These contradictions in public policy are especially evident in the case of tobacco and its impact on health.

What is often not recognized, in the context of tobacco control, is the particular vulnerability of certain population groups for becoming the victims of tobacco. These include the poor, the young and women. In virtually every region of the world, the poor consume tobacco more frequently than the affluent sections of the society. Education, in particular, has a major effect on tobacco consumption. The higher the level of education, the less likely is tobacco use. The poor have less access to education and hence are more vulnerable to acquiring and maintaining tobacco use. The youth and women of all countries, but especially those of developing countries, have become prime targets for the tobacco industry, which seeks multitudes of new customers each year to replace the millions who die from the deadly effects of tobacco. They too are vulnerable in many respects, especially when poverty intertwines with their age- or gender-based susceptibility.

This requires that tobacco control policies must encompass a human rights' approach intended to protect vulnerable groups from the hazards of tobacco. This is particularly important because the tobacco industry frequently raises the bogey of tobacco control policies infringing the individual's right to free choice and also sounds the false alarm of the poor being adversely affected by such policies (*see* Box 7.9). This section examines the impact of tobacco on the poor and addresses issues related to tobacco control from a human rights' perspective.

Box 7.9 Tobacco control: Resolving the paradox of poverty

The poor use tobacco more frequently but the products that they use most often are not taxed because policy-makers are wary of increasing the tax burdens of the poor. However, the high burden of tobacco-related diseases among the poor, which will result from such a policy, are ignored. This paradox, of sparing the poor from tobacco taxes but not saving them from tobacco-related deaths, needs to be resolved through a tax policy that taxes all tobacco products and uses a large fraction of that revenue for welfare programmes intended to serve the poor.

The false argument advanced by the tobacco industry that tobacco control will propel many farmers and workers into poverty, is unquestioningly accepted by some policy-makers who oppose tobacco control measures. Yet, the poor (who consume tobacco in much larger numbers) are the worst victims of the tobacco trade, as indeed are the children who miss school to roll *beedis* and remain entrapped in the cycle of poverty. It must be recognized that tobacco control will alleviate poverty rather than cause it.

The poor are more affected by tobacco

A recent report by Economic and Social Council (ECOSOC) of the United Nations states that 'Tobacco consumption is a major direct contributor to increasing noncommunicable diseases and an associative contributor to communicable diseases such as tuberculosis. Poverty facilitates the spread of diseases and their treatment can impose a heavy financial burden on poor households. Tobacco entails heavy opportunity costs for poor households in which addicted tobacco users spend a significant amount of household resources on tobacco consumption. In developing countries, among

8.4

poor families, the proportion of household expenditures used to purchase tobacco products can easily represent up to 10 per cent of total household expenditures. This means that these families have less money to spend on basic items such as food, education and health care. In addition to its adverse health effects, tobacco use can lead to increased health-care costs and premature death. It also contributes to worsened malnutrition and a higher illiteracy rate if money that could have been used for food and education is spent on tobacco instead'.[96]

Globally and in India, smoking and smokeless tobacco use is higher among the poor than the rich and is accompanied by an increased risk and prevalence of tobacco-related disease and premature death.[97] *Beedis* and chewed tobacco (*gutka, paan masala,* etc.) constitute the largest percentage of tobacco use in India. Cigarettes used by the richer, more educated social segment account for only about 20% of tobacco use. *Beedis,* used to a larger extent by low-income groups, deliver more toxic products to the smoker than other smoked tobacco products. Thus, the burden of tobacco-related diseases is higher in this group. Increased taxes on cigarettes since the 1970s resulted in an increased consumption of *beedis*, which do not have the same taxation or legal requirements for packing and labelling as cigarettes, thus keeping their costs lower.

A study by Gajalakshmi *et al.* in Chennai,[98] found higher smoking rates among less educated men from the lower socioeconomic segments of society. Among illiterates, 64% of adult men smoked: in those with less than 6 years of schooling 58% smoked; with 6–12 years of schooling 42% smoked; and with more than 12 years of schooling 21% of adult men smoked. This marked gradient is in accordance with the worldwide trend of a higher smoking prevalence among the poor and uneducated.

An analysis of the National Family Health Survey (NFHS), conducted in 1998–1999, shows that tobacco smoking is inversely associated with educational status, with an illiterate person being three times more likely to smoke than a person with postgraduate education.[99] The scheduled castes and tribes, who constitute a socially and economically vulnerable group, were also more likely to smoke than other castes. A similar gradient was observed between the household standard of living and smoking, with smoking being 2.5 times more common in the lowest of five grades compared to the highest.[99] Smoking was also more common in rural areas and towns than in large cities.

Similarly, strong gradients were also observed for chewing of tobacco. The least educated were 1.8 times more likely to chew tobacco than the most educated. Scheduled castes and tribes were more likely to chew tobacco than other castes, and the houses with the lowest standard of living were twice as likely to chew as compared to the houses with the highest standard.[99] The National Sample Survey of 1995–1996 also reported that, across India, those below the poverty line have a 37% higher prevalence of regular use of non-smoking tobacco compared to those below the poverty line, an 8% higher rate of smoking, and a 28% higher rate of regular alcohol consumption. It is therefore likely that the poor will disproportionately suffer the sequelae of these risks in the future.[100]

Studies show that the poor consume the most toxic tobacco products, e.g. unbranded *beedis* manufactured with poor quality control and sometimes laced with other narcotic drugs. Tobacco quid is used by poor women and men to ward off hunger during long tedious work in agriculture, construction and other labour. Of the pavement dwellers in Mumbai, 86% used tobacco, 49% consumed raw tobacco 5 times a day, 20% chewed 7–8 sachets/day of *gutka*, 30% smoked 11–12 *beedis*/day, 24% chewed *paan* 4 times a day, and 8% smoked cigarettes.[101] On an average, 15% of their monthly earnings of Rs 4500 were spent on tobacco, in preference to meeting basic needs. Street children in Mumbai have a high rate of tobacco usage—46% use *gutka*, 39.5% *beedi*, 28% cigarettes and 14% plain *tambaku.*[101] In an informal study, 70%–80% of the over 100,000 street children in Bangalore were found to use tobacco products.

Table 7.9 Influence of education on tobacco consumption in north Indian males

Educational level	Urban (Delhi) *n*=1456 Age: 35–64 years (%)	Rural (Haryana) *n*=1070 Age: 35–64 years (%)	Industrial (suburban) *n*=2273 Age: 22–58 years (%)
Illiterate	61.4	83.3	78.6
Semi-literate	48.6	88.1	73.7
Undergraduate	41.3	70.3	52.8
Graduates/postgraduates	22.3	44.2	35.6

Table 7.10 Influence of occupation on tobacco consumption in north Indian males

Professional class	Urban (Delhi) *n*=1456 Age: 35–64 years (%)	Rural (Haryana) *n*=1070 Age: 35–64 years (%)	Industrial (suburban) *n*=2273 Age: 22–58 years (%)
Professional/big business/landlord	17.6	33	24.8
Clerical/middle-level business/middle-level farmer	32.1	61	36
Skilled labourer/small businessman/marginal landowner	57.1	81	45.2
Unskilled and semi-skilled labourer	64.1	82.4	63.5

Cross-sectional surveys conducted by the All India Institute of Medical Sciences during the 1990s revealed that tobacco consumption among males was inversely related to the level of education, with a higher prevalence among the illiterate and semi-illiterate (Table 7.9). This was true of urban, rural and industrial populations.[102] When analysed by professional class, a similar inverse relationship was observed, with unskilled and semi-skilled labourers being the worst affected by tobacco use (Table 7.10).

The ECOSOC report[96] also highlights similar facts from other developing countries:

- Some street children and other homeless people in India spend more on tobacco than on food, education or savings;
- A recent study in Bangladesh showed that over 10.5 million currently malnourished people could have an adequate diet if money spent on tobacco was spent on food instead;
- Poor, rural households in Southwest China spend over 11% of their total expenditure on cigarettes;
- Preliminary results from an ongoing study in 3 provinces of Viet Nam found that over the course of a year, smokers spent 3.6 times more on tobacco than on education, 2.5 times more on tobacco than on clothes, and 1.9 times more on tobacco than for health care;
- A study in Poland, in 1996, showed that the contribution of smoking to the risk of premature death among males at 35–69 years of age varies by education level; the risk of dying during middle age due to tobacco-related diseases was 5% among people with higher education and nearly double (9%) among persons with only primary and secondary education.

According to the WHO, tobacco and poverty create a vicious circle, from which it is often difficult to escape. Tobacco tends to be consumed by those who are poorer. In turn, it contributes to poverty through loss of income, loss of productivity, disease and death.[103] Based on this evidence; WHO observed the World No Tobacco Day 2004, with the theme of Tobacco and Poverty, conveying the main message that tobacco increases the poverty of individuals, families and nations. This is in contrast to over-simplistic and widespread arguments that tobacco provides wealth to governments and growers.

Interplay of poverty and gender vulnerability

The ECOSOC report draws attention to the global upward trend in women smoking, which is now becoming an issue in the developing world as well. It states 'The tobacco industry has already understood it and is heavily targeting women to gain a part of the market which was not available in the past. Tobacco advertising vehicles images for women featuring vitality, slimness, glamour, emancipation, etc... The new gender behaviour can also have adverse social and economic consequences. For example, it is known that women often have less disposable income than men and are more likely to spend it on their children. When more women start consuming tobacco at a higher rate, the diversion of scarce family resources for tobacco may significantly contribute to malnutrition and higher rates of school drop-out, with potential long term negative consequences.'[96]

Tobacco control and human rights

In 2001, the National Human Rights Commission (NHRC) of India considered the issues related to tobacco control from the perspective of human rights and concluded that the following rights of an individual are violated due to lack of tobacco control mechanisms in India:[104]

1. *Right to clean air*
   - A non-smoker is forced to inhale tobacco smoke in public areas.
2. *Rights of children*
   - Rights of born and unborn children are violated when they are exposed to tobacco smoke (active and passive) in the home or public areas. They are the most vulnerable and worst affected.
3. *Right to information*
   - Both the smoker and non-smoker are not provided with adequate information about the harmful effects of tobacco products and, in fact, are bombarded with misinformation about tobacco products through advertisements/events/celebrity- and role model-linked promotion.
4. *Right to education*
   - Both the smoker and non-smoker are not adequately educated about the drastic ill-effects of tobacco on their personal and public health.
5. *Right to redressal*
   - Both the smoker/non-smoker do not have any redressal mechanism for the injuries/ ill-effects suffered by them due to tobacco products.
6. *Right to tobacco cessation programme/ activities (as part of right to health)*
   - The smoker and his/her family have a right to have access to various cessation strategies.

In addition, there are also some rights of the smoker which may be violated by regulatory measures intended for tobacco control. However, these have to be superseded in the interest of public health and human rights of the larger community.

Based on this assessment, the NHRC recommended that:

- A comprehensive national tobacco policy should be evolved at the highest level, in consultation with all the stakeholders in public health.
- A multisectoral national-level nodal agency should be established for tobacco control with strong representation from the legal, medical and scientific communities.
- The right of people to access correct information related to the effects of tobacco consumption must be promoted through programmes of information, education and communication. Such programmes should be adequately supported through dedicated resource allocation.
- Assistance for smoking cessation should be integrated into the health care services.

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Role of the government

Given the objectives of protecting and promoting public health, enabling conditions need to be created to help individuals make informed choices, to isolate the changing patterns of vulnerability and develop effective response mechanisms for combating the same. It is important to realize that the human rights' paradigm cannot operate in a legal vacuum. Some existing authority needs to enunciate the law and put into place appropriate enforcement and redressal mechanisms. This is where the government (state) comes in. To be able to respect, protect and fulfil its human rights' obligations, the government has to bring about well-defined legislation to facilitate the functioning of legal systems.

Today, the philosophy of 'responsive communitarianism' is gaining popularity among wide sections of society. This essentially means balancing individual rights with social responsibilities, or individuality with the community. The collective rights of the community must have precedence over the rights of the individual smoker, especially since tobacco is now well recognized to be a 'public bad'. In asserting these principles, the government must also recognize the special obligation to provide for the poor and less educated sections of society whose right to correct information is least respected by the tobacco industry. Even in the safeguarding of rights, special protection needs to be provided to vulnerable groups.

The fundamental reciprocity between health and human rights is well established and the need to put in place a proper regulatory framework to aid and nurture this synergy should be the guiding lights of policy-makers and analysts in this field. This is even more true of tobacco control than of many other policies related to public health.

7.6 PROTECTION OF VULNERABLE GROUPS: A HUMAN RIGHTS APPROACH TO TOBACCO CONTROL

KEY MESSAGES

- The poor, the young and women are particularly vulnerable for becoming the victims of tobacco.
- Tobacco control policies must encompass a human rights' approach to protect vulnerable groups from the hazards of tobacco.
- Tobacco smoking is inversely associated with educational status.
- Homeless people in India spend more on tobacco than on food, education or savings.
- Enabling conditions must be created to help individuals make informed choices.

7.7

Community Interventions: Protecting the Youth from Tobacco

In 1996, Peto *et al.* estimated that unless current trends changed, some 30%–40% of the 2.3 billion children and teenagers in the world would become smokers in early adult life. Unless action is taken now, about 250 million of these future smokers will be killed by smoking.[105]

It is estimated that, as in other developing countries, the most susceptible time for initiation of tobacco use in India is during adolescence and early adulthood, i.e. in the age group of 15–24 years. The majority of users start using tobacco before the age of 18 years, while some even start as young as 10 years. It is estimated that 5500 adolescents start using tobacco every day in India, joining the 4 million people under the age of 15 years who already use tobacco regularly.[106] This early age of initiation points to an urgent need to plan effective interventions for this vulnerable age group.

The Government of India has been actively working towards enforcing legislations to prevent young people from having any access to tobacco. The Cigarettes and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Act, 2003 enforced from 1 May 2004 has provisions to protect the youth in India. The Act prohibits the sale of tobacco products to minors as well as within 100 yards of any educational institution.

One of the major goals of any tobacco control effort is to prevent people from starting or experimenting with tobacco. The target group should be the youth who are primarily non-users and are vulnerable as the industry especially targets them.

Issues involved

Availability

The youth start using tobacco even before they can understand its consequences, and the fact that tobacco is addictive prevents them from quitting when they become aware of its harmful effects later in life. One of the goals of any tobacco control policy should be to ensure that tobacco products are neither available by direct sale nor accessible through other sources to youth.

Ban on sale to minors

Article 16 of the FCTC mentions about banning sale to minors. The existing literature provides mixed evidence on the effects of banning sale to minors in reducing tobacco use among youth.

Wassermann *et al.* studied the impact of state laws that restricted the sale or distribution of cigarettes to minors. They found that although these laws reduced the teenager's probability of taking to smoking, it did not affect the average consumption by young smokers. They attributed the latter to the weak enforcement of these laws and vendors' poor compliance with the law.[107] A study by Jones *et al.* showed that enforcement of youth access laws led to a decrease in minors purchasing in stores but there was a significant increase in giving someone else money (social source) to buy cigarettes for them.[108]

There have been different viewpoints opposing the ban on sale to minors. It has been commented that youth access programmes which prevent the sale of cigarettes to teenagers are ineffective and a drain on limited resources. It has also been expressed that such bans are counterproductive because they reinforce the tobacco industry's 'smoking is a way to look adult' message.[109]

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Non-availability of tobacco products around educational institutions

To restrict free availability of tobacco products to minors, one easy strategy is to ensure that tobacco products are not sold near educational institutions.

Increasing prices through taxation

One of the mechanisms to raise tobacco prices is taxation. A fundamental principle related to taxation is that taxes which generate substantial revenues while minimizing welfare losses associated with the higher prices resulting from the taxes, are preferable to those that result in higher welfare losses. In the short run the demand for tobacco products is relatively inelastic. Thus, an increase in tobacco taxes, although leading to reduction in use, will lead to significant increases in revenue.[110] Increasing prices through tax increases is the single most effective intervention to reduce tobacco demand. It has been seen that a 10% price rise will lead to a 4% reduction in demand (price elasticity of −0.4) in high-income countries, and 8% reduction in low- and middle-income countries (price elasticity of −0.8). It has been seen that young people, people belonging to a low socioeconomic group and less educated people are more price responsive.[111] It has been estimated that tax increase which would increase the real price of cigarettes by 10% worldwide will lead to 42 million smokers of the 1995 cohort quitting and would prevent 10 million premature tobacco-related deaths among them.[111] In a study in the USA, it was seen that increasing the price of cigarettes increases the number of young adults who quit smoking. The average price elasticity of cessation was −0.35, i.e. a 10% increase in price will lead to 3.5% reduction in demand.[112]

Increases in the price of cigarettes will decrease the prevalence of smoking and the number of cigarettes smoked both by the youth and adults. Lower-income and minority smokers were more likely than other smokers to be encouraged to quit in response to a price increase and would thus obtain health benefits attributable to quitting.[113]

The change in smoking behaviour is most dramatic among the youth exposed to the largest price increases, suggesting a sustained impact of higher price on cigarette consumption. Large cigarette tax increases would result in both substantially higher quitting rates and a considerable drop in smoking intensity.[114]

Gender difference

Young men are much more responsive to changes in the price of cigarettes than young women. The price elasticity for young men is almost twice as large as that for young women.[115]

Restricting access through regulating packaging sizes

Ensuring that cigarettes and *beedis* be sold only in bigger packs of twenties or more will restrict purchase by the youth who have limited resources to buy these products. Similarly, chewable tobacco (such as *gutka, khaini,* etc.) is

Box 7.10 Tobacco tax policy

A good tobacco tax policy will seek to do the following:[116]

1. Raise the price of tobacco products substantially. To maximize impact, each tax increase should increase consumer prices by at least 20%.
2. Ensure that tax levels are not eroded by inflation. In some countries, for example, in Australia and New Zealand, tax rates are increased regularly in line with increases in consumer prices. Tobacco taxes should be increased frequently and should account for the rise in disposable incomes.
3. Prevent loopholes that would direct consumers to switch to cheaper tobacco products. This entails that there be no price differentiation between various forms of tobacco products.
4. Link the tobacco tax policies to overall tobacco control policies to highlight the health basis to the tax, i.e. to show the health benefits in terms of reduced consumption and the fact that the revenue generated can be used for promoting health. Tobacco taxes should not only be a mechanism for revenue generation but can also be used for tobacco control measures, such as spreading health awareness among youth and adults, and providing tobacco cessation strategies such as nicotine replacement therapy (NRT).
5. Take measures that will prevent the smuggling of tobacco products.

currently available in sachets, which make these products available at a very low cost. It is important that the packaging sizes of all tobacco products be regulated in India. Increasing the sizes of tobacco product packages would ensure that the cost is high enough to make it less affordable for the youth, who are tempted to experiment with these tobacco products due to their small packaging size which makes the product easily accessible to them for purchase and concealment.

Awareness and advocacy

It has been well established that awareness and advocacy related to tobacco avoidance and control prevents or reduces tobacco use among youth.[117–119] In India, it has been seen that students in whom school-based interventions were carried out were less likely to receive offers, experiment with or intend to use tobacco.[117] Among regular smokers, it was found that those who were engaged in anti-tobacco advocacy were more likely to reduce their own use. The decrease was sustained even after six months. The goal of the advocacy programme was to increase the student's awareness of the factors in the school and community environment that promote cigarette use.[118]

A well-designed public education campaign that is integrated with community- and school-based programmes, strong enforcement efforts, and help for smokers who want to quit, can successfully counter tobacco industry marketing. Such integrated programmes have been demonstrated to lower smoking among young people by as much as 40%.[119] A 15-year follow-up study as part of the North Karelia Youth Project showed that the reduction in tobacco use produced by a mass media intervention combined with a school- and community-based education programme lasts over time. The mean lifetime cigarette consumption was 22% lower among programme subjects than among control subjects.[119]

The Massachusetts Tobacco Control Campaign, which has a sizeable public education component, has been effective in increasing public perception of the harms of cigarette smoking, and is associated with a substantial decline in cigarette consumption. A 1997 independent evaluation of the Massachusetts campaign found that tobacco consumption dropped by 31% from 1992 to the first half of 1997—more than triple the rate of decline observed for the rest of the nation.[119]

In its early years, the California Tobacco Control Programme produced a 10%–13% long term decline in cigarette consumption, with about a fifth of the decline caused by the media campaign alone. A study found that the California anti-tobacco media campaign reduced sales of cigarettes by 232 million packs between the third quarter of 1990 and the fourth quarter of 1992.[119] A 1995 study of California's anti-smoking programme found that anti-smoking media campaigns are an effective way of reducing cigarette consumption, and noted that higher funding levels produced more powerful results.[119]

A 1994 study determined that anti-smoking advertising decreased smoking beyond the effects of school-based interventions. Students who were exposed to the media plus school interventions were found to be at lower risk for smoking than those only receiving school interventions.[119] A 1992 study found that a five-year intervention involving a media campaign, community programmes, and school-based instruction resulted in significantly lower smoking rates. At the end of high school, just 14.6% of students in the intervention community were weekly smokers, compared to 24.1% of those in the control community.[119] A 1997 study found that, in terms of cost per years of life gained, mass media and education campaigns are currently among the most cost-effective methods available to prevent or reduce tobacco use.[119]

Researchers have mixed views on the success of awareness programmes among the youth. Though some programmes have shown a positive impact on increasing knowledge, positively altered attitudes of youth and reduced tobacco use among them, there have been a few

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unsuccessful school health programmes that failed to demonstrate a posi tive impact.

An opposite effect was seen in a school-based programme in Montreal, where it was seen that children exposed to the programme were more likely to initiate and continue smoking than children in the control group. The reason for this was inadequate attention in programme development to the diverse cultural origins of the population targeted.[120] Cultural differences play an important role in comparing school health programmes globally. The strategies and channels of intervention delivery are the most crucial elements to be taken into account. In a country such as India, involving teachers in intervention delivery has proven to be very effective as teachers' viewpoints are given the highest priority by the youth when they are in school. This may not necessarily be true in other countries, especially in the West.

Comprehensive ban on advertisements and counter-advertising

A comprehensive ban includes a ban on advertisements of tobacco products in all direct and indirect forms, i.e. print and mass media, point-of-sale advertisements, ban on surrogate advertising or brand stretching, and should also include effective counter-advertising.

Tobacco advertising and promotion increases the likelihood that adolescents will start to use the product. The impact of tobacco advertising on the youth is a well researched area globally. Non-smoking adolescents who were more aware of tobacco advertising or receptive to it were more likely to have experimented with cigarettes or become smokers at follow-up.[121] Receptivity to tobacco advertising and promotion is an important factor in progressing from experimentation to established smoking among adolescents.[122] Advertising lures gullible youth and children through glamorous and deceptive promotional stunts. Advertisements project tobacco use in congenial surroundings or associate the brand name with idolized role models, legitimize the habit in young minds and project the use of tobacco as being socially acceptable.

There is a strong temporal and causal relationship between viewing smoking in films and initiation of smoking among adolescents. For example, it was shown that 12- and 13-year-old boys whose favourite television sports included motor racing (sponsored by tobacco companies) were twice as likely to become regular smokers compared to those who did not watch it.[123,124]

Point-of-sale tobacco advertising has the potential to increase significantly positive brand user imagery, and hence not only adds to long-term user imagery, but would increase the likelihood of impulse purchasing.[125] This is relevant to the Indian context, as the Indian Tobacco Control Bill of 2003 permits point-of-sale advertising while banning all other forms of advertising.

Evidence suggests that comprehensive bans on tobacco advertising can reduce tobacco consumption. A partial advertising ban has little or no effect because of the opportunities for substitution by other forms of advertising.[111] In spite of the fact that anti-tobacco advertising has a protective effect, it is unable to counteract the effects of pro-tobacco advertising.[126]

Anti-smoking advertising appears to have more reliable positive effects on those in pre-adolescence or early adolescence by preventing experimentation. The effects of anti-smoking advertising on youth smoking can be enhanced by the use of other tobacco control strategies, and may be dampened by tobacco advertising and marketing.[127] Because perceived ability to quit makes adolescents more likely to progress to experimentation and repeated use, counter-advertising should include messages about addiction and the difficulties associated with quitting.[122]

Advertisements designed to discredit the tobacco industry should mention specific companies, to make the counter-advertising more effective. This will ensure that people know about the

tobacco industry's corporate identities, and young people who know about these identities tend to view the company less favourably.[128]

Intensive and sustained efforts to 'counter-market' tobacco among teenagers are essential to negate the friendly familiarity of the tobacco industry and to communicate the true health and social costs of tobacco use. These should highlight a tobacco-free lifestyle as the majority lifestyle of diverse and interesting individuals. Constructive alternatives to tobacco use should be offered and the dangers of tobacco use explained in a personal and emotional way.[129]

Some other examples of the positive effect of counter-advertising on the youth are discussed below:[119]

1. A 2002 report of the Florida Youth Tobacco Survey showed that between 1998 and 2002, current cigarette use among middle school students declined by 50%, and current cigarette use among high school students declined by 35%. These declines followed the implementation of the Florida Pilot Program on Tobacco Control, which included an aggressive counter-marketing media campaign.
2. A 2000 study showed that youth in Massachusetts, 12–13 years of age, who reported exposure to anti-smoking television advertisements at baseline, were significantly less likely to have progressed to established smoking at follow up than youth who did not report exposure to anti-smoking television advertisements.

Establishing anti-tobacco norms

Social group interactions, through family, peer and cultural contexts, can play an important role in reinforcing, denying, or neutralizing the potential effects of anti-smoking advertising.[127] It has been seen that peer pressure is an important influence for tobacco use among adolescents.[130] Introduction to positive, healthy role models, added to established anti-tobacco norms, can tremendously curb the desire of the youth to experiment with tobacco products.

Restriction of smoking in schools, the home and public places

Smoke-free workplaces reduce the prevalence of smoking as well as its consumption. The combined effect of people quitting smoking and reducing consumption reduces total cigarette consumption by 29%.[131]

Regulations restricting smoking in public places appear to have a considerable impact on teenage smoking behaviour. In contrast to adults, regulations affect the teenager's decision to become a smoker rather than the number of cigarettes smoked.[131] Smoking restrictions in the home and bans in public places allow a limited opportunity for smokers to smoke. The mere existence of a school ban had no effect, but enforced school bans were associated with up to 11% reduction in the uptake of smoking.[132]

Schools with smoking policies have lower rates of smoking among students.[133] Teachers who smoke make smoking seem safe and acceptable. The school policy must address both teachers' and students' smoking. Colleges with a no-smoking policy for both staff and students have been shown to have the lowest prevalence and their students smoke fewer cigarettes.[134,135] An Indian study also revealed that in schools which have enforced a no-smoking policy, teachers smoked less compared to schools having no such anti-smoking policy.[136]

Tobacco cessation

Many of the measures mentioned above such as raising the cost of the product, reducing access, and comprehensive tobacco education are effective in reducing tobacco use among the youth. Additionally, tobacco cessation services in the form of counselling for behavioural modification should be provided to the youth.

Tobacco cessation is described in detail in Section 6.7.

Recommendations

Based on the evidence from global and Indian research, the following measures are recommended to protect the youth from tobacco:

1. A comprehensive tobacco control programme (including awareness and well-informed youth activism) is needed to reduce and restrict the youth from tobacco use.
2. A comprehensive ban on tobacco advertising (direct and indirect) is essential to prevent the youth from associating smoking with their role models.
3. Raising the prices of tobacco products, through taxes, and increasing the sizes of the packages are the most effective ways of preventing the youth from initiating use, as they are highly price sensitive.
4. School-based programmes should adopt a comprehensive intervention approach and ensure that the modes of communication are suitable to the targeted group's characteristics.
5. The youth, especially school students, should be encouraged to get involved in anti-tobacco advocacy and discuss policy issues related to tobacco control. Schoolteachers and parents should also be involved in these initiatives.

7.7 COMMUNITY INTERVENTIONS: PROTECTING THE YOUTH FROM TOBACCO

KEY MESSAGES

- Based on current trends, some 30%–40% of the 2.3 billion children and teenagers in the world would become smokers in early adult life.
- The most susceptible time for initiation of tobacco use in India is during adolescence and early adulthood, i.e. in the age group of 15–24 years.
- Raising the prices of tobacco products through taxes, increasing the size of the packages and a comprehensive ban on tobacco advertising (direct and indirect) are effective means of preventing the youth from initiating use.
- Youth involved in anti-tobacco advocacy are more likely to avoid tobacco use.

7.8

Community Interventions: Smoke-free Public Places

There is now incontrovertible evidence that exposure to other people's smoke is dangerous to health.[137] The health consequences of second-hand smoke have already been discussed in Chapter 4. Exposure to second-hand smoke is an entirely preventable cause of the substantial morbidity and mortality associated with tobacco use.[138] A growing number of countries and states are now implementing restrictions on smoking in public places. The most obvious benefit of these restrictions is clearly to non-smokers, who are spared exposure to the health risks and nuisance of second-hand smoke. For such restrictions to work, there must be a general level of social support for them, and an awareness of the health consequences of exposure to second-hand smoke.[139]

Smoking bans and restrictions are policies and regulations that ban or limit the consumption of tobacco products in specific places. These include private business and employer policies, organizational regulations, and government laws and ordinances. Laws and ordinances can establish minimum standards to protect workers in private sector workplaces, as well as ban or restrict smoking in public areas and workplaces.[140]

Smoke-free workplaces not only protect non-smokers from the dangers of passive smoking but also encourage smokers to quit or reduce consumption. In one study, the combined effect of people stopping smoking and reducing consumption reduced the total cigarette consumption by 29%.[141]

The WHO's Framework Convention on Tobacco Control (FCTC) has identified the need for protection from exposure to tobacco smoke. It states that countries should recognize that scientific evidence has unequivocally established that exposure to tobacco smoke causes death, disease and disability (Article 8).[142]

Recently, the Government of India has ordered a ban on smoking in public places. Despite similar bans imposed earlier by several Indian State Governments, smoking is still prevalent in many public places.[143] Effective policies for smoke-free public places are required to guide implementation at various levels and ensure strict enforcement of the existing laws.[144] The tobacco industry has often challenged the rationale and efficacy of such bans. In this context, it would be useful to review the available evidence.

Global evidence

Several countries have successfully introduced smoke-free public places. Regulations restricting smoking in public places appear to have a considerable impact on teenage smoking behaviour. It affects the teenager's decision to become a smoker rather than on reducing the number of cigarettes smoked.[141] Smoking restrictions in the home and bans in public places allow a limited opportunity for smokers to smoke. Properly enforced school bans have been found to be associated with up to 11% reduction in the initiation of smoking.[145] Schools and colleges with no-smoking policies have been shown to have the lowest prevalence of tobacco consumption and their students smoke fewer cigarettes than others.[146–148] Banning smoking in workplaces is a simple and cost-effective way to encourage smokers to quit. Banning smoking in restaurants was found to have either a neutral or beneficial effect on business and may increase patronage by tourists who desire smoke-free restaurants.[137]

Laws for smoke-free places may also be associated with a rapid effect on morbidity resulting from heart disease. A law banning smoking in public- and workplaces in a localized community resulted in a sharp decrease in

hospital admissions for acute myocardial infarction. The significant decrease in admissions was from an average of 40 admissions during the same months in the years before the introduction and after withdrawal of the law, to a total of 24 admissions during the six months when the law was in effect.[149]

The US Task Force on Community Preventive Services evaluated the effectiveness of selected interventions. They strongly recommended smoking bans and restrictions on the basis that they reduce exposure to second-hand smoke when applied: (i) in a wide range of workplace settings and adult populations; (ii) at different levels of scale, from individual businesses to entire communities; and (iii) whether used alone or as part of a multicomponent community or workplace intervention.[139]

In addition to the evidence of effectiveness in reducing workplace exposure to second-hand smoke, several studies also observed a significant reduction in the daily consumption of cigarettes by workers who are subjected to a smoking ban or restriction at their workplaces.[139]

Community education provides information to parents, other occupants and visitors to the home that reducing or eliminating second-hand smoke protects non-smoking adults and children. Attempts must be made to motivate household members to modify smoking habits and reduce the exposure of non-smokers to indoor second-hand smoke by establishing home policies, and restricting or banning smoking if they cannot quit entirely.[139]

Enthusiastic endorsement by and active participation of the community are essential for smoking bans to succeed. The 'top–down' regulatory approach must be complemented by a 'bottom–up' community mobilization approach. The government and community must constantly act in concert to enable laws for making public places smoke free to be enacted and sucessfully implemented (Fig. 7.10).

Indian evidence

There are only a few documented examples in India of success in achieving smoke-free environments. A study among youth (in the age group of 13–15 years), in government and private schools in Uttar Pradesh, reported that many students (60.7%) were in favour of banning smoking in public places.[150] A study from Bihar revealed that in schools that have enforced a no-smoking policy, teachers smoked less compared to schools having no such policy.[151]

Another example is 'a tobacco-free town' in Kerala. The people from Koolimadu village in Kerala started an anti-smoking movement when a chain smoker, who was a resident of their village, died of cancer. The villagers had a typical example in front of them, so they were convinced about the ill effects of tobacco. Due to the enthusiastic response to the anti-tobacco movement, the district administration imposed a total ban on the use and sale of tobacco products and declared the area a tobacco-free zone. Some of the youth groups have been given the responsibility of monitoring the ban. Due to the success of the movement, the penalty of being excluded from village life for a day has, so far, not had to be imposed.[152]

Before the Government of India banned smoking in public places, a ban on smoking had existed in certain areas. The Indian Airlines was one of the first airlines to ban smoking on domestic flights. The airlines has now extended the ban even on its international flights.[153] Apart from these, the Indian railways banned smoking in all its service areas.[154] Some institutions such as the Lucknow University banned smoking on the campus.[149,154] Although several such bans have been introduced in India, there is a lack of data on their effectiveness.

For enforcement of the newly enacted legislation for tobacco control, there is a need to gather such evidence of the impact on both active and passive exposure to tobacco smoke. However, studies from other countries are sufficient to

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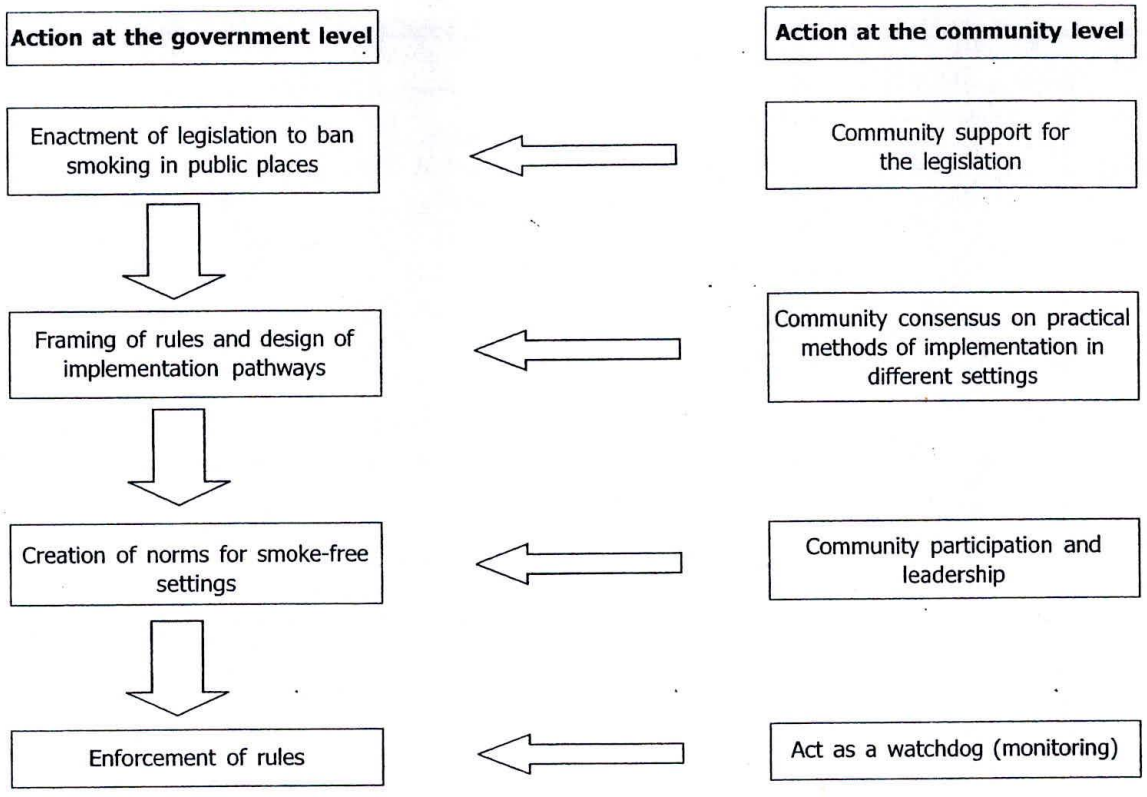

Fig. 7.10 Complementary roles of the government and community in making public places smoke free

show the effectiveness of such bans as a mechanism for tobacco control. In selecting and implementing interventions, there is a need to develop a comprehensive strategy to reduce exposure to second-hand smoke, reduce initiation and increase cessation. Improvements in each category will contribute to reductions in tobacco-related morbidity and death, and success in one area might contribute to improvements in other areas as well.[155]

7.8 COMMUNITY INTERVENTIONS: SMOKE-FREE PUBLIC PLACES

KEY MESSAGES

- Exposure to second-hand smoke is an entirely preventable cause of significant morbidity and mortality associated with tobacco use.
- Smoke-free workplaces not only protect non-smokers from the dangers of passive smoking, they also encourage smokers to quit or reduce consumption.
- For smoking bans to succeed, enthusiastic endorsement by and active participation of the community and an awareness of the health consequences of exposure to second-hand smoke are needed.
- The combined effect of people stopping smoking and reducing consumption reduces the total cigarette consumption by 29%.
- Regulations restricting smoking in public places have a considerable impact on teenage smoking behaviour. It affects the teenager's decision to become a smoker rather than the number of cigarettes smoked.

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7.9

Community Interventions: Strengthening Health Literacy on Tobacco-related Matters

A tobacco control programme requires a multipronged strategy. Increasing the knowledge and awareness about its harmful effects is one of the ways of reducing tobacco use among people. Available global evidence on the impact of community health education interventions with regard to tobacco use is summarized here.

Global evidence

A well-designed public education campaign that is integrated with community- and school-based programmes, strong enforcement efforts and help for smokers who want to quit, can successfully counter marketing by the tobacco industry. Such integrated programmes have been demonstrated to lower smoking among young people by as much as 40%.[156]

A 15-year follow-up study, as part of the North Karelia Youth Project, showed that the reduction in tobacco use as a result of a mass media intervention combined with a school- and community-based education programme, lasts over time. In this study, students were taught about social pressures to smoke exerted by peers, adults and the mass media, and were trained by demonstration and role play to deal with them. The short- and long-term effects of smoking were also discussed. The mean lifetime cigarette consump-tion was 22% lower among subjects who had been in the programme than among control subjects.[157]

A study done in Minnesota found that a five-year intervention involving a media campaign, community programmes and school-based instruction resulted in significantly lower smoking rates. At the end of high school, just 14.6% of students in the intervention community were weekly smokers, compared to 24.1% of those in the control community.[158]

A study conducted in 1997 found that, in terms of cost per years of life gained, education campaigns through the mass media were among the most cost-effective methods to prevent or reduce tobacco use.[159]

An effective model for community-based programmes is the American Stop Smoking Intervention Study (ASSIST). The primary goal of this federally funded community-based programme was to reduce the prevalence of smoking and cigarette consumption among adults and youth in the 17 states participating in the study. By working with community groups, youth groups and adult organizations, the ASSIST programme has been able to reach diverse populations and raise public awareness regarding the need for tobacco control policies. Outreach programmes in health care settings and training programmes for physicians, nurses, dentists and dental hygienists also increase the potential public exposure to the dangers of tobacco and benefits of quitting smoking or avoiding starting altogether. Within three years of full funding of the project, per capita tobacco consumption in the ASSIST states was 7% lower than in non-ASSIST states. More than three-quarters of the intervention states showed some decrease in cigarette consumption despite decreases in the price of cigarettes.[160]

The state of Oregon in the USA has achieved impressive declines in per capita consumption after implementing a statewide tobacco control programme. Oregon's community activities include, among others, engaging young people to plan and conduct community tobacco prevention and education events and campaigns, working with judges and retailers to develop

education and diversion programmes, conducting a campaign on smoking in the home, and developing educational presentations and strengthening tobacco-use policies in schools, community and day-care centres.[161]

A 1995 study of California's anti-smoking programme found that anti-smoking media campaigns are an effective way of reducing cigarette consumption, and noted that higher funding levels produced more powerful results.[156]

A three-month multimedia anti-smoking campaign conducted in Norway (1977) is credited with reducing tobacco sales by 4% and encouraging an estimated 100,000 Norwegian smokers to attempt to stop smoking.[162]

A two-year anti-smoking television and radio campaign conducted in Greece between 1978 and 1980 is credited with reducing tobacco sales and increasing the number of smokers attempting to stop smoking. In the years before the campaign, the annual tobacco sales had increased at approximately 6% per year. During the campaign, tobacco sales were flat.[162]

Evaluations of two of the longer running anti-tobacco campaigns in California and Massachusetts suggest that the counter-advertising components of their programmes had contributed to an overall reduction in cigarette use and greater public awareness of the hazards of tobacco.[162]

School-based tobacco prevention programmes that identify the social influences which promote tobacco use among youth and teach skills to resist such influences can substantially reduce or delay adolescent smoking. Although long-term follow up of such programmes has indicated that the effect may dissipate over time, other studies have shown that the effectiveness of school-based tobacco prevention programmes is strengthened by booster sessions and communitywide programmes involving parents and community organizations and including school policies, the mass media and restrictions on youth access.[161]

Increasing excise taxes on cigarettes reduces tobacco consumption rates, but when the excise taxes support effective community, media and school programmes to prevent tobacco use, decreases in the per capita consumption will continue even if the industry lowers tobacco prices to pre-excise tax values.[163]

Goldman and Glantz reviewed research on the effectiveness of various anti-smoking messages. They concluded that 'aggressive' public education campaigns that focus on 'industry manipulation' (that is, on the goal of the tobacco industry to recruit young smokers and the tactics used to achieve this goal) and the negative effects of second-hand smoke are more likely to reduce cigarette consumption and denormalize smoking.[164]

Successful health interventions in India have been cited in Chapter 6.

Effective public education strategy

Available research and experience show that a public education campaign should include the following characteristics:[156,161]

- It must incorporate paid media, public relations, and special events and promotions in a coordinated effort that is integrated with school- and community-based programmes, as well as the other elements of a comprehensive tobacco reduction plan.
- It must be well funded so that the media component can achieve the reach necessary to be effective. This effort must be sustained over the long term.
- The mass media should be used for dissemination of policies related to tobacco control. These messages help to reinforce community campaigns.
- There should be no restrictions on the content of the messages, and the campaign must operate completely independent of tobacco industry input.

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- It must be grounded in rigorous, state-of-the-art research on effectiveness.
- Young people must be involved in the planning and conduct of community tobacco prevention and education events and campaigns.
- Educational presentations should be developed and tobacco-use policies should be strengthened in schools, the community and day-care centres.
- Campaigns should be conducted on stopping smoking in the home.
- Tobacco advertising should be assessed locally (at state level) and plans should be developed to reduce tobacco sponsorship of public events.
- Smoking cessation programmes should be offered.

School-based interventions

These should include the following:[156,161]

- They should focus on information, attitudes, and skills to resist social and behavioural influences, as well as on peer norms, refusal skills, etc. among others.
- They should be socially and culturally acceptable to all communities. The lack of this has seen programmes failing to have the desired effect.[165]
- Tobacco-related information should be included in the curriculum.
- There should be booster sessions, where the knowledge once imparted can be re-emphasized.
- The information should be imparted by the teacher rather than an outside health professional.
- Teachers should be adequately and regularly trained by health professionals.
- Students should be included in the dissemination of information to the community.
- Cessation support should be given to students and teachers.
- Parents, the community and media should be involved in these interventions.
- The programme should be regularly assessed.

7.9 COMMUNITY INTERVENTIONS: STRENGTHENING HEALTH LITERACY ON TOBACCO-RELATED MATTERS

KEY MESSAGES

- Increasing the knowledge and awareness about the harmful effects of tobacco use among the people is one of the ways to reduce tobacco use.
- Health education leads to a long-lasting reduction in tobacco use, when it is imparted through the mass media and combined with a school- and community-based education programme.
- Education campaigns through the mass media are among the most cost-effective methods currently available to prevent or reduce tobacco use.
- School-based tobacco prevention programmes that identify the social influences which promote tobacco use among the youth and teach skills to resist such influences can significantly reduce or delay adolescent smoking, especially if strengthened by booster sessions and communitywide programmes involving parents and community organizations.
- Public education programmes should be well funded and based on rigorous research.
- The distinct cultural profiles of the targeted population groups should be kept in mind while designing programmes.

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7.10

Benefiting from Models of Behaviour Change

Health, defined in its broadest conceptualization, is a dynamic state of complete physical, psychological, social and spiritual well-being wherein physiological, psychological, regard for societal roles and norms, and the transcendent purpose of existence are incorporated.[166] The maintenance of such a state is dependent on adopting behaviours that would not compromise health resulting in pain, disease or death; they should also foster social, psychological and spiritual well-being. Thus, the outcomes of high-risk behaviours such as experimenting with smoking, alcohol, drugs or unsafe sex, which may appear at first instance to be socially deviant behaviours, later develop into physical problems. Influencing behaviours to change them in a manner that reduces risks would thus seem to be a necessary step to promote health.

The Ottawa Charter for Health Promotion states that peace, shelter, education, food, income, equity and justice are fundamental conditions for health promotion, which would be fostered by healthy public policies, supportive environments, community action and personal skills. Health behaviour change thus needs to be seen in the larger comprehensive context of health promotion.[167]

Health behaviour change is a complex process and is guided by various empirical constructs and theories. The change needs to be made at the community, society (interpersonal) and individual (intrapersonal) levels. Contemporary health promotion includes not only educational activities but also advocacy, organizational change efforts, policy development, economic support, environmental change, and multi-method programmes highlighting the importance of approaching public health problems at multiple levels, and stressing the interaction and integration of factors within and across various levels. This approach has been referred to as an ecological perspective. Two key ideas—'multiple levels of influence' and 'reciprocal causation'—between individuals and their environments help direct the identification of personal and environmental leverage points for health promotion interventions.[168]

This section outlines (i) some of the theoretical constructs guiding health-related behaviours and the processes of changing behaviours, and community and environmental factors that influence behaviour; (ii) the two prominent approaches to the development of a framework in which the theories of behaviour change can be operational; and (iii) some of the relevant theories and examples of behaviour change interventions based on this theoretical framework.

Planning systems/frameworks

Once health communication planners identify a health problem, they need a planning system that can help identify the social science theories most appropriate for understanding the problem or situation. Two influential methods are: social marketing and Precede–Proceed. The use of planning systems such as social marketing and precede–proceed increases the probability of programme success by examining health and behaviour at multiple levels.

Social marketing

Social marketing is not a theory. It does not tell us how to change a person's behaviour. Rather, it is an approach to thinking about and structuring a social change programme to one that is consumer-driven. Within this framework, a number of social and behavioural theories can be drawn upon to develop a strategic course of action.

Kotler (1975) defines social marketing as 'the design, implementation, and control of programmes seeking to increase the acceptability of a social idea or practice in a target group(s).

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It utilizes concepts of market segmentation, consumer research, idea configuration, communication, facilitation, incentives, and exchange theory to maximize target group response."[169] Andreasen (1995) defines social marketing as 'the application of commercial marketing technologies to the analysis, planning, execution, and evaluation of programmes designed to influence the voluntary behaviour of target audiences in order to improve their personal welfare and that of their society'.[170]

The common features of social marketing are:

1. The label is applied to causes judged by persons in positions of power and authority to be beneficial to both individuals and society.
2. Unlike commercial marketing, the agent of change does not profit financially from a campaign's success.
3. The ultimate goal is to change behaviours believed to place the individual at risk and not simply increase awareness or alter attitudes.
4. The optimal social marketing campaign is tailored to the unique perspective, needs and experiences of the target audience, hopefully with inputs from representative members of this group.
5. Social marketing strives to create conditions in the social structure, which facilitate the behavioural changes promoted.
6. Social marketing relies on the concepts of commercial marketing.

It has been said that 'there is poetic justice in using the very marketing concepts employed by such "disease peddlers" as the tobacco and fast food industries to combat their negative influences'.[171]

Social marketing practices are based on commercial marketing practices that make the consumer the central focus for planning and conducting a programme. One of the pathways to information campaigns based on social marketing is the 5P approach, which addresses the following components. [171]

Price: What the consumer must give up to receive the programme's benefits (these costs may be intangible, e.g. changes in beliefs or habits, or tangibles such as money, time or travel);

Product: What the programme is trying to change within the intended audience and what the audience stands to gain;

Promotion: How the exchange is communicated (e.g. appeals used);

Place: What channels the programme uses to reach the intended audience (e.g. mass media, community or interpersonal); and

Positioning: This is a psychological construct that involves the location of the product relative to other products and activities with which it competes. For instance, physical activity could be repositioned as a form of relaxation, not exercise.

Lessons learned from social marketing stress the importance of understanding the target audience and designing strategies based on their wants and needs rather than what good health practices direct them to do.

The Precede–Proceed framework

The Precede model is a framework for the process of systematic development and evaluation of health education programmes.[172] An underlying premise of this model is that health education is dependent on voluntary cooperation and participation of the client in a process that allows personal determination of behavioural practices; and that the degree of change in knowledge and health practice is directly related to the degree of active participation of the client. Therefore, in this model, appropriate health education is considered to be the intervention (treatment) for a properly diagnosed problem in a target population.

This model is multidimensional, founded in the

social/behavioural sciences, epidemiology, administration and education. As such, it recognizes that health and health behaviours have multiple causations, which must be evaluated to assure appropriate intervention. The comprehensive nature of 'Precede' allows for application in a variety of settings, such as school health education, patient education, community health education and direct patient care settings.[172]

'Proceed' was added to the framework in recognition of the emergence of and the need for health promotion interventions that go beyond traditional educational approaches to change unhealthy behaviours.[173] The administrative diagnosis is the final planning step to 'precede' implementation. From there, 'proceed' to promote the plan or policy, regulate the environment, and organize the resources and services, as required by the plan or policy. Figure 7.11 illustrates the Precede–Proceed model.

The Precede–Proceed model directs initial attention to outcomes rather than inputs. Hence, planners focus on planning from the outcome point of view. The model rests on two principles:

1. The 'principle of participation', which states that success in achieving change is enhanced by the active participation of members of the target audience in defining their high-priority problems and goals, and in developing and implementing solutions. This principle is derived from the community development root theories and the empowerment education model.
2. The important role of 'environmental factors', such as the media, industry, politics and social inequities, as determinants of health and health behaviours.

The Precede step of the model ends with the administrative and policy diagnosis and the Proceed step then begins with implementation and evaluation. This model has been applied, tested, studied, extended and verified in hundreds of published studies and thousands of unpublished projects in community, school,

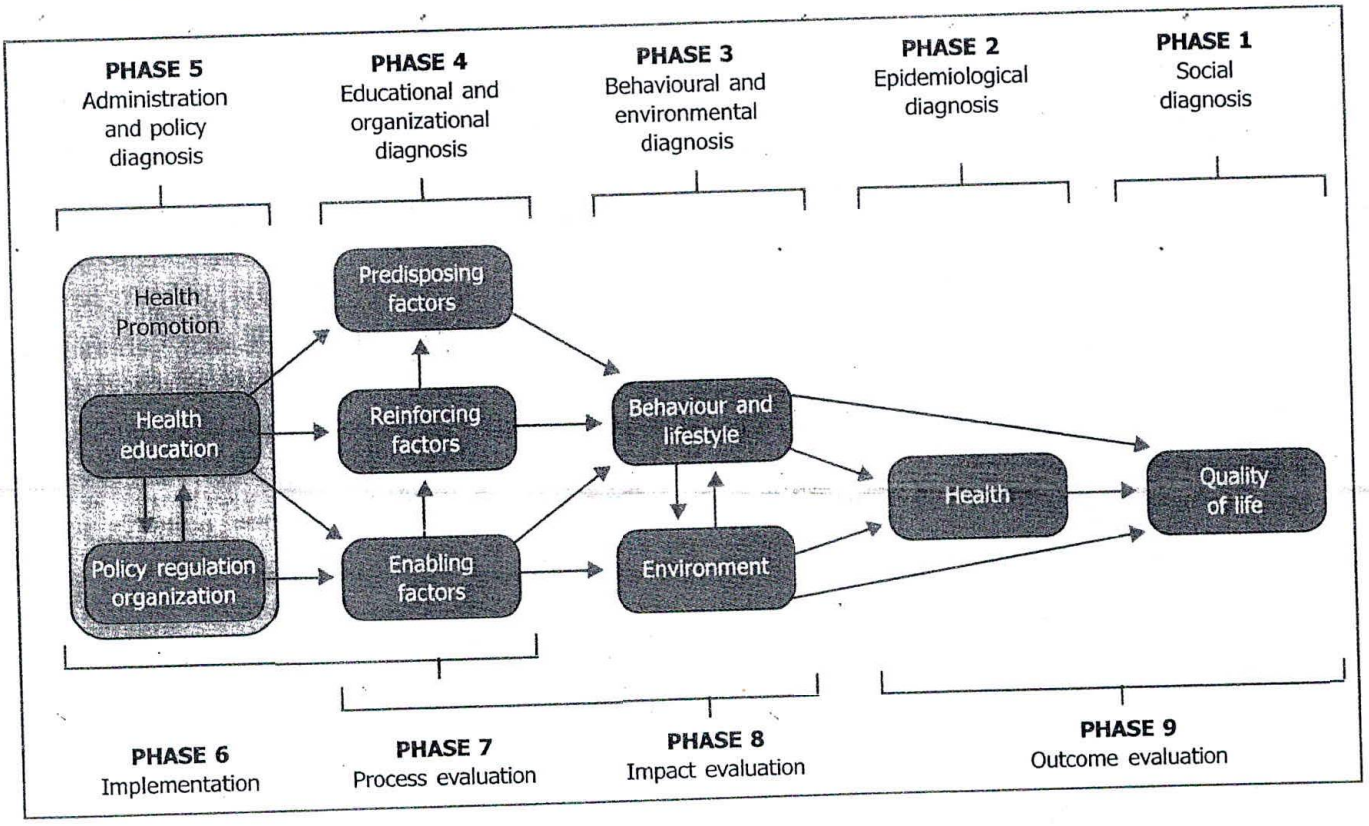

Fig. 7.11 The Precede–Proceed model.

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clinical and workplace settings over the past decade.[173,174] To provide technical guidance and assistance to those involved in the complex process of planning and implementing community-level cancer prevention and control interventions, the EMPOWER (Enabling Methods of Planning and Organizing Within Everyone's Reach) software was created.[173,174]

Models/theories of change

There are a number of influential models that have been proposed and evaluated. Some of these are as follows:[176]

I. The individual (intrapersonal) models are:

1. Health belief model
2. Transtheoretical model
3. Consumer information-processing model

II. The interpersonal models include:

1. Social learning or cognitive theory

III. Community/organizational network models include:

1. Organizational change theory
2. Community organization theory
3. Diffusion of innovations theory

I. Individual (intrapersonal) models

Health belief model

Developed around the 1950s by Hochbaum, Kegels and Rosenstock, the Health belief model (HBM) of influencing behaviours is useful in analysing asymptomatic yet considerably diseased persons (e.g. those with hypertension, diabetes, etc.). It is characterized by inaction regarding illness or non-compliance to intervention and remains one of the most widely recognized conceptual frameworks of health behaviour.[177]

The focus of this model was on increasing the use of preventive services, such as conducting a chest X-ray examination to screen for tuberculosis, and immunization such as influenza vaccines. It was assumed that people feared diseases and that health actions were motivated in relation to the degree of fear, i.e. perceived threat and the expected fear-reduction potential of actions, as long as the potential outweighed practical and psychological obstacles to taking action, i.e. net benefits.

Fear (threat) of the consequences of inaction (e.g. tobacco cessation) are weighed against the benefits of the action (remaining free of cancer or other tobacco-related diseases).

Four basic constructs representing the perceived threat and net benefits in the HBM are:

- Perceived susceptibility, i.e. one's opinion of the chances of acquiring a condition;
- Perceived severity, i.e. how serious a condition and its sequelae are;
- Perceived benefits, i.e. efficacy of the advised action to reduce the risk or seriousness of impact; and
- Perceived barriers, i.e. tangible and psychological costs of the advised action.

These are related to 'readiness to act' which, coupled with 'cues to act' (including strategies to activate readiness), will lead to a change in the behaviour (Fig. 7.12).

Rosenstock[178] added self-efficacy, or one's confidence in the ability to successfully perform an action to better fit the challenges of changing habitual unhealthy behaviours, such as being sedentary, smoking or overeating.

The application of HBM has been primarily in

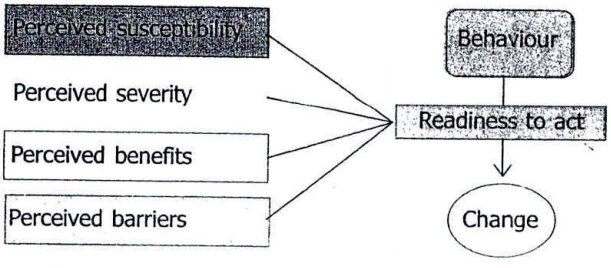

Fig. 7.12 Health belief model

explaining health-related behaviours but it could also be a useful framework for designing change strategies. The most promising application of the HBM is in helping to develop messages that can be delivered in the print or electronic media to persuade individuals to make healthy decisions.

In applying the HBM to a smoker, it would seem that the messages best suited for health education would include (i) I can have lung cancer (susceptible) based on the epidemiology of the disease, (ii) lung cancer can kill me (the severity is great), (iii) quitting can reduce the chances (how much; benefits), (iv) quitting will be associated with loss of contacts and perceived 'pleasure' of smoking (costs/barriers), and (v) a strategy to improve self-efficacy in the case of repeated relapses should be put in place.

The model is particularly useful when the condition evokes health motivation as well as social or economic motivation.

Transtheoretical stage of change model

The Transtheoretical stage of change model developed by Prochaska and DiClemente[179,180] evolved from work with smoking cessation and the treatment of drug and alcohol addiction, and has recently been applied to a variety of other health behaviours including substance use or lifestyle behaviour. The basic premise is that behaviour change is a 'process' and not an event, and that individuals are at varying levels of motivation, or 'readiness' to change. People at different points in the process of change can benefit from different interventions, matched to their stage at that time.

The four stages in this circular model—pre-contemplation, contemplation, action and maintenance—are depicted in Fig. 7.13. The subjects may enter and exit at any stage and go through the cycle in both directions. They often go from maintenance back to contemplation through relapse and onward to action. Sometimes subjects can go back to contemplation from action. It seems, however, that the stages may have a different meaning for different behaviours.

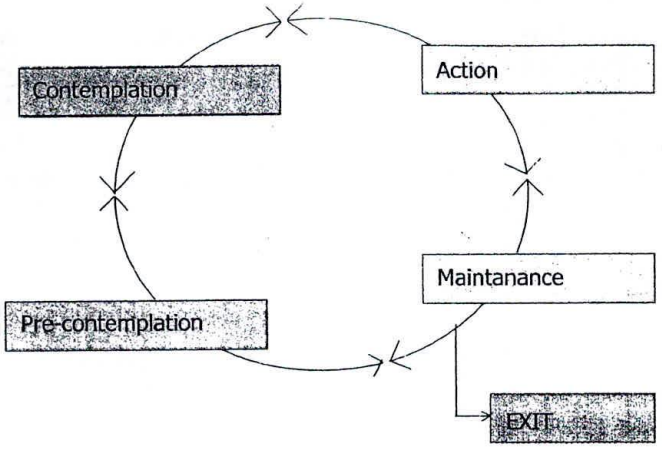

Fig. 7.13 Transtheoretical stage of change model

Readiness to change can be measured by questionnaires such as the 'Readiness to Change Questionnaire' developed specifically for drugs of abuse by Rollnick *et al.*[181] Specifically tailored programmes can be initiated by knowing the stage of change the individual is at.

The transtheoretical model is a very useful and influential model of behaviour change. It is used extensively in drug abuse treatment to ascertain the stage of change and use appropriate methods to change the stage. In relation to tobacco use, this model helps in understanding change in the individual as well as the community, and initiating stage-specific interventions.

Consumer information processing model

This model is based on the fact that information is important for people to solve problems. Information is needed for deciding virtually everything, e.g guidance in choosing treatment modalities or specific information to choose foods for therapeutic diets, etc. The human system, however, is limited by the ability to process information. Furthermore, information is necessary but not sufficient for encouraging healthful behaviours. In the present era of information explosion, information can increase or decrease a person's anxiety, depending on their information preferences, and how much and what kind of information they are given. Misconceptions can lead even motivated consumers to behave in risky ways.

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The Information processing model is governed by the need for information and motivation to acquire the information.

Bettman's model (Fig. 7.14) depicts a cyclical process of information search, choice, use, learning and feedback for future decisions.[182] To be used in making decisions for change, the information must be available, appealing and novel.

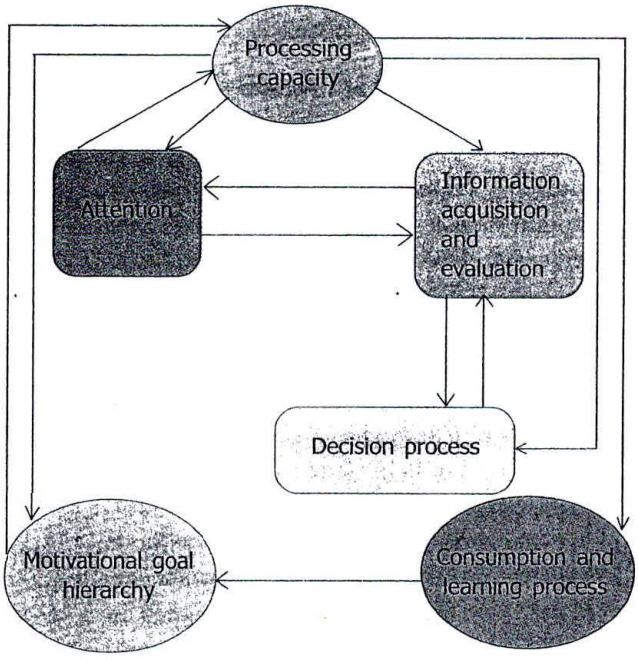

Fig. 7.14 Consumer information processing model of choice

II. Interpersonal theories of influencing behaviours

Social learning theory or social cognitive theory

In the 1970s, Bandura published a comprehensive framework for understanding human behaviour, based on a cognitive formulation, which he named the Social cognitive theory (SCT).[183] This was the first theory to incorporate the notion of modelling or vicarious learning as a form of social learning. Whereas strict behaviourism supports a direct and unidirectional pathway between the stimulus and response, representing human behaviour as a simple reaction to external stimuli, SCT asserts that there is a mediator (human cognition) between the stimulus and response, placing individual control over behavioural responses to stimuli. A basic premise of the Social learning theory (SLT) or SCT is that people learn not only through their own experiences, but also by observing the actions of others (vicarious learning) and the results of those actions. Bandura's work has stimulated an enormous amount of research on learning and behaviour, and has been useful in developing techniques for promoting behaviour change.

This theory has been used to study a wide range of health problems, from compliance to medical therapy, to alcohol abuse, to immunizations. One particularly fruitful area of investigation in which it has been employed is in understanding how children are socialized to accept the standards and values of their society. The theory is not without its limitations, prominent among which is the theory's comprehensiveness and complexity, which make it difficult to operationalize. Further, many applications of the theory focus on one or two constructs, such as self-efficacy, while ignoring the others.

This theory defines human behaviour as a triadic, dynamic and reciprocal interaction of personal factors, behaviour, and the environment, with the individual's behaviour being uniquely determined by each of these three factors. The key constructs include:

(i) Reciprocal determinism, meaning that behaviour and the environment are reciprocal systems and that the influence is in both directions. The environment shapes, maintains, and constrains behaviour with people in active interaction in the process, as they can create and change their environments.

(ii) Behavioural (symbolizing) capability, which maintains that symbols serve as the mechanism for thought and that, through the formation of symbols such as images (mental pictures) or words, humans are able to give meaning, form and contiguity to their experiences.

(iii) Expectations, which are the results that a person thinks will occur as a result of action.
(iv) Self-reflection or self-efficacy, which is the single most important aspect and a major determinant of self-regulation.

Observational (vicarious) learning allows one to develop an idea of how a new behaviour is formed without actually performing the behaviour oneself. It is often referred to as 'modelling', or learning about what to expect through the experiences of others. This means that people can gain a concrete understanding of the consequences of their actions by observing others and noting whether the modelled behaviours are desirable or not, and not indulging in the behaviour themselves. Observational learning is governed by four processes—attention span, retention processes, motor reproduction processes, and motivational processes.

Reinforcement is a term from classical behaviourism and is a response to a person's behaviour that affects whether or not the behaviour will be repeated. Positive reinforcements, often called 'rewards', increase the chances that the positive behaviour will be repeated. They are often useful as motivators for continued participation but not for sustaining long-term change.

III. Community/Organizational network theories

Organizational change theory

Organizations are complex and layered social systems, composed of resources, members, roles, exchanges and unique cultures. Thus, organizational change can best be promoted by working at multiple levels within the organization. Understanding organizational change is important in promoting health to help establish policies and environments that support healthy practices and create the capacity to solve new problems. While there are many theories of organizational behaviour, two are especially promising in public health interventions: stage theory and organizational development (OD) theory.

Stage theory

The stage theory is based on the idea that organizations pass through a series of steps or stages as they change. By recognizing those stages, strategies to promote change can be matched to various points in the process of change. An abbreviated version of the stage theory involves four stages:

— Problem definition (awareness)
— Initiation of action (adoption)
— Implementation of change
— Institutionalization of change.

Organizational theory

The OD theory grew out of the recognition that organizational structures and processes influence worker behaviour and motivation. The OD theory concerns the identification of problems that impede an organization's functioning, rather than the introduction of a specific type of change. Human relations and quality of work–life factors are often the targets of OD problem diagnosis, action planning, interventions and evaluation. A typical OD strategy involves process consultation, in which a specialist from outside the organization helps to identify problems and facilitates the planning of change strategies.

When combined, the stage and OD theories have the greatest potential to produce health-enhancing change in organizations. Such strategies can be used at various stages as they are warranted. Simultaneously, the stages signal the need to involve organization members and decision-makers at various points in the process. For example, these could become the guide to the development of a smoke-free work site programme.

Community organization theory

This theory emphasizes empowerment and active participation of communities that can better evaluate and solve health and social problems.

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This theory emanates from the theory of social networks and support. Community organization is the process by which community groups are helped to identify common problems or goals, mobilize resources, and develop and implement strategies for reaching their goals. It has roots in several theoretical perspectives: the ecological perspective, social systems perspective, social networks and social support. It is also consistent with the SLT and can be successfully used along with SLT-based strategies. Although community organization does not use a single unified model, several key concepts are central to the various approaches. The process of empowerment is intended to stimulate problem-solving and activate community members.

Community competence is an approximate community-level equivalent of self-efficacy plus behavioural capability, which include the confidence and skills to solve problems effectively.

Social action approaches to community organizing go beyond the traditional notion of geographic and political boundaries. Communities of people who share common health problems have coalesced to attract attention and obtain power to address their needs including health services, anti-discrimination policies and more research funding.

Media advocacy is the strategic use of mass media as a resource for advancing a social or public policy initiative. The media is an important, and often essential, part of social action and advocacy campaigns because it focuses on public concerns and spurs public action. The core components of media advocacy are developing an understanding of how an issue relates to prevailing public opinions and values, and designing messages that frame the issues so as to maximize their impact, and attract powerful and broad public support.

Diffusion of innovations theory

This theory addresses how new ideas, products, and social practices spread within a society or from one society to another. Some of the most important characteristics of innovations are their relative advantage (is it better than what was there before?), compatibility (fit with the intended audience), complexity (ease of use), trialability (can it be tried out first?), observability (visibility of results).

Communication channels are a two-way process of flow of information and they mediate the impact of the media. The utility of innovation depends on the innovation (a new idea, product, practice or technology) as well as communication channels and social systems (networks with members, norms and social structures).

Illustrative studies

Some illustrative studies of health behaviour change in smoking and alcohol cessation described below are taken from the reported literature and are from settings in the western world. Available Indian studies are summarized at the end of this section. These studies illustrate the use of theoretical models in changing health behaviours in general, including tobacco use.

1. Lando *et al.*[184] reported the results of a general media campaign to compare the number of people who sent in interest cards and pledged to stop smoking versus those who sent in cards but did not pledge to stop smoking in a non-randomized trial with contemporaneous controls, and also compared outcomes from a previous study (historical controls). The campaign was tied to a contest and used telephone surveys for evaluation. They compared differences in quit rates between pledgers and non-pledgers and the results found that an extended enrolment period and intensive campaign increased enrolment and overall quit rates. Pledgers had higher self-reported abstinence rates. The study is, however, limited by the absence of a control group (a comparison community without the intervention), even though the historical controls may be a good indicator of change.
2. Popham[185] studied a group of people who quit smoking from among the entire population of

those exposed to California's anti-tobacco media campaign, to measure the exposure of those who quit in response to the campaign. This cross-sectional study determined that the media campaign had influenced change.

3. Prochaska[179,186] used a test of 40 questions to track subjects for 2 years to determine the progression through stages of change related to quitting smoking and outlined processes by which addictive behaviours are modified and the stages of change.
4. The World Health Organization sponsored a study of alcohol education in four countries. This pilot study of alcohol education in 8th grade students in 25 schools in Australia (6), Chile (3), Norway (14) and Swaziland (2) from 1985 to 1987 used random allocation in each country to control/teacher-led/peer-led programmes using social-led influences as the basis of intervention. Results indicated that students in the peer-led alcohol education programme reduced their drinking in all the four countries. Despite an increase in knowledge, teacher-led groups had same drinking status as that of controls.[187]
5. A Healthy Living Campaign was launched in Hong Kong in May 1998, as a demonstration of the stages of change model. The stages of change model were applied to measure changes.[188]
6. The Indian experience with behavioural intervention in tobacco use has been summarized in an annotated bibliography of tobacco-related research in India.[189] Some reports assessed behavioural variables such as initiation following exposure to surrogate advertisement, cessation and prevalence, and some studies included the incidence of oral lesions after behaviour change interventions. Most of the studies used health education as the intervention. Some used mouth self-examination as a tool for education and demonstrated its efficacy.

7.10 BENEFITING FROM MODELS OF BEHAVIOUR CHANGE

KEY MESSAGES

- Influencing behaviours to change them in a manner that reduces risks is a necessary step to promote health.
- A number of influential models of behaviour change have been proposed and evaluated. These models provide a framework to show how behaviours can be changed to achieve better health and social practices.
- The use of communication planning systems, such as social marketing and Precede–Proceed models, increases the probability of programme success by examining health-related behaviour at multiple levels.
- The Precede–Proceed model directs initial attention to outcomes rather than inputs and hence planners focus the planning process from the outcome point of view.
- The transtheoretical model of change provides the basis for stimulating and supporting individual efforts at tobacco cessation.
- Lessons learned from social marketing stress the importance of understanding the target audience and designing strategies based on their wants and needs rather than what good health practice directs them to do.

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7.11

Individual Interventions: Promoting Tobacco Cessation

Why cessation?

Tobacco cessation is essential to reduce the mortality and morbidity related to tobacco use. It has been projected that by 2050, if the focus is only on prevention of initiation and not cessation, the result will be an additional 160 million deaths among smokers. The majority of tobacco-related deaths that can be prevented over the next 40 years will be among current smokers who can be persuaded to quit, according to projections by the WHO (Fig. 7.15).[190]

Tobacco cessation as a strategy is available in western societies and in Thailand among the South-East Asian countries. The smoking cessation guidelines developed in the UK have evaluated such programmes and have found that smoking cessation interventions are effective.[191,192] They are guaranteed to bring health gains for the population for a relatively modest expenditure, and in the long term they reduce smoking-related health care costs, thereby releasing resources for other needs.

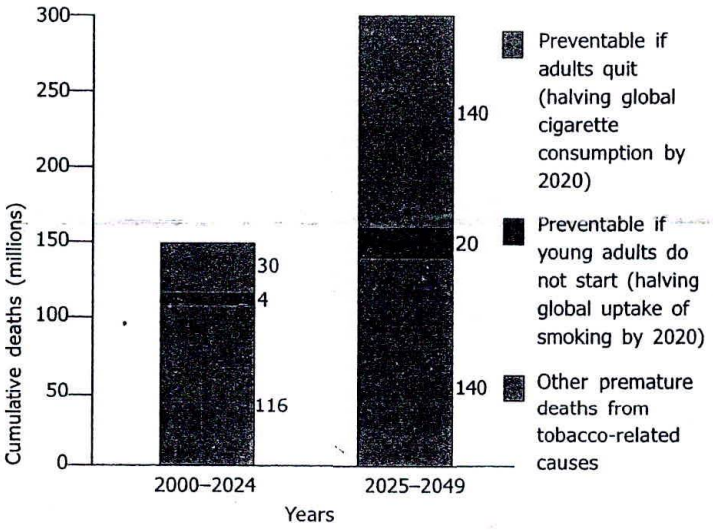

Fig. 7.15 Premature deaths from tobacco use, projections for 2000–2024 and 2025–2049

Source: World Health Report, 1999

Tobacco cessation interventions are clinically effective and cost-effective, relative to other commonly used disease prevention interventions and medical treatments. Cost-effectiveness analyses have shown that smoking cessation treatment compares favourably with routine medical interventions such as the treatment of hypertension or hypercholesterolaemia or preventive interventions such as Papanicolaou smears.[193]

A recent international review found the median societal cost of over 310 medical interventions to be £17,000 per life-year gained discounted at 5% (standard economic practice which weights immediately saved life-years as more 'valuable', and life-years saved in the future as less valuable).[194] Discounted results for smoking cessation interventions in the UK range from £212 to £873.[195] Based on these figures, even with conservative assumptions, smoking cessation interventions are considerably more cost-effective than many medical interventions.

A representative national sample of 893 smokers in the UK shows that most are disenchanted with smoking and claim that they would not smoke if they had their time again.[196] The widespread disaffection with smoking among smokers, combined with their tendency to be deluded about how easy and quick it will be to stop, justifies extra urgency in promoting chances to stop.[197]

Tobacco cessation will provide the most immediate benefits of tobacco control and maximize the advantage for a habituee who quits the habit. It is also established that a majority of smokers (as many as 70%) desire to quit, but only 30% actually try each year, and only 3%–5% actually succeed in quitting.[198]

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Therapy

The first treatment approaches to smoking cessation that emerged in the 1950s and 1960s were based principally on behaviour modification. The 1970s saw a greater emphasis on cognitive treatments, which achieved greater momentum in the 1980s. The 1990s witnessed the introduction of several pharmacological strategies for nicotine cessation and the emergence of guidelines for tobacco cessation from various organizations.

There is a general consensus that behavioural methods and pharmacotherapy can contribute substantially to improved health by enabling cessation of tobacco use.[199] Standard treatment outcomes include measures such as 7-day point prevalence smoking abstinence at the end of the treatment trial with confirmation of surrogate measures of smoking such as concentrations of carbon monoxide in the breath and cotinine in the plasma, continuous abstinence from the target quit date (TQD) and prolonged abstinence after a grace period. Long-term abstinence is typically evaluated either at 6 or 12 months.

Tobacco (nicotine) dependence treatment involves a mix of pharmacological and non-pharmacological interventions. *Smoking cessation clinical practice guidelines* was originally published by the Agency for Healthcare Research and Quality (AHRQ) in 1999 and was updated in 2000 by AHRQ and a consortium of 7 government and non-profit organizations. The 2000 *Guidelines* urged clinicians to treat tobacco use disorder as a chronic disease similar in many respects to other diseases such as hypertension, diabetes and hyperlipidaemia, and to provide patients with appropriate advice and pharmacotherapy.[200]

A tobacco cessation intervention at an individual level is usually undertaken after a thorough assessment of the intensity of use. The Fagerstrom Test of Nicotine Dependence is a commonly used instrument for this purpose.[201] Depending on these variables, intervention programmes can be individually tailored. It has been estimated that less intensive interventions such as simple advice by a concerned physician can produce quit rates of 5%–10% per year in some individuals. A recent meta-analysis of 7 studies by the Clinical Practice Guideline Panel reported an abstinence rate of 8% when no cessation advice was given, compared with 10% with cessation advice.[202] In some more severely dependent individuals, pharmacological interventions may have to be used. When used alone, they can produce quit rates of about 25% but when combined with behavioural interventions the quit rates can go up to 35%.

Box 7.11 Effects of quitting tobacco smoking

Within 8 hours: Carbon monoxide level drops in the body.

Within 48 hours: Chances of having a heart attack start to decrease, sense of smell and taste begin to improve.

Within 72 hours: Bronchial tubes relax, making breathing easier and increasing lung capacity.

Within 2 weeks to 3 months: Circulation improves and lung functions increase by up to 30%.

Within 6 months: Coughing, sinus congestion, tiredness and shortness of breath improve.

Within 1 year: Risk of smoking-related heart attack is cut in half.

Within 3 to 4 years: Risk of heart attack is close to that of non-smokers.

Within 10 years: Risk of dying from lung cancer is cut in half.

Within 15 years: Risk of dying from a heart attack is equal to that of a person who has never smoked.

5'A's approach to tobacco cessation (modified from the United States National Cancer Institute's 4'A's strategy)[203]

- Ask every patient about tobacco use status. It is recommended that this become a part of the elicitation of vital signs.
- Assess the person's motivation or willingness to change. Prochaska and DiClemente offer a theoretical model of readiness to change.[204] Tobacco users in the pre-contemplation phase do not consider tobacco use a problem and are unwilling to address it. Those in the contemplation phase may be weighing the pros and cons but have not made any firm commitment to change. In the determination

(preparation) phase, the person is firmly committed to stop tobacco use. In the action phase, the person actually demonstrates commitment to change and if this is maintained steadily for a period of time, he or she is in the maintenance phase. The model is circular and the person may move from one phase to another. At any phase, the person may relapse and re-enter the cycle.

Assessment also needs to evaluate patient preferences for behavioural and pharmacological interventions. Measurement of nicotine and carbon monoxide levels can reflect smoking over the past few hours. Measurement of cotinine, a metabolite of nicotine, can reflect smoking in the past 7 days.[205]

- Advice to every user must be clear, strong and personalized. Tobacco users may be helped in making the transition from a non-committed phase to a phase of commitment by increasing their motivation to change. Strategies for motivation to change include listing the pros and cons of tobacco use, assessing the person's self-efficacy in being able to stop, information on tobacco-cessation strategies and identification of a relevant goal. As alcohol is a risk factor for tobacco relapse, advice to reduce the alcohol intake or abstain from alcohol is recommended.[206]
- Assist a person committed to change by reinforcing the person's decision, helping the person make a plan, including a strategy to manage withdrawal and triggers for relapse, exploring the possibility of adding pharmacotherapy to behavioural strategies, helping the person set a quit date, making necessary arrangements for the quit date (informing the family about the decision to quit, getting rid of all forms of tobacco and paraphernalia such as lighters or matchboxes, anticipating and preparing to handle withdrawal and craving) and identifying social supports within and outside the family to assist the person in his or her tobacco-cessation attempts. Both intra-treatment support (support provided by the physician or caregiver) and extra-treatment support (provided by family, friends, employer, etc.) appear to be critical to the success of a cessation attempt.

  Support within the treatment includes encouragement to quit tobacco use, communicating care and concern, encouraging the patient to talk about the quitting process, which includes reasons for quitting, concerns and worries about quitting, and successes as well as difficulties encountered while quitting. Assisting can be done as part of a brief or intensive intervention programme.
- Arrange a specific follow up in the couple of weeks following the decision to quit to reinforce the person's goal, reinforce support, and intervene in case the person slips and is unable to achieve the desired goal. Most studies suggest that frequent, brief follow up, including telephone calls to provide support to the user, increase quit rates.[211,212]

Box 7.12 Common questions about tobacco cessation

Abrupt versus gradual cessation: Most patients use and most clinicians recommend abrupt cessation, but most scientific data suggest no difference, so the clinician may be guided by the patient's preferences.[207,208]

Fears of weight gain following cessation: On an average, the weight gain is 2–3 kg. A large majority of smokers gain weight over the first few months post-cessation, but many lose much or all of this weight later.[209] Physical exercise would prevent weight gain and is part of a 'healthy living' pattern that the smoker should be encouraged to adopt. Indeed, exercise has been shown to improve tobacco quit rates.[210]

Interventions to promote tobacco cessation

Studies on the efficacy of interventions to promote and maintain tobacco cessation have mostly been conducted on smoking forms of tobacco, especially cigarettes. This is because much of this research has been conducted in developed countries. The results of several studies on different types of interventions are summarized in Table 7.11.

Psychosocial interventions

The initial goal of psychosocial intervention is to increase motivation, initiate a quit attempt and help the patient quit for a short period. The main goal of psychosocial intervention in tobacco cessation is sustained abstinence, change of lifestyle and improved quality of life.

There is a strong dose–response relationship between the intensity of counselling for tobacco dependence and its effectiveness. Treatments involving person-to-person interactions (via individual, group or proactive telephone counselling) are consistently effective, and their effectiveness increases with the intensity of

Table 7.11 Incremental effects of smoking cesation interventions on abstinence for six months or longer[213]

Intervention	Target population	Effect size[a] (%)	95% confidence interval[b]
Brief opportunistic advice from a physician to stop	Smokers attending GP surgeries or outpatient clinics	2	1%–3%
Face-to-face intensive behavioural support from a specialist[c]	Moderate to heavy smokers seeking help with stopping	7	3%–10%
Face-to-face intensive behavioural support from a specialist	Pregnant smokers	7	5%–9%
Face-to-face intensive behavioural support from a specialist[d]	Smokers admitted to hospital	4	0%–8%
Proactive telephone counselling[e]	Smokers wanting help with stopping but not receiving face-to-face support	2	1%–4%
Written self-help materials	Smokers seeking help and not receiving other support	1	0%–2%
Nicotine gum	Moderate to heavy smokers receiving limited behavioural support[f]	5	4%–6%
Nicotine gum	Moderate to heavy smokers receiving intensive behavioural support	8	6%–10%
Nicotine transdermal patch	Moderate to heavy smokers receiving limited behavioural support	5	4%–7%
Nicotine transdermal patch	Moderate to heavy smokers receiving intensive behavioural support	6	5%–8%
Nicotine nasal spray	Moderate to heavy smokers receiving intensive behavioural support	12	7%–17%
Nicotine inhaler	Moderate to heavy smokers receiving intensive behavioural support	8	4%–12%
Nicotine sublingual tablet	Moderate to heavy smokers receiving intensive behavioural support	8	1%–14%
Bupropion (3000 mg/day sustained release)	Moderate to heavy smokers receiving intensive behavioural support	9	5%–14%
Intensive behavioural support plus NRT or bupropion[g]	Moderate to heavy smokers seeking help from a smokers' clinic	13–19	–

[a] Difference in >6-month abstinence rate between intervention and control/placebo in the studies reported; data from Cochrane meta-analyses unless otherwise stated

[b] The range within which one can be 95% confident that the true underlying value lies

[c] Efficacy figures based on subset of studies from the general population with biochemical verification

[d] No Cochrane review available, data from United States Department of Health and Human Services (USDHHS) meta-analysis

[e] No Cochrane review available, data from USDHHS meta-analysis

[f] The term 'limited behavioural support' refers to brief sessions required primarily for collecting data. Following the Cochrane definition, 'intensive' behavioural support was defined as an initial session of more than 30 minutes, or an initial session of less than 30 minutes plus more than two subsequent visits.

[g] Expected effect combining effect of medication with effect of behavioural support

Complete information available from URL: www.thoraxjnl.com

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treatment (e.g. minutes of interaction). Three types of counselling and behavioural therapies have been found to be especially effective, and are recommended for all patients who are attempting tobacco cessation:

- Providing practical counselling (problem-solving/skills training)
- Providing social support as part of the treatment (intra-treatment social support)
- Providing help in securing social support outside of treatment (extra-treatment social support).[198]

Evidence related to specific psychological therapies are summarized in Table 7.12.

Relapse prevention

Attempts to prevent and manage relapse are based on a common understanding of the concept and mechanisms of relapse and lapse. Relapse may be defined as resumption of frequent, perhaps uncontrolled tobacco use after a period of non-use and lapse is considered a single incident of tobacco use. A lapse (slip) may not result in a relapse, depending on how the patient responds to the initial incident. There may be various reasons for relapse such as withdrawal symptoms, high-risk situations such as stress, interpersonal conflict, social pressure and environmental cues.

The first specific measure in handling a relapse is to clearly delineate the contexts/causes for relapse in that particular case, keeping in view the common situations and reasons for relapse. Patients are enabled to anticipate a large number of situations or processes that are likely to lead to urges to smoke/chew tobacco or to prompt a slip. The second step is to reformulate the treatment plan by which the patients are helped in planning and developing strategies to cope with these situations. The patient may be taught coping skills for 'high-risk' situations, communication skills training, relaxation techniques, distraction techniques, assertive training, depending on the pertinent factors responsible for relapse.

Self-help approaches

The two basic modalities of psychosocial interventions, i.e. brief and extended, have the commonality of being therapist mediated. A third and novel approach in psychosocial intervention is self-help approaches. These

Table 7.12 Specific psychological therapies

Technique	Evidence
Skills training/relapse prevention helps patients identify high-risk situations or processes that are likely to lead to an urge to use tobacco. Behavioural coping (learning to anticipate and avoid temptation, refusal skills, assertiveness and time management) and cognitive skills (challenging thought processes and strategies to reduce negative moods), accomplishing lifestyle changes that reduce stress and improve the quality of life and pleasure are the techniques used.	Recent meta-analytical studies suggest increased cessation rates.[192,214] Individual counselling is more effective than control. The odds ratio for successful smoking cessation was 1.62 (95% confidence interval: 1.35–1.94). Failed to detect a greater effect of intensive counselling compared to brief counselling (odds ratio 0.98: 95% confidence interval: 0.61–1.56).[215]
Aversive therapy: The rationale is to make tobacco use more aversive and less reinforcing by inducing mild symptoms of tobacco intoxication (used in smokers).	Shown to be effective, but not used by most therapists because of health and compliance concerns[216]
Contingency management (reward for not smoking, loss of reward for smoking)	Lacks sufficient evidence[192,217]
Cue exposure (repeated exposure of the patient to real or imaginary situations that evoke the urge to smoke)	Lacks sufficient evidence[192,217]
Nicotine fading (gradual reduction in the nicotine yield of the cigarette)	Lacks sufficient evidence[192,217]
Relaxation and physiological feedback	Lacks sufficient evidence [192,217]

include self-help material and self-help groups.

Self-help material: Written manuals are the most common forms of self-help material, although computer and video versions are also available. The major goals of self-help materials are to increase motivation and impart cessation. Self-help materials are effective in patients who are less nicotine dependent and more motivated. However, without additional contact or support, the impact of these materials is debatable and their use is advised as part of a behavioural therapy programme.[216,218]

Self-help groups: These mostly operate on the principles laid down by the world's largest self-help group, i.e. the Alcoholics Anonymous (AA). Several organizations such as Nicotine Anonymous have outlined how to apply the 12-step model to smoking. The aim is to have the smoker accept that he or she is powerless to stop smoking and work through 12 goals (or steps) that help break denial. Though there are no scientific tests for the 12-step programme for smoking cessation, it can be a useful adjunct to other psychosocial treatments.

Other non-pharmacological therapies

Hypnotherapy has been used for tobacco cessation but reports on its efficacy are conflicting, mainly because of methodological issues. It is still under evaluation as a promising therapy.[216]

High-intensity exercise regimens seem to be helpful in tobacco cessation by increasing self-esteem, relieving stress, managing weight gain and improving health. Recent findings on high-intensity exercise regimens suggest positive outcomes, but these still need to be evaluated for sufficient evidence.[210,219,220]

Pharmacotherapy

Current recommended pharmacotherapy for nicotine cessation consists of nicotine replacement therapy (NRT) and the use of the atypical antidepressant bupropion. These treatments emerged primarily for smoking cessation, but are now also being used for smokeless tobacco cessation.

Extensive randomized, double-blind, placebo-controlled clinical trials have established the efficacy and safety of NRTs and bupropion in the treatment of nicotine dependence, by increasing the quit rates by approximately 1.5–2-fold, irrespective of the setting.[221] The effectiveness of NRTs appears to be largely independent of the intensity of additional support provided to the smoker. Since all the trials of NRT reported so far have included at least some form of brief advice to the smoker, this represents the minimum which should be offered to ensure its effectiveness. Provision of more intense levels of support, although beneficial in facilitating the likelihood of quitting, is not essential to the success of NRT. There is promising evidence that bupropion may be more effective than NRT (either alone or in combination).

Nicotine replacement therapies

These are the most commonly used agents for quitting tobacco use. Products include nicotine gums, nicotine patches, nicotine nasal spray, nicotine inhalers and nicotine lozenges. Details of the dosages are summarized in Table 7.13. Nicotine gum is an over-the-counter replacement product and is available in a strength of 2 mg. The dose of gum depends upon the smoking intensity of the quitter. It is associated with a quit rate of about 23% as against 13% with placebo. In one randomized controlled trial, compliance was highest for the patch (82%) compared with the gum (38%), the spray (15%) and the inhaler (11%).[222] Nicotine patches and nicotine-containing chewing gums are not available as licenced NRT products in India.

One important guideline is to advise the patient to set the TQD before starting NRT. All NRT formulations have demonstrated superior efficacy in placebo-controlled clinical trials, with an odds ratio of 1.5–2.5 at both end-of-trial and long-term (6- and 12-month) assessments.[223,224]

Non-nicotine pharmacotherapy

Bupropion, the phenylaminoketone atypical antidepressant in the sustained-release form, was the first agent used in non-nicotine pharmacotherapy for tobacco cessation, and is now considered a first-line treatment for nicotine dependence. A meta-analysis of two placebo trials of bupropion demonstrated its superiority over placebo, with the estimated odds ratio of 2.1 (95% confidence interval).[202] Nortriptyline, a tricyclic antidepressant, has also been used and found to have similar quit rates as bupropion.

Clonidine, an alpha-2 adrenoceptor antagonist used in opiate and alcohol withdrawal, has also been shown to diminish some of the tobacco withdrawal symptoms. The pooled odds ratio for success in six trials with oral or transdermal clonidine versus placebo was 1.89 (95% confidence interval: 1.30–2.74).[225]

Other pharmacological agents used in nicotine cessation programmes include doxepin, the reversible monoamine oxidase (MAO)-A inhibitor moclobemide, the selective MAO-B inhibitor and indirect dopamine (DA) agonist selegeline hydrochloride, 5-HT selective reuptake inhibitors (specific serotonin reuptake inhibitors [SSRIs]) such as fluoxetine and the 5- HT-1a partial agonist buspirone.[226] The opiate antagonist naltrexone has also been used in some settings. Mecamylamine, a nicotine receptor antagonist, has been tried as an aid to assist smoking cessation, with early trials not showing a positive outcome when used alone, and later studies suggesting a positive outcome on combining it with NRT.[226] Lobeline, a non-tobacco drug that shares tolerance with nicotine on several measures, is available in over-the-counter anti-smoking medications in the US.[226] The definite role of these drugs in tobacco cessation treatments remains to be established.

The future holds other promising agents such as the gamma aminobutyric acid (GABA)-B agonist baclofen, cannabinoid receptor antagonists, glutamate receptor agonists, as well as vaccines. Vaccines, which involve the injection of a nicotine-like hapten conjugated to a strong immunogen, and lead to the production of anti-nicotine antibodies and sequestration of intravascular nicotine after cigarette smoking, are being developed and phase I studies are in progress. These novel treatments may be effective options in both initiating smoking abstinence and preventing relapse.[226]

Table 7.13 Pharmacological agents used for tobacco cessation

Agent	Route and dose	Duration	Side-effects	Precautions
Nicotine gum	Buccal route 2 to 4 mg pieces up to 10 times/day	12–16 weeks	Sore mouth	NRT to be used only after TQD
Nicotine patch	Transdermal route 7–22 mg/day	6–12 weeks	Local skin irritation	NRT to be used only after TQD
Nicotine nasal spray	Intranasally 16–32 mg/day	12–24 weeks	Local irritation	NRT to be used only after TQD
Nicotine inhaler	Intranasal or buccal 6–16 mg/day	Up to 24 weeks	Local irritation	NRT to be used only after TQD
Bupropion SR (sustained release)	150 mg o.d. X 3 days, increased to b.d., to begin 1–2 weeks before TQD	7–12 weeks maintaining up to 24 weeks	Insomnia, dry mouth, jitteriness	Contraindications: seizures, eating disorders

NRT: nicotine replacement therapy; TQD: target quit date

Source: Adapted from APA 2004; George and O'Malley 2004[216,226]

Strategies for effective tobacco control

Various guidelines all emphasize the need for making tobacco cessation services widely accessible to tobacco users.[191,194,199,227,228] This has several implications for a developing country such as India, where identification rates in clinical settings are low, a negligibly small number of health professionals have received training in these areas, availability and affordability of pharmacotherapy are practical constraints, a sizeable clientele is likely to be rural and, as seen from the experience of the tobacco cessation clinics (TCCs), the acceptance of pharmacotherapy is low. Several urgent steps need to be taken to make tobacco cessation facilities widely available.

Since the problem of tobacco in India is complex, in view of the varied nature of tobacco use, the government has realized that the control of tobacco can effectively be carried out only with a multisectoral approach, involving the various concerned sectors. Strategies for different sectors are being identified for effective tobacco control in the community, which would help in planning the national strategy for tobacco control in India.

Tobacco cessation cannot succeed as an isolated programme. It has to be designed and implemented as part of a comprehensive tobacco control strategy. This must include the preventive, curative and rehabilitative aspects of care. A bold step in this regard is the setting up of TCC but this endeavour must be extended. Capacity-building strategies for the identification and management of tobacco use and disorders related to its use must be made available through the existing health care facilities. There must be a provision for adequate therapeutic interventions, including the availability of replacement therapies for tobacco dependence.

Health care delivery systems

Training medical and other health professionals in tobacco cessation is critical to expand tobacco cessation activities in the country. In the medical sector, from general practitioners to specialists in different areas, training must address the attitudes to tobacco use, impart the knowledge and skills required for intervention, address the therapeutic nihilism that often surrounds tobacco cessation interventions and provide updates on emerging approaches to tobacco cessation.

Training of health professionals is an essential part of a cost-effective, evidence-based strategy for smoking cessation and treatment of tobacco dependence because of their interaction with smokers and other tobacco consumers as care providers and their role as health communicators in societies.[229] However, health care providers and professionals often lack sufficient motivation to undertake smoking cessation as a means of prevention. Misinformation about effective interventions, inadequate training in all health care settings, lack of support for routine assessment, and lack of resources and government funding are a few of the many factors that impede health care professionals from taking action.

In addition, professional organizations, such as medical organizations and those involving pharmacists, nurses, midwives and dentists, among others, should become involved in the training process at the international, regional, national and local levels. This could include organizing lectures at workshops and publishing articles on smoking cessation in bulletins and journals. They could thus provide basic interventions as well as background materials on smoking cessation relevant to the specific professional groups.

Interventions in diverse settings and for diverse populations

The workplace has a captive population where both tobacco prevention and cessation activities can be undertaken, and better monitoring of the effects of intervention is possible. Tobacco is one of the 'psychosocial' problems (along with stress, alcohol and drugs, violence and HIV/

AIDS) that is comprehensively addressed by the International Labour Organization in the SOLVE (stress, tobacco, alcohol/drugs, violence and HIV/AIDS prevention) programme for workplaces.[230]

More often than not, tobacco interventions address mainly men who are smokers. It is important that cessation activities also address chewers, both men and women, as well as women smokers. Other groups such as the elderly, adolescents and patients with psychiatric illness may require special interventions.

Youth tobacco cessation collaboratives for children and teenagers begin with intervention through education. Counselling centres have become important prerequisites in schools and colleges. Education regarding tobacco awareness and cessation should be imparted first to educators for effective prevention of tobacco initiation. School and college science exhibitions today impart knowledge on tobacco along with subjects such as cancer, for the benefit of both the thousands of visitors and the students themselves.

An important strategy for tobacco prevention is an initiative among the students, such as the Students Working Against Tobacco (SWAT) in the US. Student leaders in this group, particularly ex-smokers, are perfect guides for teenagers addicted to tobacco.

Community

Tobacco cessation at the community level is mandatory. Community participation should be fortified through the frequency of public involvement through meetings. Leaders should not only be popular, committed and convincing, but should be able to harness the might of the community members effectively. A counselling centre in every slum is an achievable goal.[231]

Community awareness and education should be enhanced through the role of public and private agencies, NGOs, the National Service Scheme and National Cadet Corps, and spiritual leaders. As in any other important issue, the cessation strategy can be implemented in a cross-section of society through a variety of sources. NGOs are a committed force and empowering them for tobacco cessation, even in a limited way, has worked wonders. With the expanding network of NGOs at every district level, the cessation movement should be able to take giant strides.

Quit lines and websites

A toll-free telephone number forms a single access point to the national network of quit lines. Of equal importance in tobacco control is the establishment of quit lines at the national-, state- and local levels. In the US, counsellors have proved more effective than self-help material.

An online guide to tobacco cessation is available through websites such as www.smokefree.gov. Instant messaging with the cessation expert is made available. Cessation guides that can be downloaded should also be of great use to the tobacco user. These websites and guides have been shown to increase the cessation rates by 40%. Similar use of information technology is likely to help at least some sections of tobacco users in India.

Expanding the available approaches

Although nicotine patches were introduced in different parts of India, the exorbitant costs limited the acceptance of this form of treatment. Some pharmaceutical companies introduced bupropion, but withdrew the product because of low demand.

Considerable progress has been made in the provision of effective treatments, both behavioural and pharmacological, for tobacco dependence. It is critically important that a wide range of interventions be used both in general to support tobacco cessation and specifically to support those who wish to quit tobacco use even when medication is not available.[231] Social support for quitting should be possible in all countries, even those with extremely limited

resources.[231] In the Indian context, research on the role of indigenous systems such as *yoga* and *ayurveda* as cessation therapies or facilitators should be systematically designed and conducted.

According to the United States *Clinical Practice Guidelines*, both social support as part of treatment (intra-treatment social support) and help in securing social support outside of treatment (extra-treatment social support) are especially effective in increasing the rate of quitting. All countries have laypersons who can provide informal social support for quitting and who can be trained to conduct more formal interventions.

In the background of diverse clinical recommendations advocating the combined use of behavioural counselling and pharmaco-therapy for tobacco cessation, it is critical to develop systematic, large-scale studies in the Indian context to determine the additive effect of pharmacotherapy. Alternative ways of using nicotine substitutes, e.g. a gum to handle craving instead of as a complete nicotine replacement strategy, need to be evaluated.

There would appear to be special challenges in countries where there are relatively few ex-smokers and where tobacco prevalence rates are high among health professionals.[231] Ex-smokers can serve as role models in encouraging quitting and can provide social support to individuals who are attempting to quit. They may also reflect an environment in which quitting is a greater priority. Attempts must be made to involve such advocates in cessation programmes in India.

The major challenge for India in the twenty-first century is to make early tobacco use cessation treatment available to all tobacco users, evolve treatments that are culturally relevant and appropriately tailored to individuals and the population, and view tobacco cessation in the wider picture of prevention activities.

7.11 INDIVIDUAL INTERVENTIONS: PROMOTING TOBACCO CESSATION

KEY MESSAGES

- Tobacco use cessation use is an essential component for reducing the mortality and morbidity related to tobacco use, as the lack of it may lead to an additional 160 million global deaths among smokers by 2050.
- Tobacco use cessation provides the most immediate benefits of tobacco control and maximizes the advantages for a tobacco user who quits the habit.
- Tobacco cessation services should be made widely accessible to tobacco users and should cater to the wide range of products used in India.
- Capacity-building strategies for the identification and management of tobacco use and disorders related to its use must strengthen the services available through the existing health care facilities.
- Involvement of the community is an essential component of a tobacco cessation programme.

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BACKGROUND

The Smokefree Class Competition originated in Finland, where it has been carried out annually since the 1989 school year by four NGOs. The competition has been financed by the Ministry of Social Affairs and Health.

In the competition each class decides to be a non-smoking class for a duration of six months. Classes in which pupils refrain from smoking can participate in a prize draw. The competition has been popular in Finland: about half of the targeted age group has participated, annually.

We presented an evaluation of the competition at the Tobacco or Health Conference in Helsinki in October 1996. Reiner Hanewinkel from Germany and Kamel Abdennbi from France were at the conference and became interested in the idea. At about the same time the ENYPAT office moved from ASH Scotland to KTL in Helsinki. We decided to apply Finland's competition concept to build a European Smokefree Class Competition. Reiner Hanewinkel agreed to start as a co-ordinator and soon seven countries submitted an application for the Europe Against Cancer Programme for March 1997.

The Europe Against Cancer Programme funded the first round 1997/98. Reiner Hanewinkel and Gudrun Wiborg from IFT-Nord (Institute for Therapy and Health Research) worked hard with other co-ordinators from Denmark, Finland, France, Italy, Spain and Wales to set up a well-working project. A total of 3,819 classes and about 100,000 students from 1,040 schools participated. A German class won the international prize, a trip to Paris.

After the first experience ENYPAT decided to include the competition in the ENYPAT Framework Project application. Four new countries – Austria, Belgium, Greece and the Netherlands – are joining the 1998/99 round. This publication presents the experiences of the first international round in seven countries. We warmly thank all the writers!

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THE SMOKEFREE CLASS COMPETITION 1997/98
A Summary of the First International Round

1. INTRODUCTION

The Smokefree Class Competition is a school-based smoking prevention programme, organised in co-operation with the European Network on Young People and Tobacco (ENYPAT) and financed by the Europe Against Cancer programme of the European Union. During the school year 1997/98 the Smokefree Class Competition was carried out for the first time on a European level; schools in Denmark, Finland, France, Germany, Italy, Spain and UK were invited to participate. The competition was co-ordinated by IFT-Nord in Kiel, Germany.

The main aims of the competition are the delay and prevention of smoking onset among pupils who do not smoke, and the reduction and cessation among those who have already experimented with smoking. Pupils aged 12–14 are the target group, since research has repeatedly shown that this is the age when pupils begin to experiment with tobacco.

Classes that participated in the competition pledged not to smoke for a period of six months. Those who succeeded took part in a national prize draw where they could win a number of attractive prizes for the whole class.

In addition to the national prizes, there was an international prize draw for a class trip to Paris. The international prize draw served to emphasise the European context of the competition and to enhance communication between pupils of various participating countries. A German class won the Paris trip and met one of the participating French classes in November 1998.

The competition can be embedded in various subjects in schools and is not particularly time-consuming. The countries involved were able to place the addresses of the participating classes on the Internet in order to foster communication between the pupils participating in different countries.

In this first competition 3,819 classes out of 1,040 schools from the seven countries registered for participation. In other words, around 100,000 European pupils decided to be "smokefree" and enter the competition. On the European level Austria, Belgium, Greece and the Netherlands will join the competition in the school year 1998/99.

On the national level the competition was carried out in selected regions (except for Finland, where the whole country participated). In the school year 1998/99, the competition will also be expanded on the national level.

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2. BACKGROUND

Cigarette smoking is one major factor promoting the development of chronic diseases such as cancer, cardiovascular disease and chronic obstructive lung disease. The earlier pupils start to smoke, the more likely they become regular smokers in future years. Research has shown that more than half of the regular smokers started smoking at the age of 13. However, people who start smoking after the age of 20 very rarely become addicted. Moreover, smoking is often a precursor for taking other kinds of drugs such as marijuana, cocaine or even heroin.

There is a great variety of smoking prevention programmes which are based on information about the long-term health consequences of smoking. However, it is well understood now that programmes that concentrate only on information and fear arousal strategies – even though leading to better knowledge – show very limited effects on attitudinal or behavioural changes in pupils. In fact, they can even arise pupils' curiosity to find out what smoking is about by experiencing it first hand.

The idea of the Smokefree Class Competition is different to traditional approaches. Instead of using fear arousal strategies, the desired non-smoking behaviour is reinforced: non-smokers get rewarded if they stay smokefree. It is well known from learning theory that positive reinforcement enhances the probability of producing a desired behaviour. In this way non-smoking becomes a popular and worthwhile behaviour, and social norms within peer groups are influenced in a way that non-smoking behaviour becomes more common in classes than smoking.

3. IMPLEMENTATION OF THE COMPETITION

3.1. Rules of the competition

The general rules of the competition are similar in each country:

- Classes decide to be a non-smoking class for a period of six months. During this first run, the duration of the competition differed in the participating countries from 4 to 6 months. In the school year 1998/99, however, every participating country will carry out the competition for a period of 6 months.
- Pupils sign a class contract and an individual contract promising not to smoke during the competition. These contracts serve to underline their commitment.
- The responsibility of controlling smoking lies mainly with the pupils themselves: Pupils monitor their smoking status and report to teachers regularly whether they have smoked or not.
- Classes which refrain from smoking for the whole period are rewarded. They participate in a national as well as a European prize draw in which they can win a number of attractive prizes.
- National prizes vary by country.

The main prize in the international prize draw is a trip to one of the other participating countries.

The competition is flexible so that details can be developed to suit the needs and circumstances of individual countries. For instance in Denmark, Finland, Italy and Spain classes dropped out of the competition if a pupil smoked regularly. In France classes in which no one smoked were awarded the national main prize, classes in which more than one smoked were awarded the national second prize, etc. A class dropped out if more than five pupils smoked on a regular basis. In the UK classes were rewarded depending on the time they stayed smokefree. Moreover, in the UK up to 25% of the pupils in every class were allowed to smoke. In Germany classes dropped out of the competition if more than 10% of the pupils in a class smoked on a regular basis. In Denmark all participating classes had to carry out a drug preventive activity, and in Spain there was a special competition where the best Smokefree Class Competition slogan was awarded an additional prize.

3.2. Development of the materials

Each of the participating countries developed their own materials for the competition (flyer, class contract, pupils contract, poster, etc.).

3.3. Teachers' brochures

Teachers' brochures were developed to explain the idea of the competition and to advise teachers on handling the problems that could occur, for instance bullying among pupils, relapses into smoking or dishonesty.

3.4. Health education materials

In some countries teachers' manuals were developed consisting of teaching units dealing with smoking prevention as well as personal and social skills so that teachers could use the materials in class and carry out further drug preventive activities. In addition, detailed health education material for teachers and pupils was offered on the Internet in Finnish, Swedish, English, French, Spanish, German and Italian (www.jyu.fi/no-smoking).

3.5. Promoting the European idea of the Smokefree Class Competition

The Internet was used to promote and enhance communication between pupils in different countries. Participating schools of all involved countries could place their addresses on a special Smokefree Class Internet page (www.jyu.fi/no-smoking). The Internet is a perfect medium for this purpose as it is becoming increasingly popular among young people and a growing number of schools in Europe have access to it.

An international flyer was also developed promoting the idea, the principle goals and the rules of the competition and providing the addresses of all European partners. At the end of the competition there was an international prize draw, in which one class could win a trip to one of the participating countries, in order to familiarise pupils with other European cultures.

3.6. Meetings of the project team

Regular meetings were held by the co-ordinators and ENYPAT:

London, September 4, 1997

This first meeting was carried out during the planning stage of the competition.
Matters discussed:

- Current status of the competition plans in the countries involved (e.g. recruitment of schools, co-financing, etc.)
- Rules of the competition
- National and international prizes
- Presentation of the project on the Internet
- Translation of materials
- Evaluation of the project

London, January 30, 1998

The meeting was held right after all countries had started the competition or were just about to start it. Matters discussed:

- Current status of the competition: Recruitment of schools, participation rate, problems.
- Introduction of new partners for the next run: The Netherlands, Belgium, Austria, Greece.

Barcelona, June 26, 1998

This meeting took place right after the competition had terminated in all countries.
Matters discussed:

- Drop-outs
- Problems encountered during the competition:
  - Bullying in school
  - Dishonest pupils
  - Lack of external control
  - Lack of motivation of teachers
- Suggestions for improvement of the rules and implementation of the competition in the school year 1989/99

Table 1: European co-ordinators and institutions involved

Country	Co-ordinator	Institution
Denmark	Mr. Joergen Falk	Danish Council on Smoking and Health, Copenhagen
Finland	Mrs. Heli Tyrväinen Mrs. Meri Paavola	Finnish Health Association, Jyväskylä KTL, Helsinki (ENYPAT)
France	Dr. Kamel Abdennbi	Association Institut Coeur et Vaisseaux, Paris
Germany	Mrs. Gudrun Wiborg Dr. Reiner Hanewinkel	Institute for Therapy and Health Research, Kiel
Italy	Dr. Elizabeth Tamang Dr. Giovianni Pilati	Centro di Educazione alla Salute, Padova
Spain	Dr. Manel Nebot	Institut Municipal de la Salut, Barcelona
UK	Mrs. Sue Bowker Mr. Ceri Breeze	Health Promotion Wales, Cardiff

4. RESULTS OF THE SMOKEFREE CLASS COMPETITION 1997/98

4.1. Participating schools and classes

The competition was carried out in selected regions. The only exception was Finland, where schools from the whole country were invited to participate. Finland has carried out the Smokefree Class Competition since 1989/90 and has a wide experience in organising the competition on a large scale. In future years all participating countries plan to expand the competition.

Europe-wide about 100,000 pupils from nearly 4,000 classes participated in the competition. This means that more than 1,000 schools were involved.

Table 2: Participating schools and classes in the school year 1997/98

Country	Number of participating schools	Number of participating classes
Denmark	128	145
Finland	503	2.688
France	31	91
Germany	227	462
Italy	82	141
Spain	25	88
UK	44	204
Total	1.040	3.819

4.2. Drop-outs

The drop-out rate ranged from 30% to 42% of the registered classes for Spain, Italy, Germany and France and nearly or more than 60% for Denmark and Finland. The UK had the lowest drop-out rate: only about 17%.

Table 3: Number and percentage of drop-outs in the school year 1997/98.

Country	Number of dropped-out classes	Percentage of dropped-out classes
Denmark	84	57.9 %
Finland	1,822	67.7 %
France	36	39.5 %
Germany	191	41.2 %
Italy	46	32.6 %
Spain	37	42.0 %
UK	34	16,6 %

To assess the pupils' smoking status, they were asked to monitor their smoking behaviour (or non-smoking behaviour) and report it to their teachers regularly. No external control was undertaken. Looking at the percentage of classes which dropped out of the competition, the figure seems to be quite high. The results indicate that the pupils tended to tell the truth.

4.3. Presentation of the project

Newspapers, radio or TV

Each of the involved countries presented the Smokefree Class Competition in a number of regional newspapers, and in some cases in national newspapers. Moreover, the Smokefree Class Competition was presented on radio and TV on several occasions.

International conferences

Conference	Date	Place
1. The Fifth International Congress of Behavioural Medicine	19–22 August 1998	Copenhagen, Denmark
2. Working Together for Better Health	23–25 September 1998	Cardiff, UK

International publications

Hanewinkel, R., Wiborg, G., Paavola, M. (1997). What is the idea behind the "Smokefree Class Competition"? *Tobacco-free healthy cities, December issue.*

Hanewinkel, R., Wiborg, G., Tamang, E., Paavola, M. (1998). Smokefree Class Competition: Germany won the international prize. *Tobacco-free healthy cities, June issue.*

Hanewinkel, R., Wiborg, G. (1998). The Smokefree Class Competition. *ENYPAT Newsletter Interaction, 9.*

Hanewinkel, R., Wiborg, G., Paavola, M., Vartiainen, E. Smokefree Class Competition – a European school-based anti-smoking campaign. *Tobacco Control, 7(2).*

Vartiainen E., Paavola M., Vertio H. "No Smoking Class" competitions in Finland: their value in delaying the onset of smoking in adolescence. *Health Promotion International, 1996:3 (11):189-192.*

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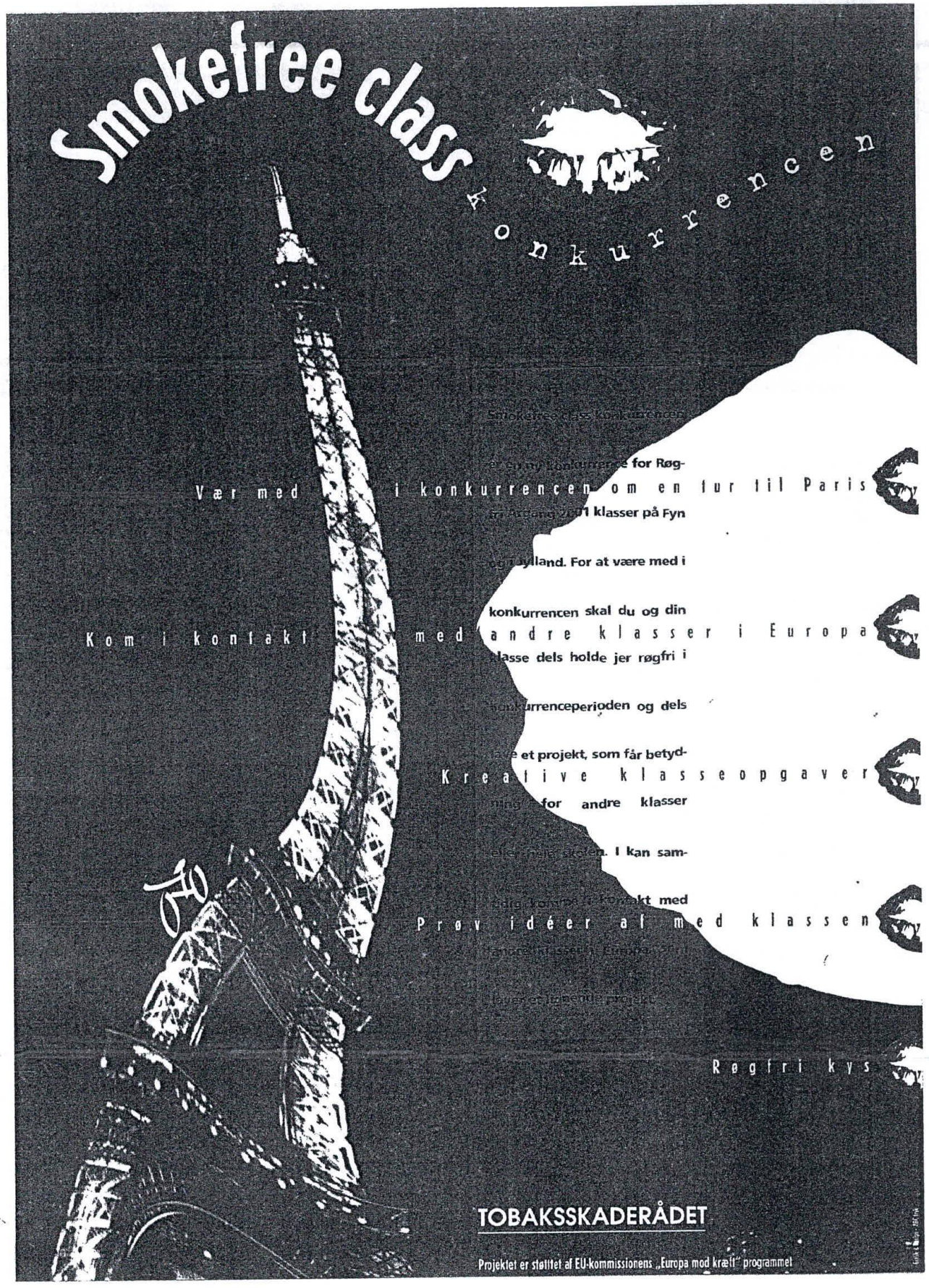
Smokefree class
Konkurrencen
Vær med i konkurrencen om en tur til Paris
klasser på Fyn
og Jylland. For at være med i
konkurrencen skal du og din
Kom i kontakt med andre klasser i Europa
klasse dels holde jer røgfri i
konkurrenceperioden og dels
et projekt, som får betyd-
Kreative klasseopgaver
for andre klasser
Prøv idéer af med klassen
Røgfri kys
TOBAKSSKADERÅDET
Projektet er støttet af EU-kommissionens „Europa mod kræft" programmet

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Jorgen Falk
Danish Council on Smoking and Health
Copenhagen

THE SMOKEFREE CLASS COMPETITION 1997/98 IN DENMARK

The Danish competition was carried out as a pilot project among 7th graders in one part of the country. The competition was linked to one of the existing Danish projects "Smoke Free Year Group 2001" which is targeted at the same age group.

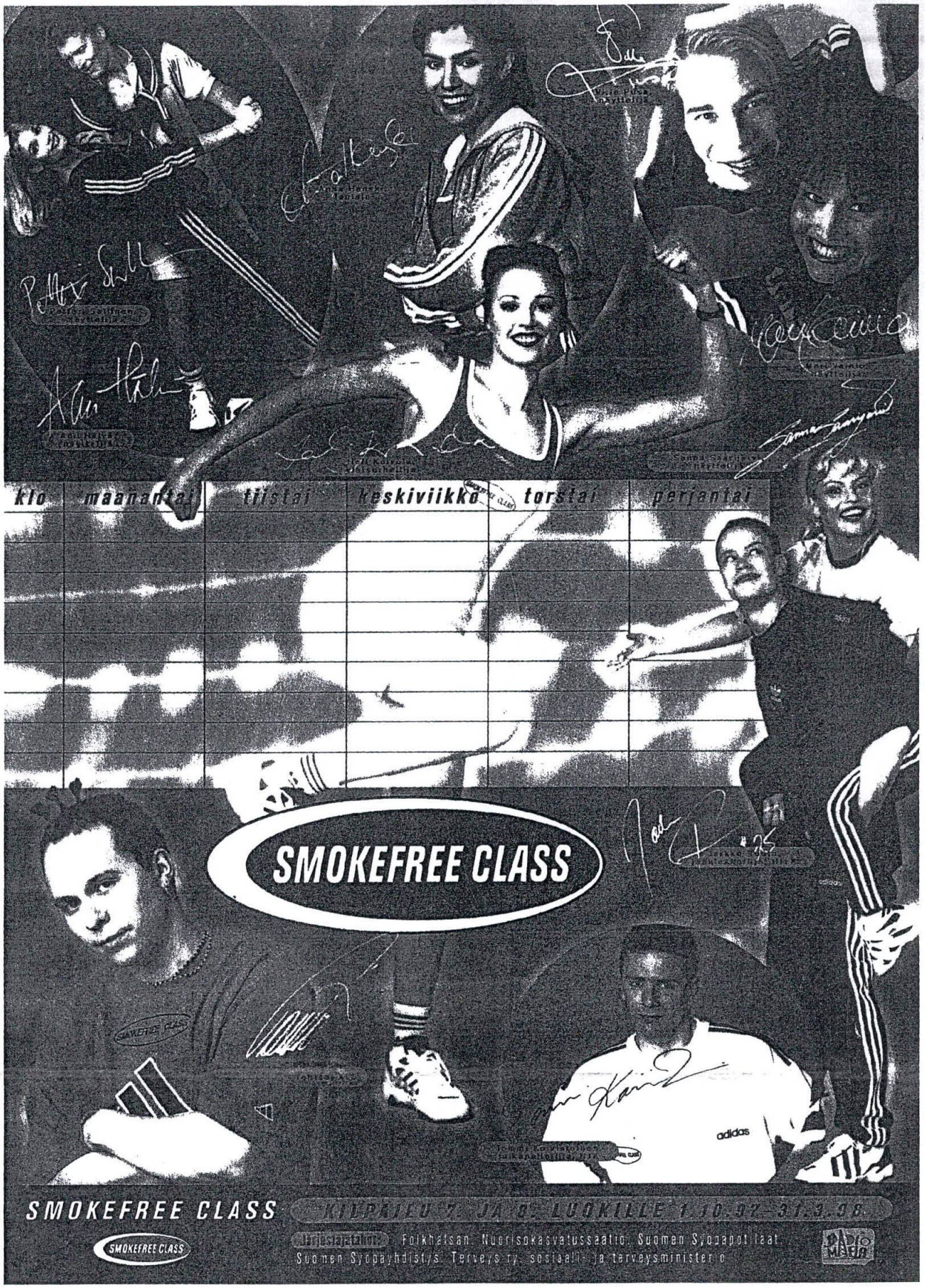
In Denmark the design of the project somewhat differed from the other countries: in order to participate in the lottery, the classes had to work with the subject "smoking" in a way that would involve or be visible for other classes of the school – or even the local community. Therefore the invitation to participate was followed by a "catalogue of ideas", out of which the teachers could choose activities for this purpose. Another difference was the absence of contracts and that pupils' smoking habits were monitored once a month. At the end of the six-month period the teacher gave a brief report to the Danish Council about the activity carried out.

About 1700 classes from about 1200 schools were invited to participate. 145 classes from 128 schools took the challenge. 84 classes dropped out. 71 classes participated in the lottery. There were 5 prize winners. The main prize was 4000 ECUs and the winning class was from Nyborg. We had expected to involve a greater number of classes, and we found that the drop-out rate was too high.

A process evaluation was made after the competition. Every participating teacher received a questionnaire. 86 teachers answered (most of the drop-out teachers did not). 12 teachers who participated throughout the competition and 14 teachers who did not participate at all were selected for a phone interview:

- 62% of the participating teachers found the competition good or very good.
- 65% of the teachers claim that the class found the activity good or very good.
- 43% of the teachers would like to participate again.
- 77% of the teachers think that the class has learned something about smoking during the competition.
- 86% of the teachers think it is a good way to teach children something about smoking.

We learned from the evaluation that the marketing of the competition should be better next year. The rules about smoking – not smoking should be clearer. Too many teachers expected that the quality of their activity would be part of the winning criteria. At the end of the competition we should inform every participating class immediately about the winners, and perhaps give them a gift. The idea of the special activity works very well, and drop-out is almost always caused by smoking. During the year 98/99 the competition will be carried out nationwide at 7th and 8th grade levels.


klo
maanantai
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SMOKEFREE CLASS
SMOKEFREE CLASS
KILPAILU 7. JA 8. LUOKILLE 1.10.97–31.3.98
SMOKEFREE CLASS
Järjestäjätahot: Folkhälsan Nuorisokasvatussäätiö, Suomen Sydänpotilaat,
Suomen Sydänyhdistys, Terveys ry, sosiaali- ja terveysministeriö
RADIO MAFIA

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Heli Tyrväinen
Finnish Health Association
Jyväskylä

THE SMOKEFREE CLASS COMPETITION 1997/98 IN FINLAND

The Smokefree Class Competition was arranged in Finland for the ninth time. The organising team consisted of four non-governmental organisations, whose co-operation worked very well.

A new poster for the competition is prepared every year. In addition, schools receive two different contract forms and teaching material. The competition and the material are bilingual; Finnish and Swedish. The Finnish competition has cash prizes: 2 x 1650 Ecus, 8 x 825 Ecus and 20 x 170 Ecus (about).

All the grade 7 and grade 8 classes in the country were invited to participate in the competition. About a half of the 7th grade classes and a fourth of the 8th grade pupils accepted the challenge. Participating classes were to abstain from smoking for six months. Some 35% of the participating 7th grade classes and 26% of the 8th grade classes reached this goal. In terms of the number of successful classes, the success rate has remained about the same since the first year the competition was organised.

The working principle of the competition was to involve popular role models and idols from film, sports and music as promoters. These celebrities occupied a prominent position in the competition poster. In conjunction with the competition, a campaign was carried out through the radio and Internet, where a band that is well-known and a favourite among teenagers made a public promise to quit smoking. The teenagers had an opportunity to send encouraging messages to the band and make jokes about smoking. This campaign was a big success, and many young people said in their Internet feedback that they had given up smoking because their idol had done so.

Information was this year's weak point. Information on the competition was mailed with the competition poster to all schools. In addition, the competition gained some coverage in the media, and local papers frequently published bulletins about it. Yet, the information did not reach all the school teachers who would have been interested. The teachers also needed more motivation and direct contact with the competition organisers.

Schools are very busy with their work. Only one third of the schools used classroom materials related to the competition. During the school year the whole effort may have been forgotten by some students and teachers. Schools that were actively involved had also arranged, for instance, smoking-related special events and contests within the school. Experiences from those events were very positive.

According to the feedback, teachers doubted their students' honesty and felt that maintaining surveillance over the competition is impossible. Responsibility was not always adequately shifted to the students themselves. Another problem that was mentioned was that the classes could not participate if there was a student who smoked regularly, and in those cases that student may have been blamed or made to feel guilty.

Having learned from these experiences, in the future more attention will be paid to the ways we could better activate the schools, motivate the teachers and improve the promotional and informational support. To a large extent the practical arrangements in the schools have become routine, so we need new stimuli and fresh ideas to foster the notion of non-smoking and keep it in the foreground.

Kamel Abdennbi
Association Coeur et Vaisseaux
Paris

THE SMOKEFREE CLASS COMPETITION 1997/98 IN FRANCE

109 schools from Seine St. Denis, a close suburb of Paris, were invited to participate in the competition. The target group was the first year (6ème) and the second year (5ème) of secondary school. This represented 1316 classes who should have received the documents inviting them to enter the competition, but we learned that the information did not work correctly.

Every school received documents inviting them to participate. These documents were sent to the headmaster, the doctor and the nurse. Even though we dispatched the documents, many nurses, for example, did not receive them because the headmaster of the school decided not to enter the competition.

1. Registration

31 schools participated in the competition, 28% of all schools contacted.
A total of 91 classes reached the goal of being a "smokefree class" until May 31, 1998.
36 classes dropped out the competition (39.5%).

2. Duration

The competition was organised from January to May 31 (5 months).

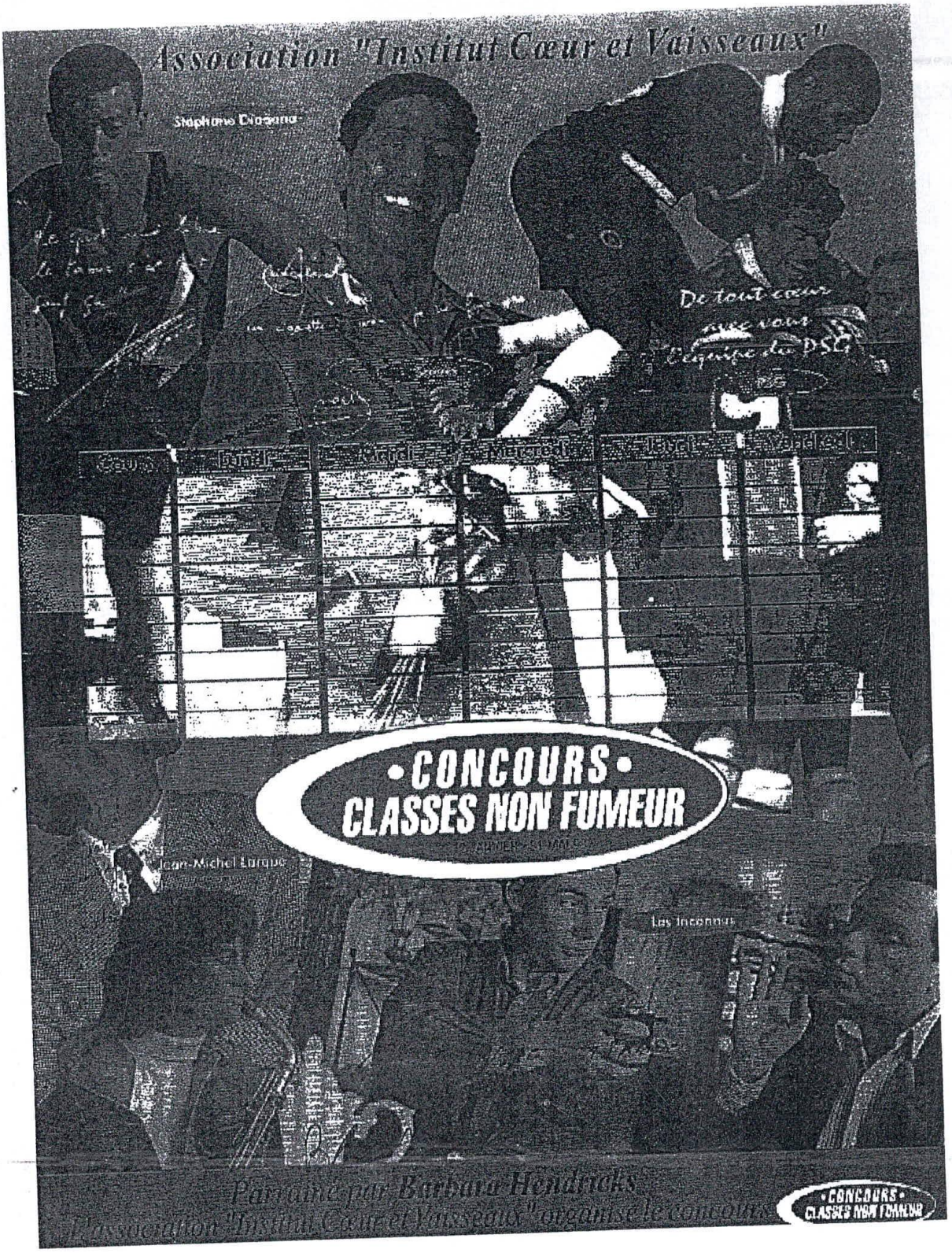
3. Rules of the competition

If none in the class experienced tobacco: Level A
If one to two pupils experienced tobacco: Level B
If three to five pupils experienced tobacco: Level C
If more than 5 pupils smoked: Dropped-out.

4. Sponsors

The competition was encouraged by the artist Barbara Henricks. The poster presented the Parisian football team Paris Saint Germain, the famous reporter J.M. Larque, the world champion of the 400-meter dash Stéphane Diagana, and the artists Smaïn and Les Inconnus.

Some financial help was received from a pharmaceutical laboratory and from the communal health services (DASS). The main financier of the competition was association Institut Coeur et Vaisseaux.


Association "Institut Cœur et Vaisseaux"
Stéphane Diagana
De tout cœur avec vous l'équipe du PSG
PSG
Mardi
Mercredi
Jeudi
Vendredi
•CONCOURS•
CLASSES NON FUMEUR
Jean-Michel Larqué
Les Inconnus
Parrainé par Barbara Hendricks
L'association "Institut Cœur et Vaisseaux" organise le concours
•CONCOURS•
CLASSES NON FUMEUR

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5. Prizes

Level A: 4 prizes of 20,000 FF
Level B: 3 prizes of 10,000 FF.
No level C was registered.
All the pupils who were present at the prize ceremony received a Smokefree Class T-shirt.
The international prizes were rucksacks from IFT-Nord.

6. Prize ceremony

The prize ceremony was held with the Minister of Health, Bernard Kouchner, in attendance. The ceremony programme consisted of rap music about tobacco, theatre, poems, a paintings exposition and similar events.

7. Feedback from teachers

- Teachers suggested that the competition starts earlier next year.
- The web site is not very attractive in its French version, so they would like to see it improve.
- The prizes should go first to a school, then to a winning class; this would prevent one school from winning too many the prizes. (In fact, three classes from the same school won prizes.)

8. Materials

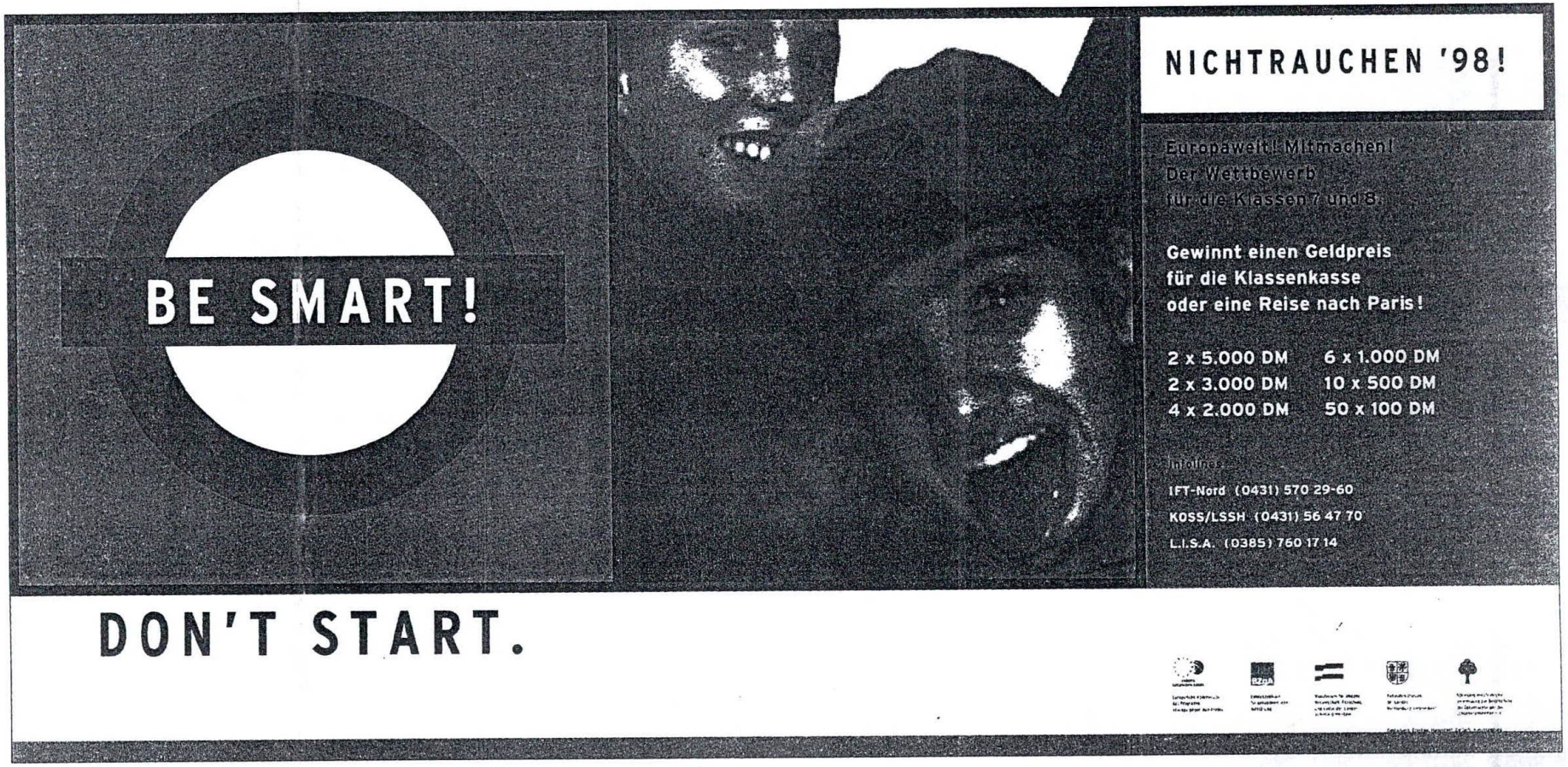
The teachers had the possibility to contact all the associations working in the field of tobacco prevention in the department. They also received a CD-I (interactive CD-ROM) with an 8-hour programme on tobacco. Some classes organised information activities around tobacco.

9. Press reports

The competition was presented three times on TV in national news reports and two times on radio (RTL and BFM). In addition, three articles were published in national newspapers and in a specialised medical publication.

10. Congresses

Poster presentation at the 3rd National Congress of Preventive Cardiology (Toulouse September 1998).


BE SMART!
NICHTRAUCHEN '98!
Europaweit! Mitmachen!
Der Wettbewerb
für die Klassen 7 und 8.
Gewinnt einen Geldpreis
für die Klassenkasse
oder eine Reise nach Paris!
2 x 5.000 DM
2 x 3.000 DM
4 x 2.000 DM
6 x 1.000 DM
10 x 500 DM
50 x 100 DM
Infolines:
IFT-Nord (0431) 570 29-60
KOSS/LSSH (0431) 56 47 70
L.I.S.A. (0385) 760 17 14
DON'T START.

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Gudrun Wiborg and Reiner Hanewinkel
Institute for Therapy and Health Research
Kiel

THE SMOKEFREE CLASS COMPETITION 1997/98 "BE SMART – DON'T START" IN GERMANY

1. Numbers and percentages of participating schools and classes

1227 schools were invited to participate in the competition. As can be seen from table 1 below, around 18.5% of all invited schools registered for the competition.

Table 1: Numbers and percentages of participating schools and classes

	At Start	At End	Retention Rate, %
Schools	227	154	67.8
Classes	462	271	58.6
Grade 7	260	161	61.9
Grade 8	203	110	54.1

2. Workshops for teachers

The competition programme included three workshops for teachers. Two were held prior to the start of the competition in the two Bundesländer participating in the project. The third was organised halfway through the competition. Pupils were also invited to participate in the second workshop. Around 30% of all participating teachers participated in the workshops.

3. Questionnaires for teachers and pupils

At the end of the competition, questionnaires were sent to all teachers and to a representative sample of 30 classes (regardless of whether the class had remained in the competition or not).

Data was assessed anonymously and prior to the announcement of the winners. A self-addressed, stamped envelope was also enclosed.

Questionnaires were developed to assess the following:

a. Could the onset of smoking be delayed?
b. Could smoking be reduced?
c. Was the target group reached?
d. How useful were the main rules of the competition?

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e. Did pupils lie in the weekly assessment, since they knew that there was no external control?
f. Did pupils take the competition seriously?
g. Did negative group pressure (bullying) occur during the competition?
h. Were parents interested in the project?
i. The applicability of the health education material and several other aspects that shall not be discussed here.

70% of the teachers and 70% of the pupils returned the questionnaires. The main results are discussed below.

357 pupils returned the questionnaires.
305 teachers returned the questionnaires.

Results

a. *Could the onset of smoking be delayed?*

Very encouraging data: 72.3% of the pupils reported that smoking could have been delayed *"very often"*. 10.8% said that it could be delayed *"often"*.
The teachers' data is nearly as promising: 70.7% reported that smoking had been delayed *"very often"* or *"often"*. There were no meaningful differences between the grades.

b. *Could smoking be reduced?*

Around 40% of pupils and teachers reported that smoking had been reduced *"very often"* or *"often"*. Around 30% of both said that it could be reduced *"sometimes"*. A noticeable difference between the class 8 and class 7 pupils was that only 30.4% of those in class 8 believe that smoking had been reduced, while 48% of those in grade 7 were of that opinion.

This data shows that the competition seems to be more suitable as a primary prevention project, which means that it might be able to delay smoking onset among non-smokers to a wider extent than it is able to reduce smoking among smokers – at least on a short-term basis.

c. *Could the target group be reached?*

61.2% of the pupils and 72.2% of the teachers were of the opinion that the target group was reached. But: We also asked whether it would make sense to extend the competition to grade six, and 68.8% of the pupils and 64% of the teachers were convinced that the competition should start in grade six. When asked for a reason, teachers and pupils mentioned repeatedly that they regularly come across smokers aged 10–11.

d. *How useful were the main rules of the competition (assessed by teachers)*

- At least 90% of the class has to decide to participate in the competition. 63.4% considered this rule as *"very useful"* and 24.8% as *"useful"*.
- Class contract: 59.1% said it was *"very useful"* and 27.1% said it was *"useful"*.

- Pupils' contract: 48.8% judged it as *"very useful"* and 24.8% as *"useful"*.
- 10% of the class is allowed to smoke: 55.8% regarded this rule was *"very useful"* and 23.1% considered it *"useful"*.
- Weekly assessment of smoking status (based on pupils self-monitoring): 43.6% considered the rule as *"useful"* and 20.5% as *"very useful"*. But: 20.5% of the teachers gave a "mixed" response. They argued that this rule makes pupils more likely to lie.

e. *Did pupils lie in the weekly assessment, due to a lack of external control?*

The results of this question are very interesting: While 89% of the pupils reported that they themselves told the truth, only 33.5% of the pupils were of the opinion that their classmates were honest. However, the teachers show more trust in their pupils than the pupils in their classmates: 87.6% of the teachers regarded their pupils to be honest.

f. *Did pupils take the competition seriously?*

56.6% of the pupils took the competition *"seriously"* or *"very seriously"*. 24.4% had mixed feelings about it, because of the missing control of potential smoking behaviour. Here we have to look at the grades again: Grade 7 took the competition more seriously than pupils in grade 8 (39.2% in grade seven vs. 22.8% in grade eight).

g. *Did negative group pressure (bullying) occur?*

- Around 21% of the pupils reported that non smokers put pressure on smokers *"sometimes"*.
- According to the pupils, smokers only put pressure on non smokers *"sometimes"* in about 5% of the cases. The percentages for teachers are very similar.

h. *Did parents show interest in the project?*

Very disappointing results in this case: 60.7% of the parents never or seldom showed any interest in the project. Only around 30% of the teachers organised a parent evening concerning the project.

i. *Health education material*

Health education material was developed and given to interested teachers before and during the competition. The material was developed to provide the teachers with some inspirations for various activities dealing with non-smoking that they could carry out in class in different subjects. For us it was of great importance to make sure that the material could be integrated into different subjects (like biology, sports, German, French, etc.), since we know that teachers don't have so much time to spare for activities besides normal class.

63% of the teachers used the materials *"a few times"* and 10.6% used it *"often"*.
61% of the teachers considered the material to be *"helpful"* for activities carried out in class and 7.6% judged it to be *"very helpful"*.

4. Outlook for the next run

- Extension to the sixth grade
- Involvement of the parents
- Spot-check controls of pupils

5. Preparation for the school year 1999/2000

For the school year 1999/2000 the competition was included in the ENYPAT Framework Project proposal for the programme "Europe Against Cancer" of the European Union. Moreover, Iceland will participate as country number 12 in 1999/2000.

Elizabeth Tamang and Giovanni Pilati
Centro di Educazione alla Salute
Padova

THE SMOKEFREE CLASS COMPETITION 1997/98 IN ITALY

The Italian Smokefree Class Competition was carried out in the Veneto region. Veneto has 4,380,797 inhabitants in a territory of 18.364,28 km^2. We have about 670 secondary schools and 220 high schools. Third-year secondary schools and first-year high school classes (13–14 year olds) were invited to participate in the competition for the year 1997/98. A total of 141 classes belonging to 82 schools with 2,938 students joined the competition. The classes signed a contract to remain smoke-free for a period of 19 weeks monitoring their smoking behaviour each week.

At the end of the competition the classes who kept their commitment to remain smoke-free received a non smoking certificate and participated in the national prize draw. The first prize was a CD player/radio tape recorder for each student of the winning class. The second winning class participated in the international draw for a trip to one of the other countries and since the international prize draw was won by a German class, they received the "Be smart don't start" rucksacks. Each student who participated at the competition till the end received a colourful purse with the Smokefree Class Competition (SFC) logo. The prize giving ceremony was held in the school of the winning class. The school had also organised a concert for the occasion by students of the participating classes.

1. Materials prepared for the competition

- Leaflet about the SFC
- Student's contract
- Class Contract
- Monitoring chart
- Participation Certificate
- Purses with SFC logo
- Press conference packs

The Veneto region is divided into 21 local Health Units (LHU), each LHU has a Service of Health Education and Health Promotion which are connected to the Regional Centre for Health Education. This network was used to present the competition to schools and to distribute the materials. A press conference was held before and after the competition. In the second press conference some students from the participating classes and two teachers were also invited and interviewed by the journalists. There was a lot of press coverage both in TV and newspapers.

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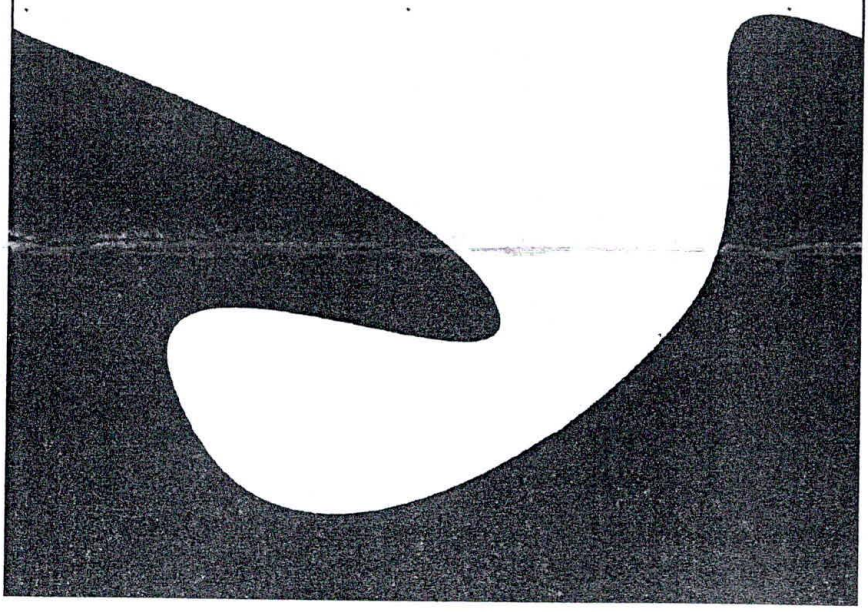
centro di educazione alla salute
SERVIZIO REGIONALE DI DOCUMENTAZIONE

smoke free class competition



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2. Results

Participation:

82 Schools; 141 classes and 2,938 students. The drop out rate was 32.6%.
The number of 3rd year secondary school classes participating was 74 and the number of 1st year high school classes was 67.

Drop-outs:

- 3rd year secondary school classes: 17 (23%)
- 1st year high school classes: 29 (43%)

A poster presentation about the competition was made at the "Working together for better health" Conference in Cardiff in September 1998.

3. Feedback from teachers and students about problems or difficulties

In one class the teacher discovered some pupils had smoked without the class admitting. In the beginning, some classes' students had some difficulties controlling the smoking behaviour of each other; one class reported teasing from senior students by offering them cigarettes (but this was done in play and not as bullying).

4. Lessons learned for the next edition

Although participation was not as high as we had hoped, we will continue this project in 98/99. Enthusiasm for the project has grown among health workers and teachers as the competition has progressed in the classes during the school year. Next year we will start the competition earlier, from 1st November 98 to 30th April 99. Presentation of the materials to the Local Health Unit and to schools will be done earlier. Invitations to schools will also be made directly with the competition packs. The monitoring chart size will be A4 (much easier to photocopy for the schools and to send by fax). We intend to prepare six postcards like some of the other countries to get feedback each month from classes, to use testimonial and have a special post card enabling classes to choose to write to classes in other participating countries. Classes will also be invited to prepare a slogan for future edition of the competition.

CLASSE SENSE FUM

Un concurs europeu adreçat als alumnes de 1r cicle d'ESO per mantenir-se sense fumar

Manel Nebot
Institut Municipal de la Salut
Barcelona

THE SMOKEFREE CLASS COMPETITION 1997/98 IN SPAIN

1. Preparation phase

In November 1997, once the proposal was approved, the preparation phase was launched basically consisting of:

- Definition of the rules
- Design and development of a graphic "logo", support materials and flyers for the programme diffusion.

2. Diffusion phase

In December 1997, programme information was sent to all the secondary schools of the city. At the same time, the programme was introduced to the district school staff and to the Educational Authority of Barcelona (Institut Municipal d'Educacio de Barcelona) A panel of ten experts was used to help the local project co-ordinators both in programme diffusion and follow-up, and in helping us to choose the appropriate prizes. The programme was also presented to the local Cancer League (Associacio Espanyola contra el cancer), which decided to sponsor the programme.

3. Follow-up phase

The competition was run from January 15th to May 15th. Overall 88 classes from 25 schools decided to participate and to become a non-smoking class for this period. 25 classes from 6 schools dropped out very early and 12 classes dropped out later. 51 classes succeeded to stay non-smoking until the end of the programme (58% of all participants).

In each participant class the teacher monitored the situation and promoted activities related to smoking prevention. After the competition the contact person sent the follow-up form to the organisers.

4. Prizes

The competition had four national prizes. The main prize was a day cruise and a walkman for each pupil of the class. Second and third prizes consisted of books and tape recordings. A special prize sponsored by the Cancer League (a CD-player for every pupil of the class) was given to the best slogan related to tobacco prevention. In addition, all classes that remained smokefree received a certificate.

5. Final assessment

Despite the fact that the information about the programme did not reach schools until the end of the first term, the programme was well accepted. Most schools that left the programme did so relatively early. This suggests that teachers discovered that pupils were already smoking and not willing to stop. This was confirmed by some teachers in the follow-up forms. Nevertheless, this indicates that most teachers took it very seriously and preferred leaving the competition rather than ignoring or hiding the problem.

The prize delivery was an extremely warm and friendly event and we all had a lot of fun. Perhaps we are used to dealing with health topics in a very serious way, so the event was a quite refreshing new approach. The slogan contest was also a success; every school developed a slogan and most drew a picture even though it was not in the rules. Teachers said that they had used this as an occasion to talk about smoking, its dangers, its addictive power and the ways to resist social pressure.

In summary, we are highly satisfied with the programme. In terms of the future challenges, we need to improve diffusion and social visibility, and we need to develop new materials (posters, flyers) using the ideas given by pupils through the slogan competition.

Sue Bowker and Ceri Breeze
Health Promotion Wales
Cardiff

THE SMOKEFREE CLASS COMPETITION 1997/98 IN WALES

1. INTRODUCTION

The Smokefree Class competition is a pan–European project that aims:

- To encourage pupils to remain smokefree by discouraging experimentation with tobacco
- To help experimenters not to become regular smokers
- To show clearly that not smoking is normal
- To encourage discussion about the benefits of remaining smokefree

2. BACKGROUND

Teenage smoking in Wales has increased between 1986 and 1996 so that 23% of boys and 29% of girls aged 15–16 smoke at least weekly[1]. During this time there has been success in delaying the onset of smoking, so that in 1996 for those 11–16 year olds who have ever smoked the average age of first experimentation was 11.32 years.

The Smokefree Class Competition is based on an idea developed in Finland during 1989-90. It was initially targeted at their 8th grade pupils (our Year 9), and attracted 15,000 entrants in the first year. The competition has run annually since then, and with an extension to 7th grade pupils (our Year 8) regularly sees entry levels of 55,000.

An evaluation of the Finnish project demonstrates success in delaying the onset of smoking amongst young people[2].

3. THE COMPETITION

3.1. Consultation phase

A meeting was held at Health Promotion Wales' offices in July 1997 to discuss the proposed competition. Twelve representatives of the health and education sectors in Wales attended the meeting, and eight others discussed the idea by telephone.

The proposal was outlined as below:

- Competition to be aimed at Year 8 pupils as research shows that this is a prime age for experimentation with smoking
- Competition to run for 5–6 months, from January 1998
- Pupils decide in their registration classes to enter the competition as a whole class


Dosbarth:
Ysgol:
Mae'r ysgol yn cystadlu yng Nghystadleuaeth Dosbarth Di-fwg 1998
Gallem ennill
£500 ar gyfer yr ysgol ar 15 Mai
£750 ar gyfer yr ysgol ar 12 Mehefin
£1500 neu £100 ar gyfer yr ysgol ar 9 Gorffennaf
Helpwch ni i ddal ati
Mobil
156
OSLO
BT
DOSBARTH DI-FWG


Class
Of
Have entered the 1998 Smokefree Class Competition
We could win
£500 for our school on 15 May
£750 for our school on 12 June
£1500 or £100 for our school on 9 July
Help us stay the distance
Mobil
156
OSLO
BT
SMOKEFREE CLASS

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- Individual pupils sign a commitment not to smoke for the competition period
- Pupils reaffirm their commitment monthly
- Classes still in the competition after 3, 4, 5 (and 6) months are entered into a prize draw.

Following the meeting the proposal was refined to take account of some concerns expressed:

- Entry is possible as long as 90% of the class wish to join in, and are not regular smokers
- Classes can stay in the competition as long as 75% of the class wish to do so, and are not regular smokers
- A regular smoker is defined as someone who smokes one or more cigarettes per week
- Prizes to be for the school rather than for individual classes or pupils
- Wales will not participate in the European prize draw as this offers travel to the winning class
- Competition materials to make it clear that is acceptable for pupils to encourage others to enter, but not to force them
- Research to be undertaken to assess the incidence of undue pressure
- Competition materials to make it clear that the competition complements other work on smoking, but should not replace it
- Individual areas of Wales to opt in to the competition, rather than an all-Wales competition
- Health Promotion Wales to agree with local personnel the mode of contact with schools
- Carbon monoxide testing, as a means of verification, to be decided on locally
- A letter for parents to be included with the competition materials; this to be used at the discretion of the school.

The revised proposal was sent to all those who attended the meeting, to all District Health Promotion Managers, appropriate Local Education Authority (LEA) advisory staff and Health Promotion Commissioners. Subsequently a letter was sent to Directors of Education in those areas where it was proposed to run the competition.

This consultation period resulted in schools in 15 of the 22 Unitary Authorities being targeted. In seven of these, this was with the support of both the LEA and Health Authority; and in eight with the support of the LEA only, although in one case a local NHS Trust also offered support.

3.2. Planning phase

During Autumn 1997 detailed planning was undertaken, including two videoconferences with North Wales to clarify local and national roles.

Competition materials were designed:

- Flyers – bilingual, A4 folded into 3. These informed schools about the competition and invited them to send for the entry pack.
- Entry pack – Bilingual, A4 wallet containing Teachers' information booklet, two posters, entry form, five monthly commitment forms, six Freepost envelopes, letter for parents.
- Set of five postcards to be sent to classes monthly to remind them to return their commitment form.
- Headed notepaper – stating that the competition was being co-ordinated in Wales by Health

Promotion Wales with the support of local partners. This has no address on it and could be used by any of the partners.
- Pin badges saying Smokefree Class or Dosbarth Di-fwg.

A database was set up in Health Promotion Wales which would record the name of the school, form and form teacher; address; telephone number; number of pupils in the class; number of pupils entered; and return of commitment forms with number of pupils still participating.

3.3. Recruitment phase

During November 1997, flyers were sent to all schools in the target areas (150 in total). In the six North Wales Unitary Authorities these letters were sent out by the local Health Promotion Departments, and in most cases were accompanied, or preceded, by a letter of support from the LEA. In one Unitary Authority the letter went from an LEA adviser. For all other Unitary Authorities, Health Promotion Wales mailed direct.

Twelve flyers were sent to each of Headteacher, Head of Year 8 and Head of Personal and Social Education (PSE). A covering letter informed them who else had received the information. Classes were asked to return a reply form by 12th December if they wished to receive a competition entry pack.

Competition entry packs were mailed to all classes requesting them during the first week of the Spring Term (8th – 15th January 1998). A sample pack was also sent to the Head of PSE in all those schools who had not responded to the flyer. Classes were asked to return their entry forms to Health Promotion Wales by 26th January 1998.

Over two hundred packs were requested from thirty-seven schools. Classes in thirty-two of these schools subsequently entered the competition. Classes in eleven schools entered as a result of receiving the sample entry pack.

The final entry figures were 198 classes from 43 schools, representing 5,066 pupils. This entry figure equates to one seventh of the Year 8 pupils in Wales, and approximately 22% of pupils targeted.

3.4. Competition phase

The competition ran from Monday 2nd February 1998 to Friday 26th June 1998. Classes returned commitment forms on Fridays 27th February, 27th March, 1st May, 29th May and 26th June. Reminder postcards were sent out one week prior to these dates.

Any class not returning a commitment form within one week of the date was sent a reminder letter. For the last three months the receipt of the form allowed entry into the prize draw. Any classes that had not returned forms 3 days prior to the draw received a telephone reminder.

During February all classes were sent sufficient pin badges for every pupil, in either English or Welsh.

During March classes were invited to request the name of a Danish school in order to set up a penpal link. 39 classes responded to this offer.

Prize draws took place on:

Friday 15th May	2 classes won £500 for their school
Friday 12th June	2 classes won £750 for their school
Friday 10th July	2 classes won £1500 for their school
	34 classes won £100 for their school
	1 class won rucksacks (produced by the German team for one class in each of the participating countries)

Naomi King of ASH undertook the draws in the presence of at least one independent witness. Prior to the draws the entry figures for each class were calculated to ensure that 75% of the pupils were still participating.

The major prize cheques and rucksacks were presented in school assemblies as soon after the draw date as could be arranged. The major prize winners were:

£500	8C	Amman Valley Comprehensive, Ammanford
	8B4	Bryn Hafren Comprehensive, Barry
£750	8L	Pentrehafod School, Swansea
	8Q	Olchfa School, Swansea
£1500	8YM	St Cyres Comprehensive, Penarth
	8D1	Caerleon Comprehensive
Rucksacks	8A	Ysgol Uwchradd Glan Clwyd

3.5. European Comparison

Wales' performance in the project's first year of development compares favourably with that of the other Member States involved. The following table summarises (in ranked order) participation levels achieved in each country:

Country	No. of participating classes
Finland	2688
Germany	462
UK- Wales	204
Denmark	145
Italy	141
France	91
Spain	88

Finland's performance reflects the fact that the competition was launched there in 1989/90 and has been held each year since that date. It is now an integral part of the school year. Of all countries participating, Wales achieved the lowest drop-out rate (17%) amongst participants in the competition. The next lowest drop-out rate was in Italy (33%).

The competition is increasing in profile within other Member States of the European Union and in the European Commission itself. The Commission's decision to support the competition for a further year and to invite more countries to become involved is evidence of this. In 1998/99, Greece, the Netherlands, Austria and Belgium will join the project. Continued involvement in the project and the role played in developing the project during its first year, will maintain Wales' position with the leaders on health promotion programme developments in Europe.

3.6. Evaluation

Process evaluation was ongoing throughout the competition period, and certain things, e.g. database and draw preparation, were refined as necessary. Opportunistic discussions were undertaken with partners and school staff. A meeting was held between Health Promotion Wales staff and health promotion officers from North Wales in July 1998 to discuss further improvements.

More formal evaluation was undertaken by means of pupil and teacher questionnaires and biochemical validation was carried out in North Wales.

Teacher questionnaires

Questionnaires were sent to all form teachers whose class had entered the competition, and to the Head of Year 8 and Head of PSE in all schools that had classes involved. These questionnaires were sent ten days after the end of the competition, and reminders were sent to form teachers three day later, with the letter announcing the prize winners.

The questionnaire dealt with teachers perceptions of the competition and their opinion of pupils involvement, as well as asking for suggestions for improvement.

Results

Responses were received form 91 teachers, of whom 71 were Year 8 form tutors and 18 were Head of Year 8:

- 83% said the competition encouraged discussion about smoking
- 73% said materials were appealing
- 95% said forms were easy to fill in
- Only 11% thought it took an undue amount of time
- 87% said Y8 was a good year to target, and only 3% thought it wouldn't work with Y7
- 90% would encourage classes to enter next year
- 84% thought that most of the pupils were honest

- 77% informed parents about the competition in some way
- 76 teachers noted positive aspects of the competition. Of those, about half mentioned raising the profile of non-smoking. Only 12% mentioned the possibility of a prize. Some typical specific comments were:

  The fact that at least once a month the topic of smoking was brought up.

  Participation as a group and truthful discussion to help 'wavering' smokers.

  It highlighted the fact that very few pupils smoke regularly in this age group. It took away the glamour of smoking.

  Raised pupils awareness of smoking. Engendered a 'team spirit' to avoid it.

Possible improvements centred on the prize structure with a suggestion of more smaller prizes. 11 teachers also mentioned the possibility of providing materials or poster-type competitions in support of this initiative.

Those who mentioned the CO testing found it positive.

Pupil questionnaires

A random sample of fifty classes was selected from the total number of classes entered in the week prior to the start of the competition. Eight control classes were randomly selected from schools in those Unitary Authorities not included in the competition.

Short, self-completion questionnaires were sent for every pupil in these classes, whether or not they had entered the competition. The form teacher administered the questionnaires. All pupils were supplied with envelopes in which to seal their questionnaire before returning it to the teacher.

Thirty-five intervention and eight control sets of questionnaires were returned in the first month of the competition. Those classes that returned the first questionnaire were sent a further questionnaire in the week following the end of the competition (29th June – 3rd July).

Classes who had not replied were contacted by telephone on 15th–16th July.

Questionnaires dealt with beliefs and behaviour related to smoking and to bullying. The second questionnaire also asked about involvement in the competition.

Results

604 pupils returned the second questionnaire:

- 55% of pupils said that the competition helped them to stay smokefree.
- 76% thought the competition was a good idea, with a further 17% having no strong opinion.

Only 6% of pupils agreed with the statement 'Pupils in the class were less nice to each other because of the competition'. 65% disagreed or strongly disagreed with this statement.

Biochemical validation

In the North Wales Health Authority area random testing of carbon monoxide levels was undertaken, using smokelyzers.

Testing occurred in the week immediately following the completion of the March and the May commitment forms.

Classes were selected randomly by Health Promotion Wales; one class in each school with less than four classes participating and two classes in schools with a larger entry. Schools were contacted in the week before the testing to arrange a suitable time.

Testing was carried out by a member of staff from the local health promotion department in North East Wales; and in North West Wales by a combination of a local health promotion department staff member and school nurses.

For the March testing, and for the May testing in North Wales, the tester selected six pupils from the chosen class(es) to be tested. These were one boy and one girl from each of the front, middle and back of the classroom. For the May test in North Wales, Health Promotion Wales randomly identified six pupils from each class.

The procedure was explained to the pupils, as was the interpretation of the results. Prior to testing, pupils were asked to confirm that they were still participating in the competition.

Results

ppm CO	Number of pupils
0	134
1–5	53
6–10	1
>10	2
Total no. tested	190

These results indicate that only two pupils out of 190 were smokers and had therefore not told the truth on the previous commitment form.

It is the perception of the health promotion officers who undertook the testing that both teachers and pupils welcomed the testing and valued the verification it provided. Pupils were keen to volunteer to be tested.

Undertaking the testing was also useful in maintaining contact with the schools and reinforcing the benefits of involvement in the competition.

3.7. Recommendations for future competitions in Wales

Subject to amendment on analysis of teacher questionnaires

- Alert schools to the competition earlier in the school year – by a combination of a letter to the school before the flyers are sent out and local marketing with PSE co-ordinators.
- Send flyers to school nurses in addition to Headteacher, Head of Year 8 and Head of PSE
- Maintain the competition dates as February to March for the coming year, but attempt to get classes entered by Christmas
- Offer the competition to Year 7 in addition to Year 8
- Keep prizes at 3, 4, and 5 months, but possibly give more lower prizes:
  4 x £200 at 3 months; 6 x £300 at 4 months; 4 x £750 and 30 x £100 at 5 months
- Devise a system to ensure a better geographical spread of prize winners
- Keep prizes as school prizes, but encourage the school to spend some of it on the winning class
- Offer schools the opportunity to participate in the European draw (which will be a trip to London)
- Provide small momentoes, such as the badges, to all pupils, on more than one occasion
- By means of a box to tick on the entry form, offer schools the opportunity of having their details on the Internet site so that they may be contacted by other European entrants
- Ask schools at the inquiry stage if they will be willing to participate in research if randomly selected
- Leave a clear gap between receipt on entry forms and the start of the competition, so that more sensitive evaluation can be undertaken
- Make sure that teachers know that the order of names on the commitment form is not important
- Maintain biochemical validation as a local option
- Ensure that all correspondence sent to schools is copied to local partners
- Ensure that all correspondence sent to form tutors is copied to Head of Year and Head of PSE
- Inform schools that commitment form has been received by means of a postcard which also carries some information about smoking, possibly in a quiz format.

References

1 Young People in Wales: Lifestyle Changes 1986–1996
Health Promotion Wales Technical Report No: 24

2 Vartiainen E., Paavola M., Vertio H. "No Smoking Class" competitions in Finland: their value in delaying the onset of smoking in adolescence. *Health Promotion International, 1996: 3 (11): 189–192.*

APPENDIX

Table 1: Main characteristics of the competition in different countries

Country	Important Rules	Prizes	Further Remarks
Denmark	• Each class has to carry out an activity dealing with tobacco and smoking. • If somebody smokes but promises not to smoke anymore, the class decides what to do. Regular smoking is not accepted.	• Prizes 1– 4: Cash • Prizes 5–6: T-shirts	Competition was carried out only in grade 7 (13 year-olds).
Finland	• Whole class has to remain smokefree. • If a pupil smokes, but promises not to smoke again, the class can remain in the competition. • Regular smoking is not accepted.	Cash prizes	Experience in organising the competition since 1989/90
France	• Prizes are graded according to the number of smokers in the class. • If more than 5 pupils have smoked, class drops out.	Cash prizes: • No smoker: Prize A • 1–2 pupils have smoked: Prize B • 3–5 pupils have smoked: Prize C	
Germany	• At least 90% of pupils have to agree to participate. • Up to 10% of the pupils are allowed to smoke. • Classes are allowed to exceed the 10% limit once.	Cash prizes	Teachers workshops
Italy	• If any pupil becomes a regular smoker, the class drops out. • In the case of experimental smoking the class remains in the competition.	1st prize: Radio/tape/CD-player to every pupil 2nd prize: participation in the international prize draw	
Spain	• One single episode of smoking is acceptable if the class decides so. • Regular smoking of any pupil is not accepted.	• First prize is a day cruise • 2nd and 3rd prizes: music recordings, books • Special prize for the slogan: CD player	Every class had to make its own "competition slogan". The best one won an award.
UK	• At least 90% of the pupils have to agree to participate. • Class drops out if more than 25% of pupils smoke. • Prizes are graded according to the period of time that the classes participate. • Bullying is grounds for disqualification.	• Cash prizes: (rather to whole school than to individual classes or pupils) • 2 third prizes at 3 months • 2 second prizes at 4 months • 2 first prizes at 6 months and 30 small cash prizes	• A consultation exercise as a part of the project development • Did not take part in the international prize draw • Entry requirements ensured that no bullying appeared

PUBLICATIONS OF MINISTRY OF SOCIAL AFFAIRS AND HEALTH 1997: 22

FINNISH STRATEGY TO PROMOTE HEALTH AND NON-SMOKING AMONG YOUNG PEOPLE

MINISTRY OF SOCIAL AFFAIRS AND HEALTH
Department for Promotion and Prevention
Helsinki 1997

PRESENTATION LEAF

Publisher **Ministry of Social Affairs and Health/Finland**	Date **1.7.1997**
Authors (in case of organs: name, chairman and secretary) **Consensus Development Conference on Promotion of Non-Smoking Lifestyles among Young People held 27-28.8.1996**	Art of the publication **Consensus Statement** Principal **Ministry of Social Affairs and Health** Date of appointing the organ

The title of the publication
Finnish Strategy to Promote Health and Non-Smoking among Young People

Parts of the publication
Recommendations

Summary
The Concensus Conference proposed 38 measures to promote healthy and smokefree lifestyles among young people in Finland. The aim of these measures is to create healthy and smoke-free environments for young people, to improve co-operation and communication between parents, other adults and young people in families, at schools and during their leisure activities and in this way to promote and to support healthy and non-smoking growth of young people.

Key words
Education, health education, health promotion, preventive health policy, schools, smoking, young people

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INTRODUCTION

Finland is one of the first countries which has introduced comprehensive legislative and administrative actions to reduce and prevent smoking. In Finland the Tobacco Acts of 1976 and 1995 have been the main elements of the health-oriented tobacco policy based on health education, pricing policy, protection, restrictions and research.

The key provisions of the Finnish Tobacco Act include:

- a total ban on direct and indirect tobacco advertising and sales promotion of tobacco products and smoking;
- the ban on sales of tobacco to young people under 18 years;
- a requirement for smokefree air in all public and business premises, workplaces, child day care centres and schools, including yards;
- obligatory health warnings and content labelling on retail packs of tobacco products;
- the vending machines under continuous supervision, and
- the ban to establish smoking rooms in the buildings in which people under 18 years mainly stay or which they use.

The proprietors of indoor premises may allow smoking in a smoking room in so far as no tobacco smoke can enter those premises where smoking is prohibited.

The Finnish smokefree policy has been successful. The proportion of daily smokers been decreasing since the 1960's. In 1996 22% Finnish population smoked daily (18% wom 27% men). These figures are the lowest in rope. However, the situation has not beer positive among young people. In Finland t tend to begin smoking earlier than in most Eu pean countries. In 1995 26% of boys and 24% girls aged under 18 smoked daily.This is why need new measures and activities to discour onset of smoking among young people.

The Finnish Ministry of Social Affairs a Health initiated the action to prepare a plan a Finnish strategy to promote health and smo free lifestyles among young people. In 1996, expert group was appointed to propose rec mendations for smoking prevention. The me bers of the group represented NGOs, child c care centres, student organizations, medical perts, schools, communities, the church, searchers, sports associations, media, and vertisers. The Ministry of Social Affairs a Health with co-partners organized a consens conference in August 1996. Its aim was to cr cally assess and discuss the 38 recommen tions prepared and proposed by the consens group. After a two-day lively discussion by t 500 conference participants the recommen tions were finalized.

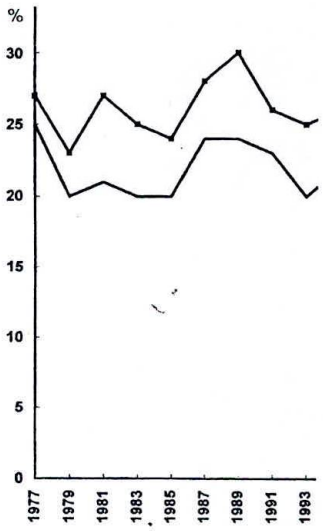
Smoking among young people seems to be related to environmental factors. Smokefree environment and role models play an important role in onset of smoking. In their daily life children and young people seem to need strong support and presence of the parents and adults. This may be one of the most important elements in promoting health and smokefree lifestyles among young people. The active role of the whole society as a "couch" of smokefree life is also needed.

The recommendations are now in their practical stage. In implementation the actors are mainly the same which participated in their preparation. The idea is to initiate a comprehesive and interactive process promoting knowledge about and action for non-smoking at several levels. It is stressed that the onset of smoking among young people is in the beginning a psychosocial problem, not a health problem.

The special network nominated by the Ministry of Social Affairs and Health will follow and evaluate the process. In 2000 the network will organize a follow-up conference on the issue.

Terttu Huttu-Juntunen
Minister of Social Affairs and Health

Daily smokers (%) aged 14 in 1977-1997 by sex



The Adolescent Health and Lifestyle

Tampere School of Public Health
University of Tampere

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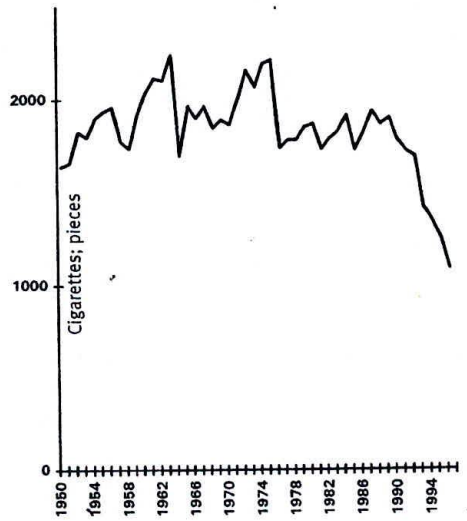
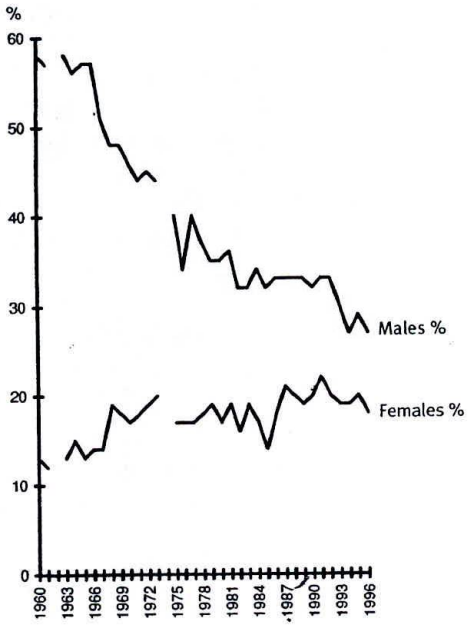
Consumption of cigarettes per person aged 15 or over, 1950-1996



1950-94: Wholesale trade purchases and imports.
1995-96: Tobacco products delivered for taxable consumption.

Statistics Finland.
Tobacco statistics 1996.

Proportion of daily smokers (%) aged 15-64 years in 1960-1996 by sex



National Public Health Institute 1996

TOWARDS A POLICY OF CONCENSUS: REASONS AND RECOMMENDATIONS FOR ACTIONS

Smoking is today the greatest preventable health problem in Finland and the other industrialized countries. In Finland, almost all regular smokers have started smoking before the age of 20, in consequence of which the exposure to the detrimental substances of tobacco becomes very high. Two out of three of those who have started smoking at an early age will catch a tobacco-related disease. One out of two regular smokers will die prematurely from a tobacco-related disease. Every fourth of those who started smoking before the age of 16 will lose his/her capacity for work as a result of a serious tobacco-related disease prior to the retirement age. On a global level, three million people die every year due to smoking.

If smoking is started before the age of 18, it will usually result in an addiction continuing into adulthood. Smoking causes considerable health problems as early as in childhood and increases the risk of many serious diseases when grown up. School-age smokers are more often ill and suffer more often from ill health than non-smokers. At the same time they also suffer more often than non-smokers from abdominal pains, headaches, tension, nervousness, insomnia and tiredness. Smoking among schoolchildren is also associated with other unhealthy lifestyles - early experiments with alcohol drinking in order to get drunk and bad food habits. Almost all young abusers of medical and narcotic drugs also smoke. Smokers are on average less successful at school than non-smokers. Learning how to smoke and how to roll cigarettes also tends to make it easier to start using cannabis products. The cheapness of roll-your-own tobacco, which is made possible by the low excise duty, almost tempts people to use it.

Adults, in the same way as young people, smoke more often the lower their education. Those with a lower education also smoke in quantitative terms more than those with a higher education, and smoking is clearly more usual among vocational school pupils than among those attending higher secondary school. As regards smokers at vocational schools, they have usually started smoking at comprehensive school. Young people's choices concerning education often depend on their family background apart from their success at school.

The differences in smoking among social groups increased from the end of the 1970's to the middle of the 1980's and have thereafter remained unchanged. It can be concluded from the indirect information concerning social group dependence of smoking among young people that their situation resembles that of the adults. Therefore it can be assumed that socioeconomic differences in morbidity and mortality (e.g. coronary diseases and lung cancer) will remain unchanged or even increase in the near future.

Smoking experiments and smoking among young people increased at the end of the 1980's, but in the beginning of the 1990's their level fell to that of the beginning of the previous decade. Young people in Finland start smoking very early. Here the pattern deviates from the usual Western one so that boys usually begin experiment-

ing with smoking at an earlier age than girls. In 1994 52 % of Finnish girls aged 13 and 70 % of boys of the same age had experimented with smoking. The corresponding figures for those aged 15 were 77 % (girls) and 81 % (boys). In Finland those aged 15 smoke daily more often than their peers in the other countries from which statistical data are available.

Smoking among young people is possible because of sufficient pocket money and the reduced control by the parents: children break away from the sphere of parental control quite early. Those young people who start smoking associate smoking with images of adulthood and success.

Finnish schools are very worried about smoking among pupils. Although the statutory restrictions on smoking have increased since the end of the 1970's , there are still problems related to control. In 1995 every fourth pupil aged 14 and half of the pupils aged 16 at higher secondary schools and vocational institutions said that observance of the restrictions on smoking is not supervised at all in their school. On the other hand, when pupils said that there is supervision, it was most often said to be "rather strict" but seldom "very strict". In 1995 20 % of Finns aged 14 - 16 were daily smokers, and about half of them reported to be smoking every day on the school premises.

These recommendations summarize the policy lines and the means to promote health and non-smoking among young people. These measures were agreed upon as a result of the multifaceted and critical debate at the national discussion forum in Jyväskylä in August 1996. It is a great challenge to reduce smoking among young people, and it calls for the contribution of all parties: homes, schools, non-governmental organizations, business life, media, authorities, experts and the young themselves. The task is not an easy one, but we can be hopeful since we have succeeded in reducing smoking among the adult population in Finland. It is essential that we work systematically for several years and initiate interactive processes promoting knowledge about and action for non-smoking at several levels. The objective of these recommendations is to make Finnish society understand the problems relating to smoking among young people, take a serious attitude towards them and to implement the proposed action.

LEGISLATIVE MEASURES

Tobacco is a plant containing toxic chemical components; products made from it would not be granted a selling licence if they were put on the market today. Non-smoking is one of the most significant factors promoting young people's health. Support for non-smoking is a means to prevent many serious illnesses, also abuse of alcohol and other substances and drugs.

A factor influencing the learning of health-promoting issues, adopting the knowledge, changes in attitudes and behaviour is the whole social environment of young people, where the school plays an important role. Non-smoking among school staff is a basic factor contributing to the effect of messages concerning the advantages of non-smoking.

Recommendation 1:

The Ministry of Social Affairs and Health should prepare an amendment to the Act on Measures to Reduce Smoking according to which schools and educational situations shall be totally smoke-free.

In spite of the great health hazards involved in smoking the interest shown by society and politicians in prevention of smoking has not been sufficient, since smoking among young Finns is more common compared with the other European countries. Marketing and sales promotion of tobacco products is considered as an ordinary business activity, and the decision-makers are not willing to interfere in it. Tobacco products, used as they are meant to, involve a great health hazard though.

Recommendation 2:

The Ministry of Social Affairs s should prepare an amendment t Measures to Reduce Smoking a which the sanction for a repeate of the prohibition against selli products to young people unde 18 shall be the loss of the righ bacco products.

There is clear and binding evidenc of the prices of tobacco products ar power on their consumption: the cc tobacco products is the more com ous the greater amount of cigare have money to buy. The price is c affect more children's and young p ing than that of adults. When nicot is a factor, children and young peo tain nicotine according to what th e.g. by changing over to cheap cig arettes which they themselves roll low taxation of cheap cigarettes a tobacco makes it possible for chil ments with smoking to develop an a when their limited purchasing pow erwise protect them. It is difficult t co prices and the tax on tobacco sin uct which affects the cost-of-living

Recommendation 3:

The Ministry of Finance should i ration with the Ministry of Soc and Health prepare an amendm Act on Excise Duty on Tobacco i raise the taxation of tobacco clearly over the minimum level d by the European Union and to the tax on all tobacco products t same amount per consumer unit factory-made cigarettes.

Recommendation 4:

Tobacco should be excluded from the cost-of-living index.

The sales and marketing of ten-cigarette packets have increased remarkably in recent years. According to a study, among those aged 14, about half of those experimenting with their first cigarettes and a third of those who had experimented a little more often had last bought a ten-cigarette packet. Smoking experiments among young people are started with the same cigarette brands as are the most popular among daily smokers.

Also the easy access to tobacco products is a factor encouraging young people to initiate and continue smoking. The mail-order and vending machine business allowed by the present legislation facilitate obtaining tobacco products.

Recommendation 5:

The Ministry of Social Affairs and Health should prepare an amendment to the Act on Measures to Reduce Smoking standardizing the size of cigarette packets to 20 cigarettes.

Recommendation 6:

The Ministry of Social Affairs and Health should prepare an amendment to the Act on Measures to Reduce Smoking prohibiting the sales of tobacco products from vending machines and by mail-order.

Although tobacco advertising is prohibited by law in Finland, it is conveyed to the country through foreign media. Finland should not accept the mixed European practice concerning tobacco advertising that reduces the credibility own legislation. Rescinding the Finnish na legislation which prohibits tobacco adve cannot be accepted under any circumstan

Recommendation 7:

For the purpose of protecting young p ple's health Finland should impose a t ban on tobacco advertising in the EU, a in particular a ban on tobacco advertis through sports, culture and other spons ing. It must always be possible to h stricter legislation at the national le than that defined in the proposed direct on ban on tobacco advertising.

ACTIONS BY THE AUTHORIT

The present action to promote young pe health is not enough but new resources ways and a strong commitment to promote smoking are needed. The State and the loc thorities must develop concrete health p strategies to support non-smoking. Dev ments in non-smoking among young p should be reported in the Public Health R given by the Council of State to Parliame regular intervals.

Adults cannot bring up today's young p after the same models as were used in youth, but adults have to be available present. A young person shall be accepte sensible, conscious and responsible learne is supported and guided in making choice solutions concerning his or her own life. T grown-ups who are working with young p must be aware of the significance of thei example, of the prevailing youth culture ar health risk involved in smoking. These grow must also develop their mutual collaborat

promoting health in municipalities and agree on the general objectives and policies to prevent smoking among young people.

The bans and restrictions of the Act on Measures to Reduce Smoking are society's message that smoking is not considered acceptable. On the other hand, a weak control of the observance of the Act can strengthen young people's idea that these or other collectively agreed rules of the game are not meant to be followed.

The present experience indicates that the ban on the sale of tobacco products to young persons under 18 has not been implemented as presupposed in our legislation.

Recommendation 8:

The Ministry of Social Affairs and Health should collaborate with the supervisory authorities and agencies representing retail trade in preparing uniform and clear directives on the enforcement and supervision of the ban on selling tobacco products to young persons under 18.

It is widely accepted that carefully planned purchase tests directed at all retail sale premises at regular intervals is the most effective way of supervising the observance of the sales ban. The importance of supervision can be increased by combining the supervision with guidance and information.

Recommendation 9:

The municipal supervisory authorities should intensify the observance of the ban on sales of tobacco products to those under 18 by increasing supervision and developing the supervision methods (e.g. test purchases) in cooperation with the Ministry of Social Affairs and Health.

The enforcement of the ban on sales products presupposes an active wor mation between health care, school other actors. The municipal health o inform, support and educate the st and kiosks regarding the enforcemer on sales and the health criteria of the The present signs in shops indicatin sales and health risks of tobacco proc up in cooperation with tobacco indu fulfil the requirements of the legislat officers should utilize the expertise governmental organizations working health in the enforcement of the ban c in related information.

Recommendation 10:

The authorities should supervise tl selling tobacco products furnish th premises with signs indicating th sales of tobacco products to pers under 18 and the health risks of the ucts. Furthermore, the signs shou young people to be prepared to their identity cards.

As the restrictions on tobacco adver increased, the appearance of tobac has become a more and more impor conveying images and arousing int package as such advertises the pr Finnish authorities should prepare aiming at the sale of tobacco products packages bearing the same colou should also advocate this actively in Council of the European Union. Visib ourful presentation of tobacco produc premises, easy access and purchasing children to buy them. Placing tobacc clearly on view and demonstration products weaken the health message the risks of smoking conveyed by oth

Recommendation 11:

The Ministry of Social Affairs and Health and the central organizations of retail trade should prepare a recommendation with a view to placing tobacco products on sales premises out of sight for children.

Tobacco advertising considerably increases children's interest in experiments with smoking. Furthermore, some TV programmes show much smoking. Maybe the most difficult thing to tackle is the conveyance of tobacco advertising from abroad e.g. through various sponsored sports and cultural events. In some cases tobacco industry also tries to influence the illustration of news and events shown in the media. In spite of the total ban on tobacco advertising the Finnish TV channels conveyed in March 1996 about four hours of tobacco advertising in the context of sports programmes.

Recommendation 12:

The Ministry of Transport and Communications should start negotiations with representatives of the Finnish mass media in order to bring about uniform directions and policies to prevent the conveyance of material containing tobacco advertising and promoting smoking. To begin with, the prevalence of tobacco advertising and smoking in the media should be studied.

It is possible to increase professional un standing and skills to reduce smoking am young people through research and develo the action based on it. Research is the basis point of departure for health promotion, as as a means to assess the outcome of the m ures taken. For the time being there is not enc systematic material to constitute the basis future research and development.

Recommendation 13:

An expert group appointed by the Ministr of Social Affairs and Health should asses the research and development concernin smoking among young Finns and give proposal for long-term continued actio taking into account future needs.

DEVELOPING PROFESSIONAL SKILLS

In the education of health care personnel sm ing issues have been outshadowed by the struction focused on treatment of illnesses. I international study carried out in 42 countri was found out that students of medicine w astonishingly ignorant of tobacco-related dis es, and that the curricula lacked information them. In consequence, health care personne ten neglect to try to persuade people to s smoking, even though that would be very im tant from the point of view of care. This defect be remedied by means of education. Educa is important also in terms of tobacco policy, si health care personnel's influence on peop opinions in health issues is vital.

Recommendation 14:

Institutes of social welfare and health care studies, polytechnics, faculties of medicine and other units providing health care education should develop an education package concerning prevention of smoking, tobacco-related diseases and withdrawal methods. The need for such education should be studied by surveying the present volume of education relating to tobacco.

A young person cannot adopt health values in an environment where health is not valued, where health messages are in conflict with the prevailing patterns of behaviour or where the circumstances make it difficult to pursue healthy life habits. Young people observe and adopt health values from their environment without being conscious of it and often in such situations that the grown-ups do not at all understand as being pedagogic. Non-smoking among child day care workers, teachers, social and health care personnel and their attitude to smoking are significant factors when bringing up children to be non-smokers. Therefore non-smoking should be considered as a factor influencing the appraisal of suitability when choosing employees for the above-mentioned sectors.

Recommendation 15:

Vocational education for child care, education, social and health care, youth work and sports provision should include instruction in skills and knowledge which promote non-smoking. Those graduated from these institutes should be themselves non-smokers.

Recommendation 16:

Employees engaged in social health care, education, youth v sports provision should not smok working hours.

ACTIONS TO SUPPORT FAMILIES AND PARENTH

The prerequisites for health-promotir are created in one's early childhood. T tion for a child's mastery of life, self-e mental health is laid in the family. Alsc health habits are determined by the culture of the family. In connection v training for parents expecting a chi should also be trained for parenthood, child care and upbringing. This so calle school model shall be followed als health clinics. At the same time strengthen the parents' capacity to st active health-promoting cooperatio other growth and school environm child. The public discussion should by sible means support the parents in lenging task to bring up their childre healthy life habits and non-smoking.

The parents function as the first r of non-smoking for the child, and this m be strengthened when people are gr parenthood. Maternity and child hea shall emphasize the idea of a smoke-f One significant risk factor contributing ed infections in children is tobacco sm home. When treating children with re fections the parents' attention must b this circumstance. The importance o own attitude in supporting the child growth and development, as well as t tance of mutual interaction as a mea bringing must be stressed. Health ed

just as important for those who are expecting their first child, and smoking parents must be encouraged to stop smoking. Also parents of the first child starting school need special information and guidance.

Recommendation 17:

A study of health promotion work done in homes, obstacles to it and its possibilities should be initiated. Its outcome would provide the basis for an action programme to help parents to bring up their children in a way promoting health.

Recommendation 18:

One objective of family training and maternity and child health clinics should be to promote parents' non-smoking and a smoke-free home.

Recommendation 19:

Health care centres should provide those expecting a child and parents of small children an opportunity to take part in withdrawal from tobacco and to get nicotine substitution therapy free of charge.

Recommendation 20:

Measuring the carbon monoxide expired by parents should be introduced as a tool and as a part of the ordinary health examinations at maternity clinics.

Behaviour that preindicates future smoking and other risk behaviour and exclusion can be observed as early as in small children, and detecting that will make it possible to help these c dren at an early stage.

Recommendation 21:

Social welfare and health care and the edu cational system should collaborate i working up and developing identificatio and prevention methods to anticipate fu ture risk behaviour and exclusion and tak them into standard use for the purpose o prevention.

A child always reflects the "health" of its fan growth conditions and living environment. though the responsibility for bringing up child and young people has to a greater extent be shifted to the day care centre, school and oti groups outside the family, the home and the p ents always bear the main responsibility. T parents' significance and role is further of cruc importance for the child's healthy developme Day care centres must give the children the l sic facilities for adopting non-smoking and o er health-promoting habits and lifestyles.

Recommendation 22:

Within child care non-smoking should be promoted by means of play and various activities. The facilities of the day care personnel to promote non-smoking among families should be increased by means of supplementary training.

A considerable risk factor with a view to ch dren's smoking and other development is afte noons spent without grown-up control. Childr are influenced by circumstances that are beyor the parents' control. In Finland children are e pected to grow functionally independent earli

than their psychosocial development would allow. In cases where the parents are in full-time employment schoolchildren should have an organized programme during afternoons - in the same way as in many other countries. The programme should be planned so as to contain recreational and stimulating activities for children under the care of grown-ups.

Recommendation 23:

There should be organized afternoon activities for schoolchildren on school premises or elsewhere after school hours. They could be organized by e.g. schools, parishes, municipal youth and sports services, and other hobby organisations.

ACTIONS SUPPORTING THE WORK OF SCHOOLS AND EDUCATIONAL INSTITUTIONS

The health behaviour adopted in youth is often retained throughout the life, and thus health should be a quality factor in the educational system at its all levels. Basic knowledge and skills relating to health shall be integrated into all comprehensive and vocational education. With the reformed curricula the share of health education has been reduced considerably in schools and educational institutions. Their curricula and teaching methods shall promote and strengthen non-smoking, which is integrated into the instruction even from the lower level of the comprehensive school.

A young person seeks situations according to what he or she has learned to value. Health promotion does not consist of teaching individual facts or learning things by heart, but young people must get a positive overall view of health and its prerequisites, which is supported by the social environment. Guided by it young people can learn how to master health issues and make solutions concerning health. Control of social pressures undermining health can be promoted in education and upbringing by giving special attention to creating a positive picture of oneself and to strengthening one's self-esteem. Instruction in social skills (communication, expressing oneself, social intercourse) shall be an integral part of the education and upbringing.

Recommendation 24:

An action programme for non-smoking should be drawn up for each school and educational institution in cooperation with school and student health care. The programme should be a registered strategy agreed upon jointly - also with the pupils contributing. It should manifest the attitude towards smoking, measures to prevent from onset of smoking, policies in different situations, continuous monitoring and evaluation.

Recommendation 25:

Health education in schools and educational institutions should be strengthened, and prevention of smoking should be linked to young people's mastery of life and the school's teaching of manners. The National Board of Education should in collaboration with experts develop operational models within the curricula of schools and educational institutions. These models should include means of which all young people can be taught matters relating to prevention of smoking

Although promotion of non-smoking and health concerns the whole school or educational institution, teachers need many-sided help from professionals in different fields. In this context representatives of school and student health care play the most central role.

School and student health care are part of the statutory public health work of a municipality. Their goal is to promote a healthy growth and development of pupils and students as well as the health of the whole community. Such action requires from the school health personnel besides an active contribution, initiatives and constant presence also cooperation with the school and educational community.

With the economic recession the resources of school and student health care have decreased, since the time spent by public health nurses and physicians on it has been reduced in recent years. The recommendation is that there should be a maximum of 750 pupils/ students per one public health nurse employed on a full-time basis in school or student health care. If the public health nurse is responsible for several schools or institutions, the number of pupils/students should be lower, since time has to be reserved for contribution according to school or educational institution.

Recommendation 26:

Health care centres should guarantee the public health nurses and doctors working in school and student health care enough time for taking care of the pupils'/students' health and for promotion of non-smoking in collaboration with the other school and educational community. The facilities of school and student health care should be situated in connection with the school or educational institution.

Young people often say that they are interested in stopping smoking and talk about numerous attempts to do so, but find the nicotine addiction problematic. Besides the addiction, also the rewarding and strengthening factors related to smoking guarantee in the end that experiments with smoking often lead to lifelong smoking. More research findings are needed concerning how to make young people stop smoking, its methods and outcome.

Recommendation 27:

Health centres should organize activities to support those pupils/students who want to stop smoking (e.g. withdrawal groups). Young people's knowledge of the risks of smoking as well as confidential discussions about smoking should be promoted e.g. by means of measuring expired carbon monoxide as part of ordinary health examinations.

According to Finnish studies teachers are in need of more information in almost all areas of health education: targets, contents, methods and in general issues relating to young people's health behaviour and smoking habits. The professional facilities of teachers shall include the ability to discuss health issues with their pupils/students.

Recommendation 28:

Teachers and school and student health personnel should be provided joint supplementary training for the purpose of developing the content and working methods of health promotion, school and student health care and curricula for health education.

Today's society poses young people more and more challenges relating to adulthood. Every young person matures individually gathering ideas, advice, influences etc. from various quarters. Also healthy life habits have different values and emphases in different individuals' lives. The starting point for health education promoting non-smoking shall be the young person, his or her life situation and living environment. Studies have shown that the best results in promoting non-smoking among young people have been achieved when a programme at population level directed to both young people and adults has been integrated into health education programmes of schools and educational institutions.

Recommendation 29:

The educational system, social welfare, health care, temperance work and non-governmental organizations should collaborate in developing and implementing health education programmes aimed at non-smoking for young people and adults. They should take into account expert recommendations, local conditions, young people's needs, lifestyles and cultures.

Follow-up is an efficient means to influence non-smoking and other lifestyles. In addition to the national follow-up an efficient prevention requires intense and well-timed local and school-based monitoring, when the action can be directed according to problems and their impact can be followed.

Recommendation 30:

Non-smoking among young people should be followed by means of a national system which produces sufficiently quickly and frequently information about the prevalence of smoking per school, educational institution and municipality.

ACTIONS AIMED AT LEISURE TIME

Children remain primarily in the sphere of influence of the parents until the age of ten years. After that leisure-time activities, friends, idols and other reference groups become very influential. Young people taking part in organized group activities use according to studies intoxicating substances to a minor extent than other young people.

Being together with other young people, leisure time interests, habits and hobbies considerably mould the lifestyles of young people and the culture formed by them. An adult participant must accept that young people themselves are the real experts in youth culture. Influential individuals play an important role in youth groups. It would be important to seek out the local opinion-leaders among the young and to motivate them to maintain health-supporting models of action.

Information is necessary for making choices supporting health. However, in particular in puberty smoking can be fascinating because it can be seen as a game with risks and can channel young people's defiance towards authority. Therefore it is important to organize various kinds of stimulating activities for young people. Society must offer children and young people various kinds of leisure time activities. The State and the local authorities shall increase their financial support to children's and young people's school clubs and leisure-time activities. Further-

more, they must seek new flexible solutions to ensure an efficient use of new and existing premises for such activities.

In Finland more than 350,000 children and young people aged 3 - 18 participate annually for three months in organized sports club activities. It is possible to lay foundation for health-promoting choices even in such a short time. Hobby organizations should develop their activities so as to better promote healthy life habits and underline non-smoking as one basic principle in their action.

According to a sports study those children and young people who are not participating at the moment are also interested in sports club activities. If sports and leisure time organizations working with young people would have enough resources they could double their number of members.

Non-smoking shall be extended to all levels of young people's leisure-time and to their circle of friends. Since coaches and hobby instructors serve as models for children and young people their non-smoking should be promoted. It should be stressed within the framework of their training that it is not recommended that instructors and children's parents smoke in connection with hobby activities - neither indoors nor outdoors. The premises and the surrounding area should be totally smoke-free. The State, local authorities and parishes should aim at making the premises and outdoor facilities owned by them smoke-free.

Confirmation classes, in particular camp classes have become a rite of becoming adult. Issues relating to smoking have however caused much trouble in the youth work of parishes and for instance in confirmation classes. The teachers in confirmation classes have not given much attention to matters that are essential for non-smoking and other health matters for young people. Parishes and churches should assume more responsibility for non-smoking and healthy lifestyles among young people.

Recommendation 31:

The State and the local authorities should make it possible for sports and other hobby organizations to provide a greater selection of health-promoting leisure-time activities on children's and young people's conditions.

Recommendation 32:

One condition for granting financial support by the State and municipalities to hobby and sports organizations should be promotion of young people's health and non-smoking.

Recommendation 33:

The churches and parishes should specify their targets regarding health promotion and promotion of non-smoking in confirmation classes and other activities targeted to young people.

Recommendation 34:

The State, the local authorities and parishes should prohibit smoking in outdoor facilities and sports grounds possessed and administered by them.

Recommendation 35:

Tobacco products should not be sold in cafes or kiosks in connection with hobby facilities.

OTHER ACTIONS

As regards those doing their national service the attitude of foremen towards smoking and group pressure have traditionally favoured smoking. The time in military service and its atmosphere should support non-smoking and good health.

Recommendation 36:

The Defence Forces should designate non-smoking and health promotion as one important educational target.

Action according to the recommendations put forth above needs to be supported by systematic nation-wide information over several years. It is known that repeated messages in mass media can strengthen the health education taking place in the field and add to its weight.

Recommendation 37:

There is great need for long-term information in favour of non-smoking society in Finnish society.

IMPLEMENTATION OF THE RECOMMENDATIONS FOR ACTION

The consensus panel proposes an immediate implementation of these recommendations. Furthermore, it proposes that the Ministry of Social Affairs and Health appoint, for a minimum of five years, a steering group for the implementation of the recommendations to monitor and assess the action taken.

Recommendation 38:

The Ministry of Social Affairs and Health should see to it that a follow-up meeting will be organized after three years, as well as draw up a report concerning the implementation of the proposed action.

16 Smoking Habits

The factors which encourage young persons to start smoking have been extensively studied in the West. Parents, and older siblings who smoke, often induce youngsters to imitate them. Peer pressure is one of the most important reasons for adolescents taking to cigarettes. On an average, boys in the West begin smoking at twelve or thirteen. With approaching adolescence, they feel that smoking will make them appear more mature, tough and sophisticated. Smoking is found to be more prevalent among the lower socioeconomic classes, poor academic performers, and traumatised adolescents. About ninety per cent of addicts in the West are reported to have begun smoking as teenagers. The percentage of smokers among college graduates is less than that of high school graduates, which, in turn, is less than that of dropouts. Some youngsters start smoking out of sheer curiosity. Thus, social factors, particularly the environment, play a major role in inducing people to smoke.

For a beginner, the first cigarette, causes considerable irritation, nausea and unease. About thirty per cent feel sick after their first cigarette; only 20 per cent report to have enjoyed it. Persistent smoking increases tolerance, causing people to enjoy smoking without feeling nauseous. They find that smoking exhilarates them. The action of nicotine is very rapid. Once inhaled, nicotine is absorbed rapidly into the bloodstream where it moves to the brain and activates the pleasure centres. However, nicotine is metabolised very rapidly, so that within twenty to thirty minutes, the levels of nicotine in the brain and tissues fall. The smoker lights up another cigarette just to maintain high levels of nicotine in his brain and blood, and extend the feeling of euphoria. It is in this manner that most people become addicts.

People vary in their attitudes and habits when it comes to smoking. Confirmed non-smokers, will not smoke even in company. Occasional smokers, are those who are not addicts, but who smoke once in a

while just to keep company. Light smokers restrict themselves to five or six cigarettes a day. Moderate smokers habitually smoke 10–25 cigarettes per day. Finally, there are the heavy smokers or chain smokers, who smoke anywhere from twenty-five to forty cigarettes a day; and are addicted to cigarettes. The moderate or heavy smoker is likely to suffer from withdrawal effects if he quits smoking. People begin smoking just for pleasure but will later smoke to avoid suffering from withdrawal symptoms. The factors responsible for a person to continue smoking are chiefly pharmacological, and are different from those responsible for inducing a person to smoke. For most drug addicts, heroin or opiates give only a short period of enjoyment, for a fortnight or a month at the beginning. The addicts then have to continue with the drugs, just to stave off the withdrawal effects. The heavy smoker is only slightly better off than the drug addict.

Smoking becomes a regular habit with many smokers. They automatically smoke a constant number of cigarettes at particular times during the day or week. In the West, most people smoke anywhere between twenty to forty cigarettes a day. In India, however, the average smoker is limited by his income, and consumes far less than twenty cigarettes a day.

There are differences in the way men and women smoke. Women take more frequent puffs of smaller volumes. The amount of nicotine obtained from a cigarette relative to the amount of tar, depends on the puffing pattern and shape. Women obtain a higher nicotine to tar ratio from each cigarette, compared to men.

Smokers alter their pattern of smoking and number of cigarettes according to their needs, and the circumstances under which they smoke. They subconsciously adjust their nicotine intake to the optimum. Smoking in company may improve the cohesiveness of social groups. When in company the smoker is relaxed, and takes in slow but deep puffs, to achieve tranquillity. When smokers have to concentrate on a demanding job and stay alert, their nicotine intake is limited to a stimulatory effect. When the addict is under stress or is agitated, he smokes many cigarettes in quick succession, taking more frequent puffs and inhaling the smoke deeply. This increases the tissue levels of nicotine which now acts as a depressant, suppressing anger, anxiety, and other such unpleasant feelings. Smoking alters (attenuates) the physiological and psychological response to stress. Thus, by subconsciously manipulating the puffs and nicotine intake, the addict is able to use smoking as a psychological tool. It stimulates him, when he is tired, helps him stay alert and aroused in a challenging task; and soothes him when he is agitated or stressed.

Unfortunately, the pleasures of smoking are short-lived, limited to the duration of the smoke. The long-term consequences of smoking, however, are serious and harmful. Habitual smoking leads to respiratory diseases, like chronic bronchitis and emphysema, cardiovascular diseases, as well as cancers at different sites, of which the most prominent is lung cancer. Addicts are reluctant to stop because while the rewards of smoking are immediate, the harmful effects of smoking are slow and appear only after many years. Besides, not all smokers suffer from the ill-effects of smoking. For example, only about 10–15 per cent of smokers get lung cancer. The fact that smoking related diseases take a long time to manifest and that not all smokers are affected, allow addicts to continue smoking, in the fond hope that they will not be affected. Thanks to the persistent, intense anti-smoking campaign in the West supported by clear, unequivocal medical evidence, about 75 per cent of smokers now admit, although half-heartedly that, cigarette smoking is very injurious to health.

Despite accepting the fact that smoking can lead to various terminal diseases, people continue smoking for various reasons. For one, they overestimate their own chances of survival, and underestimate the risks of smoking. Many of them have misconceptions about the benefits of smoking, the relative risks of smoking, and of the prognosis of smoking-related diseases. Some smokers value the psychological effects of smoking highly. They are also sceptical of anti-smoking campaings, and the information on the effects of smoking on one's health. But there are smokers who genuinely believe that smoking is very bad for health. Many have tried to quit smoking but only a few succeed, because of the addictive nature of nicotine. Only one of four smokers trying to quit, succeeds in doing so.

In course of time, addicts begin experiencing some of the unpleasant effects of smoking. These include coughs, dyspnea, sore throats, respiratory infections, symptoms of peptic ulcer, oesophagitis, angina, dental and gum diseases, and so on. It is then that they realise, that they are not immune to the long-term effects of smoking, and start thinking about quitting. When some of these symptoms become severe they feel the need to quit smoking. Many may attempt to quit but very few succeed. The craving for cigarettes, and the withdrawal symptoms following abstinence, compel them to go back to smoking unless they have good self-control.

Several strategies have been devised to help addicts quit smoking. These include *counselling* by the family physician, *treatment* of withdrawal effects with drugs, particularly nicotine chewing gum *behaviour therapy hypnosis*, and so on. A number of *smoking clinics*

have now opened in the West, to help people quit smoking. Counselling by physicians helps tremendously. It is enough if the physician spends three to five minutes with the smoker, patiently explaining to him the long-term benefits of quitting – better health and greater longevity. The quitting rate is found to be double when the physician takes a personal interest in helping an addict quit smoking. The family physician's role includes: boosting the smoker's resolve to quit, helping the smoker overcome his withdrawal syndrome by prescribing suitable drugs, particularly nicotine chewing gum, encouraging the smoker to try again, if he relapses. Counselling by the family physician is also found to be cost-effective.

Nicotine chewing gum

The main incentive in smoking is the consumption of nicotine, and the major impediment for quitting is the withdrawal syndrome, brought about by nicotine deficiency. Hence, it would be logical to attempt nicotine administration as an alternative to smoking. Initially, nicotine was administered orally in the form of nicotine tartarate tablets and found to be completely ineffective, since the blood level was too low. Nicotine chewing gum has been found to be far more satisfactory and is widely used now.

Nicotine chewing gum is a resin containing 2 mg of nicotine and a bicarbonate buffer. A spicy flavour masks the taste and irritating sensation of nicotine. The bicarbonate buffer provides an alkaline medium, allowing for greater absorption of nicotine. The gum should be chewed very slowly, for over twenty to thirty minutes so that the nicotine is gradually released and completely absorbed through the buccal mucosa into the bloodstream. The blood level of nicotine attained is about a third to half of that produced by smoking cigarettes. The withdrawal symptoms are considerably reduced, though not completely eliminated. Nicotine gum is particularly useful for those smokers who had withdrawal symptoms earlier, those who smoke within thirty minutes of waking up and those who smoke even when they are sick. There are several reports that nicotine gum helps a person abstain from cigarettes.

Nicotine gum however, has some minor side-effects related to chewing and to the influence of nicotine on the gastrointestinal system. It can cause irritation in the mouth, sore jaws, sore throat, heartburn, dyspepsia and hiccups. Dental appliances such as bridges and caps can occasionally loosen or deteriorate. A few patients also experience palpitations.

Nicotine gum should be used correctly to derive maximum benefit and minimise potential unpleasant side-effects. Because it is meant only to relieve withdrawal effects, the gum has to be regularly used, only after the patient has stopped smoking. It is imperative that the patient chews the gum slowly, because vigorous chewing will result in nicotine being released too quickly, and this irritates the mouth. Excess nicotine is swallowed, as its absorption through the buccal mucosa is slow. As it passes through the gastrointestinal tract, it causes hiccups, heartburn, belching, nausea, and dyspepsia. It is primarily metabolised and inactivated in the liver, and very little reaches the bloodstream to produce any psychological effect. A smoker trying to quit, should use this gum for at least three months and chew it as soon as she feels a desire to smoke. Many people stop using nicotine gum as soon as they feel confident that they can do without it. A few become addicted to it and use it for as long as one year.

The use of nicotine gum is contraindicated during pregnancy and in cases of recent myocardial infarction, and life-threatening arrhythmias. Nicotine gum may aggravate coronary disease, peptic ulcers, esophagitis and peripheral vascular diseases. Hence, care should be exercised in prescribing it to the patient.

Other drugs: Many other drugs have been tried to relieve withdrawal effects but have not been of much use. These include lobeline and tranquillisers like diazepam. The opiate antagonist naloxane is very effective but the effect does not last long. Chloridine, an anti-hypertensive drug and an alpha-adrenergic antagonist relieves a number of acute withdrawal effects in heavy smokers. A dosage of 0.15–0.30 mg of chloridine per day has been found to benefit heavy smokers receiving behavioural therapy. However, its long-term effects are not known.

Aversion therapy: Two forms of aversion therapy are being practised, both of which are unpleasant. In one, the addict receives a mild electric shock, whenever he tries to light or pick up a cigarette, or even when he expresses a desire to smoke. In the other, the addict is made to smoke rapidly, about one puff in six seconds, a rate much faster than what she is accustomed to. Both these forms of treatment induce a strong dislike for smoking in the addict. The second method is said to have a success rate of 60 per cent.

Hypnosis: Hypnosis is one of the most popular methods to stop addicts from smoking. It is also found to be very effective. This method will be successful only under certain conditions:

- ❑ The patient should be strongly motivated to give up smoking.

- ❑ The therapy should be individualised, taking into consideration the particular patient's mental makeup.
- ❑ The treatment should involve a number of sessions and regular follow-up.

Acupuncture: Acupuncture, as a method for quitting smoking, has not been studied fully. It has been claimed that acupuncture produces an immediate, strong dislike for the taste and smell of tobacco. This claim, however, needs confirmation and thorough investigation.

Smoking clinics: A number of smoking clinics exist in the West to help addicts give up smoking. Besides educating them about the evils of smoking and techniques to quit the habit, they also offer a wide range of treatment like counselling (psychiatric treatment), hypnosis, group therapy and 'programmed smoking'. They advise addicts on using nicotine chewing gum correctly. Smokers derive some benefit from these clinics but the success rates is only a moderate (about 12 to 28 per cent).

Relapse: Most of the cessation methods practised, initially cause a substantial decrease or even an outright elimination of smoking. But this success is very short-lived. *Relapse is the most important problem with smoking.* There is a steep decline in the number of non-smokers, so that by the end of three months, only about 35 per cent remain non-smokers, and at the end of six months, only 25 per cent. After this period, the number of non-smokers reverting to smoking is less, so that at the end of one year, about 20 per cent remain non-smokers. Generally, they continue as non-smokers so that the true.success rate is about 20 per cent.

Men are more successful in quitting smoking than women. This may be because men and women smoke for different reasons. While most men smoke for relaxation, and as a pastime, women smoke generally start smoking to soothe themselves, to attenuate their anger or anxiety and decrease their stress. Smoking that is started in order to provide relief from stress, is more difficult to quit.

Surveys conducted also reveal that people who have not had much exposure to cigarette smoke, find it easier to quit. These include light smokers, those who have been smoking only for a short time, and those who do not inhale smoke from a cigarette. Extroverts and people with better education, are also found to be more successful in quitting.

Will power and self-control are absolutely necessary for a person to quit smoking. A majority of those who have successfully quit smoking, have accomplished it through self-control alone.

17 The Rise and Fall of the Cigarette in the West

The rise of the cigarette

The cigarette originated in Central or North America during the nineteenth century. There is no record of who invented it, or whether it evolved in the course of time. The cigarette is now smoked by all races in all the countries of the world. Europeans were introduced to the cigarette during the Crimean War, (1856–1858). The automatic cigarette making machine which was invented in 1853, made cigarettes easily available at very low cost. Very soon, it replaced the cigar and the pipe as the most convenient form of smoking. At about the same time, many governments enacted legislation prohibiting tobacco chewers from spitting in public areas. Tobacco addicts took to cigarette smoking instead. World War I (1914–1918) provided a very great impetus for the spread of cigarettes. The soldiers took to smoking to relax, and to break the monotony while waiting at the battlefront. Smoking among women was socially unacceptable until World War I, when women's rights activists began smoking in an attempt to campaign for equality with men. By 1950, smoking became popular among both men and women in the West. Cigarette smoking became widespread. People smoked for various reasons – for relaxation, to stimulate themselves and remain alert at work, to tone down their anger and to soothe themselves when depressed.

Discovery of the harmful effects of cigarettes

By the close of the nineteeth century, people became dimly aware that smoking could cause respiratory disorders. In 1938, Professor Pearl of the Johns Hopkins Institute provided convincing statistical evidence that cigarettes could reduce a person's longevity.

The announcement came as an eye-opener, showing people that cigarette smoking may not be as beneficial as they thought it was. This had two important consequences. First, a thorough analysis of the chemical constituents of cigarette smoke and their biological effects was undertaken. This revealed that cigarette smoke contains numerous harmful chemicals – carbon monoxide, which interferes with oxygen transport and contributes to ischemic heart disease; hydrogen cyanide, a potent cilia poison leading to bronchitis; nicotine, which increases pulse rate and heart rate, and contributes to coronary heart disease; a wide range of carcinogens, cocarcinogens, and tumour promoters including the volatile N-nitrosamines, non-volatile tobacco-specific nitrosamines, the potent polycyclic aromatic hydrocarbons, and small amounts of the radioactive polonium-210. Simultaneously, large-scale epidemiological investigations on the health effects of smoking were carried out, involving a number of case-control and prospective studies. The results revealed that smoking can cause cancers in various parts of the body such as the lungs, mouth, larynx, pharynx, esophagus, pancreas, kidney and bladder. Smoking can also give rise to some non-fatal but very distressing diseases like peripheral vascular disease, cataract, hip fracture and periodontal disease. Smoking during pregnancy can harm the fetus. The fetus is also succeptible to spontaneous abortion, ectopic pregnancy, limb reduction defects, low birth weight, stillbirth and neonatal death. The first report on Smoking and Health by the Royal College of Physicians, London in 1962 and the U.S. Surgeon-General's Report in 1964, clearly brought out these harmful effects of smoking. They were confirmed in subsequent reports of the U.S. Surgeon-General. Passive smoking, particularly in poorly ventilated rooms and confined spaces, was also found to be very injurious. These reports concluded that a fifth of all deaths in these countries were due to smoking alone, an enormous loss of life, which is strictly preventable.

Restrictions on cigarette smoking

These revealations on the deleterious effects of smoking had a powerful impact on the public, the media, the government as well as the cigarette manufacturing companies. As it could not be banned outright in any free society, governments took a wide range of measures to curb smoking. Excise duty on tobacco and cigarettes was raised. It was found that a tax rise of 10 per cent resulted in only a one per cent decrease in the number of smokers. Smoking in public places such as theatres, cinemas, churches and offices was banned. Open advertising and promotion of cigarettes and other tobacco products were forbidden

on television and restricted in other media. The government also made it compulsory to mention on every cigaratte packet, the public health warning `cigarette smoking is very injuries to health'. Smokers were helped in their attempts to quit smoking by increasing the number of Smoking withdrawal clinics, and subsidising anti-smoking aids and anti-smoking campaigns.

Filter cigarettes

Cigarette manufacturing companies responded to the increased awareness of smoking among the public, by introducing well-ventilated, filter cigarettes covered with perforated paper. This helped to reduce the levels of tar, carbon monoxide, and other toxic constituents of cigarette smoke. By using suitable blends of tobacco and changing their manufacturing patterns, the tar and nicotine contents of cigarettes have been progressively reduced to 10–15 mg tar and 1.3–1.5 mg nicotine per cigarette. This is found to be the minimum acceptable level of nicotine, for smokers. Low-tar, low-nicotine cigarettes yielding just 10 mg tar and 1 mg nicotine, are also available. Some governments also stipulate that the tar and nicotine yields of cigarettes should also be displayed on the cigarette packet. Smoking low-tar, low-nicotine filter cigarettes substantially reduces the incidence of lung cancer.

Compensatory smoking

When low-tar, low-nicotine filter cigarettes were introduced, the smoker adopted various strategies to compensate for the lower nicotine yield of cigarettes, and to get the usual amount of nicotines she was accustomed to. She increased the number of cigarettes smoked, and the number of puffs taken from each cigarette. In such cigarettes, a larger volume of smoke is taken from each puff, and inhaled more deeply. The cigarettes are also smoked to a shorter butt-length. By adopting all these measures, the smoker was able to compensate for nearly two-thirds of the nicotine decrease due to low-tar, low-nicotine cigarettes. A 35 per cent reduction in nicotine resulted in an 18 per cent increase in the number of cigarettes smoked. Despite this, however, low-tar, low-nicotine cigarettes helped in substantially lowering the incidence of lung cancer. *But the risk still remains; there is no such thing as a safe cigarette.*

Decline in smoking among men and women

Following the reports in the early 1960s of the Royal College of Physicians, U.K. and the Surgeon-General, U.S.A, the media in these countries began carrying out intense anti-smoking campaigns very

effectively. The proportion of men smoking started declining first. The percentage of Americans smoking decreased from 64 per cent in the 1950s to about 31 per cent in 1990. The decrease in the consumption of cigarettes among men in the U.K. fell from about 98 billion in 1986 to 91 billion pieces in 1992/93. Because of a lag period of twenty to thirty years between smoking and the onset of lung cancer, the decline in the incidence of lung cancer among men came much later. The incidence of lung cancer among men steadily increased for a number of years, from 20 per 100,000 persons in 1950 to 70 per 100,000 in 1975, stabilised to 75 per 100,000 in 1985, then began decreasing.

Women started smoking later; and the proportion of women smoking steadily increased, even after men had started quitting. The decline in smoking among women occurred only recently. The incidence of lung cancer among women in U.S.A. has been steadily increasing from 5 per 100,000 persons to 25 per 100,000 from 1960 to 1985; and has started stabilising only recently. The second half of the twentieth century thus witnessed a steady decrease in consumption of cigarettes in Western Europe and the United States.

According to the latest reports from the U.S.A. (March 1999), smoking is no longer a socially acceptable practice. Cigarette smoking is progressively declining and may soon become completely extinct in the U.S.A.. In Britain, the medical profession gave up smoking first. Medical students no longer smoke. Some Scandinavian countries are planning to have a completely smoke-free generation.

Dumping of cigarettes in third world countries

The manufacture and marketing of cigarettes is controlled by about seven multinational companies, based mainly in the U.S.A. and U.K. On finding that their markets have shrunk in the developed countries, these companies have started dumping cigarettes on the third world countries in Asia, Africa and South America. Through aggressive marketing tactics, they have already established themselves in most of the countries and started making huge profits. Though smoking inside the U.S.A. is actively discouraged, the production of tobacco in the U.S.A. has actually increased from about 600,000 to 700,000 tons per year between 1985 and 1994. So also the manufacture of cigarettes. Cigarette smoking has been on the rise in third world countries even as it is decreasing in Western Europe and the United States. The opening decades of the twenty-first century will witness a very rapid increase in lung cancer, almost to epidemic proportions, in the developing countries. Hopefully, this may be followed by a decline in the rate of cigarette consumption and lung cancer.

18 Global Efforts at Tobacco Control

Medical and economic impact of tobacco use

It is now accepted all over the world that smoking is the single major avoidable cause of disease, debility and death. About three million people in the world die of tobacco-related diseases every year, out of the eleven million people suffering from them.

Using tobacco products also creates economic losses, for the consumer, government and society. The diagnosis and treatment of these diseases, particularly cancer, are very expensive, and pose a huge economic burden on the patients and their families, and if subsidised, on the government and the society. Imported cigarettes will bring about a huge drain on foreign exchange.

Tobacco is sometimes cultivated on land which could be better used to grow food grains. Curing of tobacco involves using large amounts of wood, which in turn, leads to large-scale deforestation. Using cigarettes carelessly can cause fires, and cigarette smoke pollutes the atmosphere.

COMPOSITE PROGRAMME FOR TOBACCO CONTROL

In the early 1960s, the discovery of a close link between cigarette smoking, lung cancer and various other diseases, brought about public concern. The media and the governments, were forced to adopt several measures to control cigarette smoking, and restrict tobacco use. The W.H.O. evolved a comprehensive, composite, tobacco control programme whose major objectives were:

- ❑ To prevent persons from starting to smoke;
- ❑ To help addicts to quit smoking;

- To reduce the toxic constituents in cigarette smoke, and hence minimise the damage to smokers who are unable to quit;
- To protect non-smokers from environmental smoke.

This composite programme has several arms; these are listed below.

MASS HEALTH EDUCATION

This attempts to raise public awareness about the adverse effects of smoking, chewing tobacco and dipping snuff, by using the mass media. The ultimate goal of this method is to create a well-informed society, where non-smoking would be the norm. The publication of the 1962 and 1971 reports of the Royal College of Physicians of London started a reversal in the trend and greatly contributed to the 30 per cent decline in male smoking in the U.K. (1962–1980). Similarly, the periodical publication of the U.S. Surgeon-General's Reports from 1964 onwards is a major contributory factor in the decline of smoking prevalence in the U.S.A. Large-scale health education through the media helps prevent non-smokers from taking to cigarettes. In a habitual smoker, it also substantially increases the motivation to quit. Equally important, it facilitates necessary legislation such as increasing tax rates, to control smoking.

Educating the public through the mass media on the adverse effects of smoking, is a prime requisite for any tobacco control programme.

BAN ON ALL FORMS OF TOBACCO ADVERTISEMENTS AND PROMOTION

Most children and teenagers are lured by cigarette advertisements, which depict the smoker possessing mature, tough qualities, which they themselves would like to emulate. The tobacco industry is extremely resourceful in designing advertisements to attract specific groups. For example, it had brought out *slim cigarettes* to encourage smoking among young girls. Once a person becomes a smoker, he or she finds it extremely difficult to quit. Even with all the cessation techniques available now, only about 35 per cent of smokers are able to quit smoking. The saying once a smoker, always a smoker generally holds true. Hence, we need to prevent the urge to smoke in the first place. Banning all forms of tobacco advertisement will be of great help.

Multinational tobacco companies who have money and influence, also engage themselves in numerous promotional activities, sponsoring games and entertainment programmes so on. This indirectly serves in promoting their product. It also creates a circle of people who become dependent on the tobacco industry for funds.

Realising the serious consequences of tobacco advertising and

promoting, twenty-seven countries have banned outright all forms of tobacco advertisements and promotional activities. Eighty-four countries have imposed severe restrictions on tobacco advertising. All these countries have prohibited the sale of cigarettes to minors.

HEALTH WARNINGS

Most countries stipulate that every cigarette packet should carry the health warning 'cigarette smoking is injurious to health'. This warning is carried even in those countries where cigarette advertising has not been banned. In practice, however, this single line advertisement is barely noticeable. This warning also has no effect on the addict, who becomes used to seeing it. However, it may influence a young potential smoker. It may also counteract promotional advertisements.

There have been many suggestions to make this health warning large, and hence effective. A few advanced countries stipulate that the tar and nicotine yields of the cigarettes should also be printed on the packets.

STRATEGIES FOR CESSATION OF SMOKING

A variety of cessation techniques can be employed to help smokers quit, depending on their motivation and degree of addiction.

Smokers attempt to quit only after making a conscious decision to do so. However it has been observed that less than five per cent of smokers succeed in abstaining from cigarettes at the end of a year. It is thus necessary to help smokers quit if the success rate is to be appreciable.

Brief counselling sessions for three to five minutes by the family physician is found to help light smokers. Apart from counselling them on the beneficial health effects of quitting, the physician may also provide leaflets on the hazards of smoking. The success rate achieved is limited, only 5–12 per cent. Greater success can be achieved through longer sessions but this may not be cost-effective. The distribution of free nicotine gum or a nicotine patch substantially increases the quit rate, and prevents quitters from relapsing.

Counselling alone is not enough for moderate smokers to quit. Such smokers use fifteen or more cigarettes a day, and start smoking within thirty minutes of waking up. More than half of them will experience withdrawal symptoms, when they try to quit and need nicotine replacement either in the form of nicotine gum or transdermal nicotine patches which are now easily available and can be used during the day, or for 24 hours. With only a few side-effects, they are best for brief use. The physician should guide the smoker about using nicotine

chewing gum properly. The gum should be chewed very slowly for twenty to thirty minutes, so that the nicotine is gradually released, and absorbed through the buccal mucosa into the bloodstream. Nicotine nasal sprays cause irritation in the nose, and have poor compliance. They are useful for highly addicted, heavy smokers. Nicotine replacement therapy has been found to help moderate to heavy smokers and prevent them from having a relapse. Some moderate smokers, treated with nicotine patches, can quit smoking within a week. The nicotine patch treatment is very cost-effective for these patients.

Highly motivated, but addicted heavy smokers, need intensive therapy in specialised clinics to help them quit smoking. The treatment is very expensive, involving repeated counselling in many sessions, nicotine replacements in various forms, and so on. Group therapies are arranged to save physician's time, and cost to the smoker. Patients attending specialised clinics within a particular geographical area, are grouped together or paired within the group, and made to declare their commitment to abstinence.They are then offered treatment through various cessation techniques. They are often made to check upon each other to ensure that all addicts maintain abstinence. Smoking by any defaulter can be easily checked through two biochemical parameters: by measuring the nicotine metabolite cotinine levels in the saliva (this test is applicable only for those not receiving any nicotine replacement like nicotine gum) and by measuring carbon monoxide in the expired air. Expired carbon monoxide is found to be a useful indicator of smoking in 90 per cent of cases. Portable carbon monoxide meters are now available. Intensive treatment in 'specialist smokers clinics' resulted in 35 per cent of abstainers at the end of one year; and 22 per cent at 5 years, compared to 9 per cent and 5 per cent respectively in the non-intervention group.

FISCAL POLICY

One of the most effective ways of reducing smoking is to raise the taxes on tobacco and tobacco products. For every 10 per cent increase in tax in U.S.A., there is a four per cent decrease of adult smokers and a 14 per cent decrease of teenage smokers. Governments raise tax on tobacco and tobacco products for three reasons: to raise their total revenue, to compensate for medical and health care expenses arising out of tobacco-related diseases and to curb smoking (sumptuary tax).

In Western countries, smoking is closely linked to the socioeconomic group. Over half of the people in the lowest socioeconomic group (unskilled manual workers, and their spouses, smoke). They also suffer most from tobacco-related diseases such as chronic obstructive lung

disease, ischemic heart disease and lung cancer. The price rise in tobacco and cigarette has its maximum impact on this group producing a sharp decline in the number of cigarettes smoked. Smoking in the upper socioeconomic groups (professional workers, managers, and their spouses), is not a major problem and any price rise in cigarettes or tobacco has no effect on their smoking behaviour. Smoking is moderate in the middle socioeconomic groups (clerical workers, skilled and semi-skilled manual workers), and they also respond moderately to price rise in cigarettes and tobacco. It has been reported that the government revenue increases even though the overall consumption of cigarettes falls. The increase in tobacco tax is borne more by the wealthier smokers than the poorer ones sincethey can afford to smoke at the same level as before.

The prevalence of smoking is highest among the poor, who spend a disproportionate share of their incomes on smoking. Any reduction in their smoking due to a price rise in cigarettes, will benefit their own and their families' health. However, addicts who continue with their smoking at the same level as before will be spending a lot more on cigarettes than earlier. Thus, price rise in cigarettes can damage many poor families. Governments will have to carefully monitor its taxation on tobacco and tobacco products, out of consideration for socially disadvantaged groups. A method of progressive taxation on tobacco and tobacco products is one of the key elements in the Comprehensive Tobacco Control Programme administered by the World Health Organization. An efficient fiscal policy on tobacco, coupled with sound mass health education achieves the maximum results. As the majority of people are non-smokers, and as the whole society is fully aware of the harmful effects of smoking, tax on cigarettes for health reasons, is a popular tax, enthusiastically accepted by most sections of society in the West.

There are some countries in Europe, where hand-rolled cigarettes are used. They include the Netherlands (49 per cent of all consumption); Denmark (27 per cent), Belgium (21 per cent), Germany (10 per cent), France (5 per cent) and the U.K. (4 per cent). These cigarettes are taxed less but have a higher tar yield. All these will adversely affect tobacco control in these countries.

PRODUCT MODIFICATION

The established correlation between cigarettes and a number of serious diseases, as well as the knowledge that cigarettes are addictive brought about various programmes to control and prevent smoking. From early 1970s progressive product modification with less and less toxic yields

became an integral part of all comprehensive tobacco control programmes.

Tobacco companies responded by introducing filter cigarettes, with substantially reduced tar and nicotine yields. Since the reduction in both these substances were gradual and spread over years, they did not evoke any consumer resistance. By 1993, the tar yield of cigarettes in the U.K. had been reduced to 15 mg/cigarette. It was agreed that, by 1997, the upper limit for tar would be 12 mg/cigarette, and for nicotine 1 mg/cigarette. This will be followed by all countries of the European Union (EU).

Deaths due to lung cancer and chronic obstructive lung disease have been substantially reduced by product modification. The effect on ischemic heart disease has not yet been clearly established.

BAN ON SMOKING IN PUBLIC PLACES

The majority of people are non-smokers and should be protected from environmental tobacco smoke. Passive smoking can also cause respiratory distress, lung cancer and other diseases. Hence, many countries have banned smoking in public places like schools, churches, and theaters. Smoking is also either completely banned or largely restricted in most of the larger companies and other workplaces in the U.K.

CONTROL OF TOBACCO HABITS IN DEVELOPED COUNTRIES

Among the Western countries, the U.K. and the U.S.A. have made remarkable progress in controlling smoking among both men and women, by adopting the comprehensive tobacco control programme initiated by the W.H.O. Smoking among men declined steadily from about 60 per cent in 1960 to about 28–30 per cent in 1992 in the U.K. Smoking among women rose steadily from about 38 per cent in 1950 to 45 per cent in 1966–70, and has steadily decreased since then to 28 per cent in 1992. Though a steady decline in adult smoking has been achieved in the U.K., the rates of smoking among teenagers are still high. About one in four teenagers become addicts by the time they reach sixteen. The U.K. hopes to reduce the rate of adult smoking from about 30 per cent in 1990 to 20 per cent by 2000, reduce underage smoking from 8 per cent to less than 6 per cent of 11–15 year-olds, and smoking during pregnancy, by about a third.

Scotland has one of the highest incidences of smoking and lung cancer, among both men and women. Anti-smoking measures,

including counselling through telephones, are now being pursued vigorously.

In the U.S.A., while smoking has been on the decline, there has been a revival of the use of smokeless tobacco. From the 1970s, teenagers and young adults have been increasingly chewing tobacco and dipping snuff. These practices are more common among boys than girls. Smokeless tobacco causes leukoplakia, and oral and pharyngeal cancers. The five-year survival for oral and pharyngeal cancers is about 50 per cent in the U.S.A. As such, the morbidity and mortality associated with smokeless tobacco is considerably less than that in smoking. Smokeless tobacco is still popular among native Americans. About a third of them use smokeless tobacco, and are consequent victims to oral lesions.

Tobacco control programmes are being pursued very seriously in some Scandinavian countries like Norway and Sweden. These countries use *rotating health warning* on packets of cigarettes and other tobacco products. In this system of rotating warnings, several different messages are in use at any one moment, appearing at random on all packages and on advertisements. Norway and Sweden each use sixteen warnings and periodically replaced them with a new set to ensure that the messages remain effective.

Tobacco control programmes in many other European countries are not as advanced as those in the U.K. or U.S.A. While lung cancer has been decreasing in the U.K. Since 1988, it has more than doubled in Yugoslavia, Poland, and Hungary. Lung cancer mortality has increased by 55 per cent in the former U.S.S.R. between 1970 and 1980. In some of the European countries, women have begun smoking only recently. In many countries in Eastern Europe, which have recently become free from communist rule, state monopoly trading in tobacco has ended. Multinational tobacco companies have entered these new markets, after buying many local companies there. A steady rise in smoking and lung cancer in these countries can be expected in the coming decades.

CONTROL OF TOBACCO HABITS IN DEVELOPING COUNTRIES

With a population of over one billion, China has the highest number of cigarette smokers in the world. More than half of the men, but only 6 per cent of women, smoke. The most popular form of smoking is cigarettes. So China has been the biggest target of all multinational cigarette companies for decades. Till recently, there was monopolistic

trading by Chinese National Tobacco Corporation, but now the Chinese market has been thrown open and multinational companies are reported to have already started advertising there, though China has passed a comprehensive tobacco control legislation. It would be interesting to see how this country fares in the next few decades.

There are wide differences among developing countries with regard to tobacco control. Some countries like Thailand, Singapore, Sudan and Botswana, have stringent tobacco control programmes, which are strictly implemented. Even multinational tobacco companies are punished, if they violate these regulations. However, there are also many countries, particularly in Africa, where very few men and women smoke. These countries do not even have a national survey of tobacco habits or any programme for tobacco control. They are not fully aware of all the harmful effects of smoking, or of the various strategies adopted by multinational cigarette companies to spread this habit.

Tobacco companies spend billions of dollars to advertise their products, and counteract the growing public awareness of smoking. Advertising and other promotional techniques used in developing countries are reported to be different from those used in developed countries with strict tobacco control programmes. Tobacco companies are accused of following double standards.

The risk of tobacco-related diseases in developing countries is rising due to increased consumption of manufactured cigarettes. Between 1970 and 1980, cigarette consumption increased by 62.5 per cent in Pakistan; by 40 per cent in India; by 32 per cent in Kenya but by only 4 per cent in the U.S.A. In the U.K., cigarette consumption was actually decreasing. Asia now accounts for more than half of world's consumption of cigarettes. Lung cancer is one of the three commonest forms of cancer in India, Malaysia, and Pakistan, and is common among both blacks and whites in Zimbabwe. Tobacco-related diseases will appear in developing countries in a very big way, even before communicable diseases and malnutrition have been controlled. This is in sharp contrast to the West, where communicable diseases and malnutrition are no longer present. Thus, the health problems of the third world countries will be far more severe, unless remedial measures are taken immediately.

There are many international organisations, which are concerned about the health hazards of tobacco habits and the impact of tobacco control programmes. Some of them are the World Health Organization (W.H.O.); the International Union against Cancer (U.I.C.C.); International Union against Tuberculosis and Lung Diseases; International Agency on Tobacco and Health; Action on Smoking and

Health; International Organisation of Consumer Unions; International Network of Women Against Tobacco, and Asia Pacific Association for the Control of Tobacco (A.S.P.A.C.T.). There are many others, all of which work towards safeguarding the health and well-being of humanity.

19 Tobacco Control in India

The developed and developing countries who have realised the harmful effects of smoking and chewing tobacco, are striving hard to control the rates of tobacco consumption. Though none of them will achieve the WHO goal of *'Health for all by 2000 A.D.'*, they would have gone a long way towards that end. In India however, there have been very few measures taken to control tobacco consumption. Numerous factors, economic, social, and others, make it difficult to implement tobacco control programmes in India.

Firstly, the cultivation and manufacture of tobacco products play an important role in the Indian economy. India is the third largest producer of tobacco in the world, after China and U.S.A. It produces 587 million kg of tobacco annually, in 391,000 hectares of land. The tobacco industry in India is also very well-established producing a variety of tobacco products like bidis, cigarettes, hookah paste, zarda, cigars, cheroots and chuttas. Raw FCV (flue-cured Virginia) tobacco is exported to the U.K., Russia, Japan, Italy and Iraq. Manufactured tobacco is exported to countries in the Middle East. All these provide the government of India with an appreciable excise duty (Rs. 3,445.82 crores during 1994–95) and foreign exchange (Rs. 421 crores during 1995–96). The Indian government is thus reluctant to take steps that would cut down on these revenues.

Tobacco is a highly remunerative crop, and gives good returns. However, as most farmers sell their products during harvest season for want of the storage facilities, the crop is sold at extremely low prices. The major share of the profits go to merchants and middlemen. Since other crops are not as remunerative as tobacco, or as rugged and pest-resistant, tobacco cultivators are reluctant to switch to other crops. People employed in the manufacture, packing, distribution, export, and sale of tobacco products, reap high profits, and are hence averse to tobacco control.

Secondly, the Indian tobacco industry employs five to six million persons. About 1.2 million people are engaged in the cultivation, processing, and curing of tobacco, and another 3 million (including illiterate women in rural areas) in the manufacture of bidi. Thousands of tribals are employed in the collection of bidi leaves. The cigarette industry alone provides employment to 25,000 people, while 500,000 people are engaged in the marketing and export of tobacco and tobacco products. Thus, any attempt at tobacco control will affect millions of people, including socially disadvantaged groups like women and tribals. Any elected government, will think twice before creating such social upheaval. Tobacco control in India must necessarily be gradual.

Society's attitude towards smoking is an important factor determining the success of any anti-smoking campaign. Smoking is now an accepted practice in India, unlike sixty years ago, when it was a social taboo. A majority of people, including many educated people, are not aware of all the serious ill-effects of smoking. Cinema also often depicts smoking. This is in sharp contrast to the U.S.A, where public figures refuse to appear with a cigarette in hand. The Indian public has to be educated about the highly deleterious effects of smoking, the variety of diseases it can cause, and the fatal nature of many of them if we are to implement any tobacco control programme.

The government of India exerts some control over the manufacture, promotion, and sale of tobacco products (primarily cigarettes) but not very effectively. It has enacted the Cigarette Act, 1975, which stipulates that all cartons and packets of cigarettes, and advertisements should carry the statutory warning, 'Cigarette smoking is injurious to health'. Cigarettes carry higher tax but any increase in the rate of tax will have only a marginal effect, as only the affluent smoke cigarettes. Others may cut down slightly on the number of cigarettes they smoke. Cigarette packets and advertisements carry the statutory warning, but as the cigarette companies themselves are fully aware, this warning has practically no effect on smokers. All cigarettes sold in India including the so-called filter cigarettes, are reported to have high yield of tar and nicotine. An average Indian cigarette contains 19–28 mg tar and up to 1.8 mg nicotine as compared to tar and nicotine yields of 12 mg and 1 mg per cigarette in the U.K. It is unfortunate that there is no legislation or any move to control these levels.

There are absolutely no restrictions on cigarette advertising in India, except in state-controlled radio and T.V. channels. Most small shops in Tamil Nadu, for example, carry large signboards advertising cigarette brands. After the economic reforms of the early nineties, foreign brands have also started making their appearance in the Indian market.

As bidis are a product of a cottage industry, its employees enjoy several concessions from the Indian government. While cigarettes are subject to progressive rises in tax, the excise duty on bidis is still comparatively low. Packets of bidis and tobacco do not carry any health warning, despite the fact that bidis contain higher levels of tar and nicotine than cigarettes. Epidemiological studies reveal that cancers of the larynx and pharynx are more common in India than in the West, because of the high rates of bidi consumption. There is practically no quality control on the tobacco used for chewing and making bidis. Millions of dollars are spent on promoting cigarettes, which are subject to some government restriction. On the other hand, there is very little promotion for bidis or chewing tobacco. Bidis act as cheap alternatives for cigarettes and in a way, stem the rapid spread of cigarettes, backed by multinational cigarette companies. Bidi smoking in India is confined to people of the lower middle-class and the poor.

The use of tobacco preparations as dentifrices is another feature unique to India. Many popular brands of toothpastes in Bombay and Goa contain tobacco. Their long-term use will certainly lead to oral lesions, including cancer.

Smoking in public places like schools, hospitals, cinemas, religious places, buses and airlines should be strictly prohibited. Recently, the government has banned the sale of cigarettes in railway stations. Smoking inside government offices and institutions has also been banned.

While the general public are only now waking up to the consequences of using tobacco, the doctors in India have been aware of them for a long time, and have also warned the Indian government that the total cost incurred for the treatment of tobacco-related diseases exceeds the revenue acquired from the manufacture and sale of tobacco, by as much as Rs. 685 crores. This is a conservative estimate, and does not take into account the cost of establishing facilities for treatment. Besides these huge economic losses, tobacco addiction also causes human suffering, which cannot be translated into monetary terms. The Ministry of Health has accepted these findings and made a number of recommendations for effective tobacco control in India, similar to the Composite Tobacco Control Programme, enunciated by the World Health Organization. One of the significant provisions is that all tobacco products put up for sale, including bidis and chewing tobacco, should carry the health warning in two languages, English and Hindi or the regional language, and should depict the universally known danger sign, skull and crossbones, for non-literates.

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The launching of the National Cancer Control Programme (NCCP) by the Ministry of Health and Family Welfare in 1985 gave an added impetus to tobacco control programmes in India. It led to the National Cancer Registry Project, and the establishment of Population-based and Hospital Cancer Registries. From the data obtained from these Registries, it was computed that about 48 per cent of cancers in men, and 20 per cent in women are due to tobacco habits. On an average, a third of all cancers in India are tobacco-related and entirely avoidable.

Two conferences, both held in Mumbai helped to focus attention on tobacco habits and tobacco-related diseases in India. The first one was a workshop 'Tobacco or Health', sponsored by the International Union Against Cancer (UICC) in April, 1987. The workshop brought together scientists, medical experts, policy makers, people working for voluntary organisations, and the media. They evaluated the available scientific evidence on possible hazards associated with various tobacco habits, and suggested suitable strategies for controlling them. One of the papers presented in this workshop revealed that Kerala has the highest number of tobacco addicts in India. About a lakh of foreign cigarettes flow into the state daily. It has the maximum number of registered bidi-workers' cooperatives, in addition to a number of independent bidi makers. Kerela is also one of the largest consumers of chewing tobacco. As expected, lung cancer is the most common cancer among men in Kerala. The worst feature is that lung cancer occurs in Kerala ten to fifteen years earlier than in developed countries. A reduction of age is seen in the incidence of coronary heart disease also.

Another conference, an international symposium on 'Control of Tobacco-related Cancers and Other Diseases', was held in January 1990 aspects of tobacco use were discussed.*

Many cancer hospitals and social workers are keenly interested in tobacco control programmes, and in increasing public awareness about the dangers of smoking. The Cancer Institute, Chennai, observes a '*no tobacco day*' every year. The Sundaram Medical Foundation in Chennai has adopted the '*can stop*' programme, aimed at ending smoking. The Indian Society on Tobacco and Health, whose members are medical and social workers, has been fighting tobacco addiction.

In Thiruvananthapuram, Kerala, the Regional Cancer Centre launched a massive programme using the help of college and high school

* The Proceedings of both these meetings have been published as *Tobacco and Health: The Indian Scene*, Eds. L.D. Sanghvi and P. Notani, UICC, , Tata Memorial Centre, Mumbai 1989; *Control of Tobacco-related Cancers and Other Diseases*, Eds. P.C. Gupta, J.E. Hamner III and P.R. Murti, Oxford University Press, Mumbai, 1992. Both of them together constitute a valuable source of information on tobacco habits in India, their health effects, and the dilemma faced by the government of India in implementing tobacco control measures.

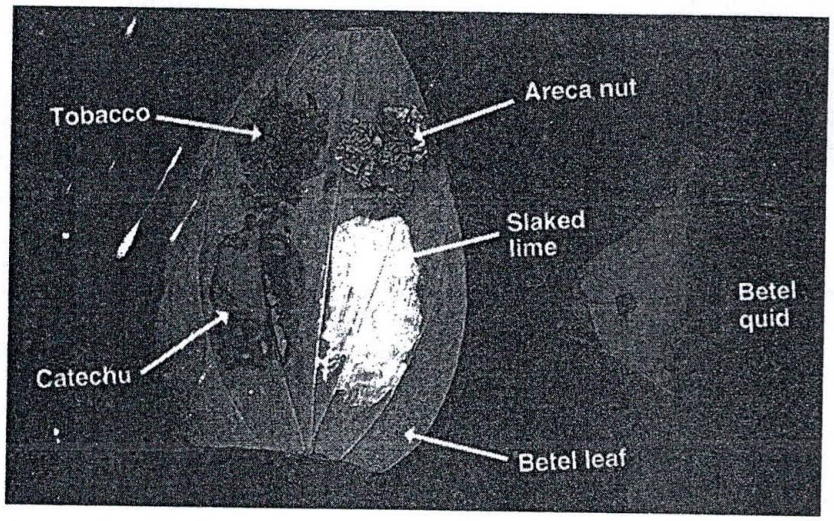
students, health workers, voluntary agencies, social organisations, and the media, to combat the widespread tobacco addicion in Kerala. Under the National Service Scheme (N.S.S.), it has trained students from various colleges to carry out anti-smoking campaigns. High school students were educated on the evils of using tobacco. The students were rewarded for selling booklets on the harmful effects of tobacco. Health workers were trained to detect oral cancer and oral pre-cancers, and to create awareness among villagers about the harmful effects of chewing and smoking tobacco. This has enhanced primary prevention, and ensured early detection of oral cancers. Voluntary agencies and social organisations participated in all these anti-tobacco campaigns, carried out through lectures, slides and documentary films.

The Rajasthan Cancer Society has been vigorously campaigning against smoking in Jaipur and Jodhpur, through public lectures, distributing leaflets in the local language, slogans and slide shows. The Goa Cancer Society has been conducting health education camps for teachers and students in Sindhudurg and Ratnagiri, and has found that educating children often results in parents giving up smoking.

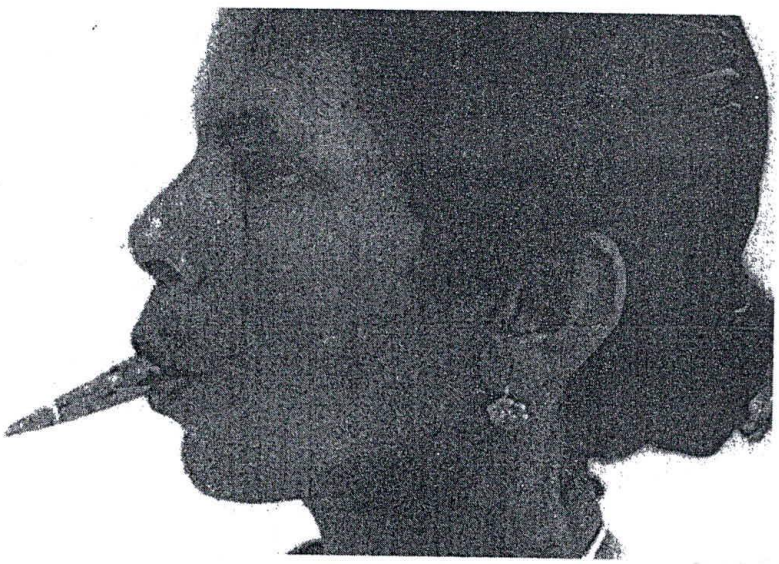
Some major national dailies have been regularly publishing articles on tobacco control and passive smoking. However, some of them also publish attractive colourful advertisements on cigarettes at the same time.

Recently, a lawsuit has been filed against cigarette companies, demanding that they compensate for the damages caused by smoking. It may not succeed, but it will succeed in focusing public attention on the harmful effects of smoking.

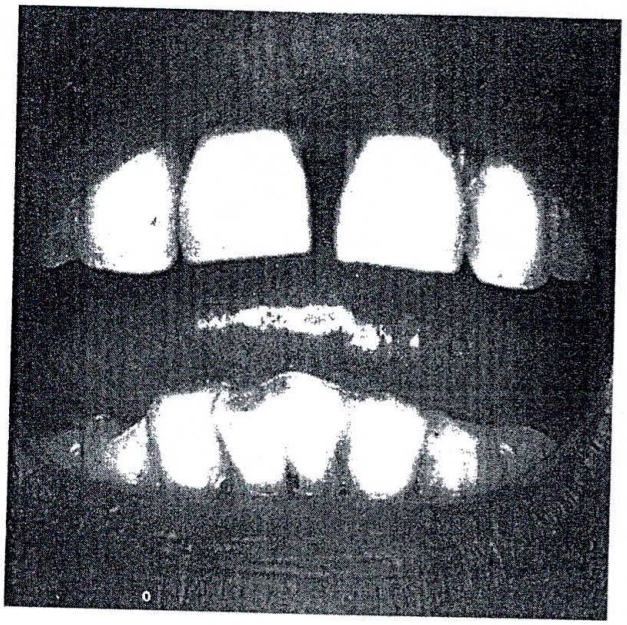
Recently, the Kerala High Court allowed two public interest writ petitions, and gave a judgment, banning smoking in 'public places in the state, like educational institutions, hospitals, commercial establishments, factories, cinema houses, walkways, bus stops and even railways stations'. Smoking in these areas will now be punishable under section 188 of the Indian Penal Code (IPC). A Division Bench of the High Court has said that, 'Public smoking is illegal, unconstitutional and is a violation of article 21 in the Constitution.' The judiciary has directed district collectors in the state to promulgate an order under Section 133(a) of the Criminal Procedure Code, prohibiting public smoking within a month from the date of the high court ruling. The office authorities have been asked to take appropriate steps to book the offenders. According to a Press Trust of India Report, the Hosdurg Magistrate Court in the Kasargod district, Kerala, has fined five people Rs. 500 each for smoking in public places. Two people who were unable to pay the fine, were imprisoned for fifteen days.



A betel quid preparation (Courtesy: Fali S Mehta, Head, Basic Dental Research Unit, Tata Institute of Fundamental Research, Mumbai)



Reverse chutta smoking: a woman from Goa (Courtesy: Fali S Mehta, Head, Basic Dental Research Unit, Tata Institute of Fundamental Research, Mumbai)



Submucous fibrosis. Note the shrunken tongue and difficulty in opening the mouth. (Courtesy: Fali S Mehta, Head, Basic Dental Research Unit, Tata Institute of Fundamental Research, Mumbai)

Cheek cancer in a betel quid chewer who also smoked (Courtesy: Fali S Mehta, Head, Basic Dental Research Unit, Tata Institute of Fundamental Research, Mumbai)

20 Tobacco Research and Interventional Studies in India

The Government of India set up the Indian Central Tobacco Committee in 1945, to develop all aspects of tobacco cultivation, processing, and marketing. The committee, in turn, established the Central Tobacco Research Institute at Rajahmundry, Andhra Pradesh, in 1947, to conduct fundamental research on all varieties of tobacco, and applied research on cigarette and Lanka tobaccos. It set up Regional Research Stations at Vedasandur (Tamil Nadu) in 1948 for research work on cigars and chewing tobacco; at Pusa (Bihar) in 1950, for research on hookah and chewing tobacco; and at Anand (Gujarat) and Nipani (Karnataka) for research on bidi tobacco. A cigarette tobacco research station was already functioning since 1936, at Guntur (Andhra Pradesh). The Committee also established a wrapper and hookah tobacco research station at Dinhatta (West Bengal) in 1952. The Central Tobacco Research Institute and the various Regional Research Stations were brought under the control of the Indian Council of Agricultural Research in 1965. The Bidi Tobacco Research Station at Anand became part of the Gujarat Agricultural University.

The **Central Tobacco Research Institute** (CTRI) in Rajahmundry has three main departments: division of genetics and plant breeding, division of agronomy and soil science, and division of biochemistry, technology and plant nutrition. There are also various departments of Entomology, Pathology, Statistics, Seed and Seedlings, Engineering; Farm Management. Keeping in mind the directive Scientific Coordination with which it was set up, the CTRI has involved itself with a variety of research projects, aiming to improve the quality, production and productivity of tobacco. It also studies factors that

influence the quality of tobacco leaves produced, like colour of leaves (light or dark), texture (thin or heavy-bodied), elasticity, their nitrogen and nicotine contents, and their aroma and taste. The CTRI has acclimatised several exogenous varieties of tobacco to grow in India. Employing mutation, hybridisation and recombination techniques, it has also evolved new strains of tobacco like 'Kanakaprabha' and 'CTRI Special', which are of a better quality, have greater yield, are more pest-resistant, and so on.

Recently, with world opinion hardening against tobacco and tobacco addiction, the CTRI has embarked upon three new projects, which aim, to help tobacco control programmes. They are:

Product modification

This is an attempt to reduce the yield of tar and nicotine from cigarettes and bidis. It was found that adding potassium citrate to cigarette shreds, bring the potash level up to about 3.5 per cent, reduce the total particulate matter by 35 per cent, and bring down the mutagenicity of cigarette smoke by 80 per cent.

Scientists of the Gujarat Agricultural University at Anand have also carried out investigations to reduce the tar and nicotine yields of bidis. They have observed that 1. bidis made from all available varieties of tobaccos in India yield nearly the same levels of tar and nicotine, and 2. variations in growth conditions like transplanting dates, fertiliser nitrogen levels, source of nitrogen, irrigation, plant density, topping level and harvest date, do not produce tobacco with lower yields of nicotine and tar.

After testing three filters for bidis (cotton, cotton scented with amber and cigarette filters) they recommend the use of cotton scented with amber filters for bidis. It is effective in reducing the levels of toxic chemicals in the smoke, and is readily acceptable to consumers. When tobacco is grown in a carbon dioxide enriched atmosphere, the yield of leaves increased by 7 per cent. The leaves also contain less protein, nitrate, alkaloids and other chemicals which give rise to toxic substances like N-nitrosamines. Scientists at the Bidi Research Station at Anand are trying various strategies to grow tobacco under carbon dioxide enriched conditions.

Other uses of tobacco

Tobacco is a rich source of several phytochemicals like nicotine, solanesol organic acids (malic, citric and oxalic), and pentosans. About 10 per cent of the tobacco goes waste, when used in the manufacture of tobacco products like cigarettes and bidis. This serves as the material for manufacturing nicotine, solanesol, organic acids, and pentosans.

There are a few companies in Gujarat which make these chemicals from the bidi tobacco wastes.

Nicotine is widely used in the form of nicotine sulphate, as a pesticide. It also serves as the raw material for the manufacture of the pharmaceuticals, nicotinic acid and nicotinamide (found in the vitamin B complex), and nikhethamide. Solanesol is used as an intermediate for manufacturing a cardiac drug, and making vitamin K analogues. Malic and citric acids are used in both food and drug industries. Pentosans are used for production of the industrial solvent, furfural.

Roughly 40–42 per cent of tobacco seed comprises of oil. This is used as a semi-drying oil in the paint industry. When refined, it may also be used as edible oil. Proteins in the tobacco leaf can be useful as a food. Immature tobacco which is ninety days old, should be used to ensure the maximum extraction of all these chemicals.

Nicotine sulphate is a stomach, contact, and fumigant poison. It is widely used as an insecticide in orchards in Japan. Both nicotine sulphate and solanesol are exported to Japan, the U.K, the U.S.A., Canada, Switzerland and Germany. There is thus a good export market for both these chemicals. The possibility of utilising nicotine sulphate as a pesticide in India itself should be explored. As a natural product, it may have advantages over synthetic pesticides that we use at present.

Substitute crops for tobacco

The feasibility of growing other crops remuneratively instead of tobacco, has been explored. However there are many inherent difficulties in arriving at a possible solution. Tobacco is a drought-tolerant, rugged plant, and can grow in semi-arid areas. It is also resistant to many pests, and is a remunerative cash crop for farmers. Most other plants do not possess these qualities. Andhra Pradesh and Gujarat tried in vain to substitute tobacco with cotton and chillies. Cotton is not resistant to many pests, and gives low yields. Chickpeas, mustard, coriander and safflower, can be successfully grown instead of FCV tobacco on the black soils of Andhra Pradesh but their market prices are subject to great fluctuation. Hence, farmers prefer to grow only tobacco, which gives a more steady income.

In Gujarat, castor can be grown more remuneratively, but the demand for castor oil has not been assessed so far. In West Bengal, crops like potato, cauliflower and mustard are more remunerative than the cigar filler and chewing tobacco cultivated there. However, these crops sometimes fetch very low prices due to overproduction. In Tamil Nadu chillies, safflower, groundnut or cotton can easily substitute the chewing tobacco grown rotationally between bajra, ragi, and sorghum. Farmers,

however, still prefer to grow tobacco because of the erratic monsoon pattern which will bring varying yields with the other crops. Bihar is the only place, where chewing tobacco is steadily giving place to sugarcane, maize, potatoes, groundnut, and mustard.

The investigations carried out at various tobacco research stations thus reveal the possibilities and problems connected with:

- Product modification, aimed at reducing tar and nicotine yields of cigarettes and bidis;
- Alternate uses of tobacco, with the various chemicals that can be manufactured from it; and
- Substituting other crops for tobacco in the tobacco cultivated areas of India.

EPIDEMIOLOGICAL INVESTIGATIONS AND LABORATORY ANALYSIS

Epidemilogical studies on cancer in India are now nearly a century old. As early as 1902, Niblock observed an appreciable number of oral cancer patients in the Government General Hospital at Chennai. He correctly ascribed this to the prevailing betel quid and tobacco chewing habits among the people. A more detailed case-control study was carried out by Orr in 1933 among the people of Travancore (now known as Kerala), which confirmed Niblock's observation, and clearly established betel quid along with tobacco addiction as the cause for oral cancer.

Wahi and co-workers have carried out extensive studies on tobacco habits in the Mainpuri district of Uttar Pradesh in 1965–66. Tobacco is mixed with slaked lime, finely-cut areca nut, camphor, and cloves. About 7 per cent of the villagers are addicted to this preparation. Prolonged chewing is found to lead initially to leukoplakia and oral submucous fibrosis and later on to oral and oropharyngeal cancers. Smoking and chewing tobacco, combined with alcohol consumption is found to increase the risk for these cancers synergistically.

In 1959, Shanta and Krishnamurthi studied the etiological factors causing oral cancer (squamous cell cancer). A sharp increase in all tobacco-related cancers in Chennai during the period 1987–91 compared to 1982–86, has been reported by Gajalakshmi, Ravichandran and Shanta in 1996. The per capita consumption of tobacco has also increased during this period. A survey of 7,737 households in Chennai, conducted during 1997–98, revealed that among men, the proportion of smoking, chewing and drinking alcohol were 31.1 per cent, 7 per cent and 10 per cent respectively; eight per cent of women chewed tobacco, but hardly any of them smoked or drank; about 88 per cent were aware of the harmful effects of smoking and chewing tobacco.

A case-control study carried out by Sanghvi, Rao and Khanolkar in 1955 at the Tata Memorial Centre, Mumbai, revealed that smoking bidis leads to cancers of the oral cavity, pharynx, larynx, and esophagus, and contribute largely to cancers at the oropharynx; and chewing tobacco, besides leading to oral cancer, contributes to cancers of the larynx, pharynx, and esophagus. These results were later independently confirmed by Jussawalla and Deshpande.

Bidi smoke was chemically analysed only in 1974 by Hoffmann, Sanghvi, and Wynder in the U.S.A. laboratory and was found to contain larger amounts of toxic chemicals like tar, nicotine, carbon monoxide, and hydrogen cyanide than cigarette smoke. This suggests that smoking bidis is far more dangerous than smoking cigarettes. An analysis of smoke from various brands of bidis has been carried out since then in India, by Pakhale and co-workers at the Cancer Research Institute, Mumbai. Most of the tobacco used in India contain a higher percentage of nicotine than tobacco used in the West. Also, the tobacco used for making bidis is considerably richer in nicotine than the tobacco blend used in making cigarettes. This explains the higher yield of nicotine from bidis, though they contain only a fraction of the tobacco used in cigarettes. The carcinogenicity of bidi smoke was confirmed by Bhide, who observed that seven out of fifteen BALB/c mice treated with bidi smoke, condensate developed tumours (one gastric carcinoma, one esophageal cancer, four liver haemangiomas, and one papilloma of the stomach).

Recent investigations by Bhisey and co-workers suggest that the vast number of women rolling bidis, constantly inhale tobacco dust and hence have a high risk of tobacco-related diseases. The urine of bidi rollers was found to contain cotinine as well as thioethers, revealing the cutaneous and lung absorption of nicotine and other toxic components of tobacco.

Investigation by Nagabhusan and co-workers reveal that betel leaves by themselves are anti-mutagenic and anti-carcinogenic, and will tend to counteract the carcinogenicity of tobacco. Catechu has also been found to be anti-mutagenic.

Interventional studies

Cross-sectional studies carried out by Mehta and co-workers among 4,000 Bombay policemen in 1960–61 revealed that there is an appreciable incidence of leukoplakia and oral cancer among paan chewers and bidi smokers. A survey carried out in 1965–66 by Pindborg and co-workers among 35,000 outpatients in dental clinics in Bangalore, Lucknow, Bombay and Trivandrum confirmed the high prevalence of leukoplakia in India.

These studies led to a large scale, marathon project on oral cancer and pre-cancers, carried out by the Basic Dental Research Unit of the Tata Institute of Fundamental Research, Mumbai. The project, supported entirely by funds from the National Institutes of Health, U.S.A. under the P.L. 480 Indo-American Research Agreement, lasted for twenty-seven years, and began in 1966. Dr Fali S Mehta of the Basic Dental Research Unit served as the Principal Investigator; the late Dr. Jens J. Pindborg of the Department of Oral Pathology, Royal Dental College, Copenhagen, Denmark, as the co-principal investigator; and Dr. James E. Hamer III, from the University of Tennessee, as the N.I.H. project officer. Some of the other investigators involved in this project were Drs. P.R. Murti, R.B. Bhonsle, P.N. Senor and D.K. Daftary (all Dentists); Dr Prakash C. Gupta (Statistics), and Dr. Mira B. Aghi.

A unique feature of the project, was that it was a population-based, house to house survey in the rural areas, and involved as many as 2,00,000 subjects. In terms of persons involved, money spent, and the duration, it was one of the largest projects ever carried out in India so far. Though expensive, and time-consuming, the project yielded rich dividends and for the first time provided, an integrated picture of the various tobacco habits in India. It has also given a lot of information on the pathogenesis of the pre-cancers, leukoplakia and oral submucous fibrosis and palatal lesions, and the subsequent onset of oral and palatal cancers, mainly from the pre-cancers. Above all, it has demonstrated the feasibility of intervention through health education, resulting in a 'significant and substantial' decrease in oral pre-cancers and cancer.

In the first phase of the project, lasting from 1966–69, a survey of the prevalence of various tobacco habits among villagers in seven select areas of India was carried out. The areas selected were Ernakulam in Kerala, Goa, Pune, Bhavnagar in Gujarat, Srikakulam in Andhra Pradesh, Singhbhum and Darbhanga in Bihar. The survey revealed that bidi smoking was most common among men in all these places, except Srikakulam, where chutta and reverse chutta smoking were practised. Cigarette smoking was high only in Kerala, among 6 per cent of the population. In Bhavnagar, Srikakulam, and Goa, most men smoked. Chewing was more common in Pune and Uttar Pradesh while in Ernakulam, Singhbhum, Darbhanga and Mainpuri, both smoking and chewing were widely practised. Women preferred chewing tobacco to smoking in all the places except Srikaklam, where almost all of them practised reverse chutta smoking and in Duarbhanga, where hookah smoking was more common. This study revealed that tobacco use in one form or other is quite common in rural India, ranging from

61 per cent (Pune) to 88 per cent (Andhra Pradesh) among men; and 15 per cent (Goa) to 67 per cent (Srikakulam) among women.

A survey of 50,915 villagers in four states revealed twenty-six cases of oral cancer. The prevalence of leukoplakia ranged from 0.2–4.9 per cent and mainly affected men. Leukoplakia was found to strike at a younger age than oral cancer. Its starts appearing among people of the 15–24 age group, and to a larger extent in the 25–34 age group. The exact location of the leukoplakia depended very much on the kind of chewing and smoking practised. Hookli smoking led to leukoplakia on the labial mucosa, and reverse chutta smoking on the palate. Epithelial atypia was seen in 8.4 per cent of homogeneous leukoplakia, but in 59.1 per cent of speckled leukoplakias. Submucous fibrosis occured exclusively among betel quid and areca nut chewers, areca nut being the etiological factor. It strikes mainly in the oral cavity and occasionally, in the pharynx and oropharynx.

A ten-year follow up study of this population revealed that:

- Preleukoplakia and leukoplakia occurred only among those who smoked or chewed tobacco
- Oral cancer occurred almost always from the pre-cancers, leukoplakia, or submucous fibrosis; and
- While leukoplakia may regress, after a person stopped consuming tobacco, submucous fibrosis, once formed, does not regress at all. It is definitely a pre-cancerous state.

In a seventeen-year follow up of sixty-six cases of oral submucous fibrosis, oral cancer developed in 0.4 per cent of cases at the end of ten years; in 4.5 per cent at the end of fifteen years, and in 7.6 per cent at the end of seventeen years. Only if one stops chewing tobacco, can one prevent its further transformation into oral cancer. Other oral lesions like leukedema, leukokeratosis, nicotina palati, palatal erythema, central papillary atrophy of the tongue, paan chewer's lesion or oral lichen planus-like lesion do not become malignant. Reverse chutta smoking led to a variety of palatal changes like keratosis, excrescences, patches, red areas, ulcerations and non-pigmented areas. Red areas are the most dangerous, with 52 per cent of them exhibiting epithelial dysplasia.

Over a ten-year follow up period, ten cases of palatal cancers arose, all from pre-existing red areas or patches. The majority of palatal lesions, about 75 per cent remained as they were, while a small percentage (14 per cent) underwent regression. The palatal lesions regressed further if a person stoped smoking. Thus, the ten-year follow up study revealed that oral cancer and oral pre-cancers occur only among tobacco addicts, showing that the abolition of smoking and chewing tobacco should reduce incidence of oral cancer.

The third phase of the project was the actual 'intervention' which attempted to investigate firstly, whether health education could motivate tobacco users into giving up tobacco, and secondly, determining the impact on the oral pre-cancers. A ten-year prospective study (1977–86) was conducted in three areas – Ernakulam, Srikakulam and Bhavnagar. Each place built an 'intervention cohort' constituting about 12,000 people, who were periodically trained on how to quit tobacco. A control cohort of about 10,000 tobacco users was formed from the previous ten-year study. These people did not receive any or only minimal levels of health education. It was seen that most tobacco users began using tabacco, believing it to have medicinal value, such as, a curative for toothache, bad breath and gastric disturbances. Some were vaguely aware that tobacco was harmful but very few knew all about its deleterious effects. In the Bhavnagar district, only men were targeted, as very few women smoked or chewed tobacco.

The intervention team consisted of dentists, trained social workers, interviewing clerks, and locals. At the beginning of this stage, all the subjects were examined by dentists. People in the intervention cohort were then offered medical advice, and educated on the need for, and method used, to stop tobacco consumption. They were also informed of the withdrawal symptoms through individual or group interviews. Personal communication helped clarify doubts and clear individual problems relating to tobacco use. Confidence and trust were also built up through these sessions. At each one-year follow up, the subjects were asked about their tobacco habits, to see if there was any reduction. They were than examined by the dentists for any possible pre-cancerous changes. This was followed with encouragement to maintain or intensify the motivation to quit. Each annual follow up thus assessed the efficacy of the intervention phase. In addition to personal advice, a variety of other strategies were employed to make the intervention effective. Films were found to be effective in bringing about behavioural changes, particularly as the intervention population included non-literates and semi-literates. Being a mass media, films had the advantage of communicating to a large audience at one time. Specially designed posters, some with written messages, and others with pictures, were used to remind the target population of the need to quit tobacco consumption. Slides prepared from these posters, were shown in the nearby theatres. Folk dramas which were found to be very popular in the Srikakulam area, were effective in conveying the message against tobacco use. Radio programmes in the form of talks, interviews, dramas, and documentaries, and articles in local newspapers, were also used to educate the public. Finally, cessation camps were held to help

those who had made previous attempts to quit tobacco consumption but were unable to do so. Thus, all conceivable methods were employed to bring about behavioural changes in tobacco users.

The intervention trials were found to be very effective in both Ernakulam and Srikakulam. In Ernakulam, at the end of the intervention, about 14 per cent of tobacco users have completely stopped usage, and many others have significantly reduced their tobacco consumption. This has brought about a decrease in the leukoplakia rate in Ernakulam, and palatal changes in Srikakulam, which, in turn, would signify a decrease in the rampancy of cancers. However, the intervention trials in Bhavnagar had no significant effect on the tobacco habits of that population.

PROTECTIVE AGENTS AGAINST SMOKING AND CHEWING TOBACCO

Oral cancer is a major health problem in Kerala. An attempt has been made by the Regional Cancer Centre, Thiruvananthapuram, to elucidate the risk factors for cancers at specific sites within the oral cavity. It was observed that chewing betel quid containing tobacco increases the risk of cancers in the buccal mucosa and the gingivum. This is explained by the fact that the people in this part of India customarily keep the bolus of betal quid in between the buccal cavity and gingivum.

Smoking is found to be the major cause of cancer in the anterior two-thirds of the tongue.

As there is a high prevalence of oral leukoplakia in Kerala because of the high betel quid consumption rate, investigations have been carried out to see whether chemoprevention of leukoplakia is possible. Chemoprevention is a form of primary prevention, by taking in dietary or pharmacological inhibitors of carcinogenesis. Investigations were conducted on fishermen who had oral leukoplakias because of chewing betel quid. About 65 per cent of these participants also drank, while 30 per cent were bidi smokers. Treatment with oral vitamin A as retinyl acetate at a level of 300,000 I.U. per week for a year, causes complete regression of leukoplakias in 52 per cent of the cases. Beta carotene at 360 mg per week for a year effected a complete regression in a third of the cases, while only 10 per cent of regression was observed in placebos. The fishermen continued smoking, chewing and drinking throughout the treatment period. Homogeneous leukoplakias and smaller lesions responded more readily than non-homogeneous and larger lesions. No toxicity was observed but a relapse occurred when the supplementation with vitamin A or beta carotene was stopped. Vitamin A was found to be more effective than beta carotene. These investigations reveal that chemoprevention of the incidence of oral

leukoplakias can be achieved through administration of vitamin A or beta carotene, even when the tobacco habits are being continued. The success rate however, is not very high.

Other contributions

Both basic and clinical research on various aspects of smoking and chewing tobacco are continuing in several laboratories in India. Statistics on the morbidity and mortality due to smoking and chewing tobacco, have been compiled earlier by Gupta of the Tata Institute of Fundamental Research, Mumbai, and Jayant and Notani of the Tata Memorial Centre. Information on cancer incidence, morbidity and mortality are available from the reports of the National Cancer Registry Project. The use of hand-held computers (electronic diaries) for numbering tobacco addicts among the general population in big cities like Mumbai, has recently been reported by Gupta of the Tata Institute of Fundamental Research.

21 Considerations, Suggestions and Future Prospects

There are more diverse tobacco consumption habits in India than in any other country in the world. Bidis and cigarettes are the most common forms of smoking in India, while cigars, cheroots, chuttas, and reverse chuttas, hookahs, hooklis, and chillums are less common. Besides the cancers caused by cigarettes, smoking bidi leads to a higher incidence of cancers in the pharynx, larynx, and the base of the tongue; reverse chutta smoking, causes cancer in the hard palate. Thus, the resulting cancers are equally varied.

The chewing habits are equally diverse in India. Plain tobacco with slaked lime, other tobacco preparations (khaini, zarda, kiwam, Mainpuri), a variety of areca nut preparations (raw areca nut slices, fermented areca nut (bura tammool); scented areca nut (supari), mawa, paan masala, paan masala gutka), and betel quid in various combinations are chewed. In addition, a variety of tobacco preparations (mishri, bajjar, gudhaku, and creamy snuff toothpaste) are used as dentifrices. All these result in very high rates of oral cancer, and cause pre-cancers, leukoplakia and oral submucous fibrosis.

Chewing also causes cancers of the pharynx, larynx, and esophagus. In the West, cancers of the mouth, larynx and pharynx together constitute 5–10 per cent of the total cancers. However, they are all serious health problems in India, accounting for 30–40 per cent of all cancers among men in some places.

Bidi

The bidi is now the most common form of smoking and of tobacco use in the country. It is a tobacco product unique to India, and yields

greater amounts of tar and nicotine than cigarette. Epidemiological investigations show that it also causes cancers of the pharynx, larynx, and of the posterior third of the tongue. It is undoubtedly responsible, at least in part, for the relatively far higher incidence of these cancers in India.

However, any attempt to reduce bidi consumption must be carefully planned, since the manufacture and marketing of bidis provides employment to over three million people. However the government can make a small beginning by insisting on 'health warnings' on all packets of bidis and chewing tobaccos. It can also insist on bidis being provided with cotton filters, scented with amber so that the tar and nicotine yields of bidis are reduced. This may make the bidi slightly more expensive, but the resulting health benefits will more than compensate for it.

CIGARETTE

Cigarette smoking is likely to increase rapidly in India in the future. There is only a limited ban on cigarette advertising so that cigarette manufacturing companies can use aggressive marketing tactics to promote their products. Cigarettes are more common among affluent students especially male students who are low achievers. Very few girls smoke at present.

While cigarettes in all the developed countries, yield low amounts of tar and nicotine, their yield from Indian cigarettes is still very high (19–20 mg of tar, and aboout 2 mg of nicotine per cigarette).

Even, the so-called filter cigarettes in India have high tar and nicotine yield. Both the Indian government, and the Consumer Council of India should act against this immediately. In many Western countries, cigarette companies have to print the tar and nicotine yields on cigarette packets. The ministry of health, of the Indian government should also consider implementing this.

The large-scale entry of multinational cigarette companies into India will result in a continuous drain on foreign exchange, besides ruining the health of the nation. The only factor which prevents a greater use of cigarettes in India is an availability of the bidi as a cheap substitute. As India 'progresses', the cigarette may replace the bidi.

HOOKAH

Hookah smoking which began during the mughal period, is still practised in the Middle East. India exports substantial amounts of hookah paste to countries in this region.

Nicotine

The long-term harmful effects of cigarette smoking have been known for over forty years now. However, people in all countries still continue to smoke. This is because of the profound psychological effects exerted by nicotine, which is reported to improve learning and memory in the individuals.

The question arises whether nicotine alone can be used safely to produce the desired psychological effect. At the moment, it is used as nicotine patches, nicotine chewing gum, or spray, primarily to control withdrawal effects.

Nicotine's known adverse effects are on the cardiovascular system. If we could find a cardioprotective agent which will protect the vascular system, without interfering with the psychological and other desirable effects of nicotine, then it could be used for a number of purposes, including treatment of Parkinson's and allied diseases. It will also enable the development of a really 'safe cigarette', without any cardiotoxicity.

Areca nut

The areca nut is extremely popular in India and is chewed in a variety of ways. Unfortunately, some of the preparations are harmful, causing diseases such as oral submucous fibrosis. This is a serious ailment, characterised by a strong rigidity of the oral mucosa (loss of elasticity). In extreme cases, the person may not be able to open her mouth at all. This condition does not regress, and in some cases can develop into oral cancer. There is no known cure for oral submucous fibrosis. A survey revealed that about 10.9 per cent of mawa chewers were suffering from oral submucous fibrosis. Many of them were young, well below thirty-five years; they had begun chewing mawa at an early age. The mechanism of how the areca nut induces submucous fibrosis should be studied and also, whether it could be prevented by simultaneously chewing a protective agent.

Paan masala and gutka are well-advertised popular areca nut preparations chewed in northern India. Gutka also contains tobacco. Many eipidemiologists and dentists fear that these will lead to high rates of oral submucous fibrosis and oral cancer in the future.

The areca nut is potentially carcinogenic. It contains alkaloids, which can undergo nitrosation changes inside the body to give rise carcinogenic N-nitrosamines. An epidemiological report from Natal in South Africa, states that habitual chewing of areca nut **alone** by Indian women there, has led to oral cancer.

'Bura tammool' which is often fungus-infected may or may not have contributed to the very high incidences of pharyngeal and esophageal cancers prevalent there.

While tobacco has been extensively studied, there is still scope for research work on the biological effects of areca nut, and of various preparations containing areca nut. There are also innumerable imitations sold as areca nut in small packets in wayside shops in Chennai, and consumed by the public, without knowing its contents. Both the Consumer Council of India and the state government should thoroughly investigate what these packets contain, and their biological effects.

Betel quid (paan)

Epidemiological studies suggest that betel quid without tobacco does not pose a significant risk of cancer. Among the various components of paan, the individual ones betel leaves protect against carcinogenesis areca nut could induce cancer, and chunam (slaked lime), an irritant could act as a promoter. Hence, habitual chewers would do well to increase the number of betel leaves, minimise the quantities of areca nut and slaked lime, and strictly avoid tobacco. The frequency of chewing should also be restricted.

Nationwide survey

Unfortunately, we do not have a nationwide aurvey of tobacco, betel quid and areca nut habits in India. A population-based nationwide survey will be very expensive; but will provide a wealth of baseline information, on which other studies can be based. Though a nationwide survey does not exist, considerable information is available from other sources, which include:

1. The project on oral cancer and pre-cancers, carried out for twenty-seven years by the Basic Dental Research Unit of the Tata Institute of Fundamental Research, Mumbai, in six districts in India (Ernakulam; Pune; Srikakulam; Bhavnagar; Singhbhum; and Darbhanga) from 1966 to 1993;
2. The population based Cancer Registries at Chennai, Bangalore, Mumbai, Ahmedabad, Delhi, Bhopal, and Barshi;
3. The Hospital Cancer Registries at Thiruvanathapuram and Dibrugarh; and
4. Various research papers published from cancer and other centres at different times.

All the information thus gathered, makes it possible to build up an integrated picture of smoking and chewing habits in India.

The role of the government of India

The Government of India should declare unequivocally that complete tobacco control within India is its ultimate goal. It must work out a

long-term plan to erase tobacco addiction in stages. It should also take into full consideration its own finances, including its astronomical foreign debt, and the various economic and social issues involved. A practical policy at this juncture would be a mixture of both tobacco promotion and tobacco control.

India earns a substantial amount of foreign exchange by exporting FCV and other varieties of tobacco, and tobacco products like hookah paste, zarda, as well as small amounts of cigarettes and bidis. In view of its foreign debt it is imperative that India increase its exports. It should be remembered that even the U.K. and U.S.A., which are strictly and successfully implementing tobacco control programmes at home, have not cut down on their cigarette manufacture nor have they stopped dumping them in third world countries. India would do well to export high quality products which are less harmful.

The Tobacco Board should also increase the manufacture and export of other tobacco products like the pesticides, nicotine sulphate, vitamins, nicotinic acid, and nicotinamide, the pharmaceutical intermediate solanesol, and tobacco seed oil. At present, only one or two factories in Gujarat are manufacturing these products. The Central Tobacco Research Institute has suggested the possibility of using tobacco seed protein as an edible protein. This has to be tested first through animal experiments, for toxicity and nutritive value.

In order to bring about effective tobacco control, the Indian government should enforce, through appropriate legislation:

1. The maximum permissible values for tar and nicotine yields of cigarettes, (15 mg tar and 1 mg nicotine per cigarette as adopted by the European Union). Cigarettes yielding higher amounts should be taxed heavily. This will automatically make the cigarette companies conform to the permitted values. Selling filter cigarettes (that are more expensive but yield the same or higher amounts of tar and nicotine) rather than ordinary cigarettes is nothing short of cheating the customers and should be made a punishable offence.

Chewing tobacco and bidi packets should carry health warnings. Bidis should also be provided with effective filters.

There should be a strict ban on tobacco and cigarette advertising throughout the country.

The sale of cigarettes and bidis to minors should be banned.

None of these measures will affect the revenue to the Government of India.

It is estimated that about 30 per cent of cigarettes in any country are smuggled, causing the government to lose that amount of revenue. The Government of India should safeguard against smuggling.

Companies allege that the high taxes and consequent high prices of cigarettes, are reasons why smuggling occurs. It may thus be necessary to optimise the tax on cigarettes.

Dr. Nigel Gray, an advocate of the anti-smoking campaign in Australia, repeatedly warns that, 'Multinational cigarette companies should never be allowed to enter or establish themselves in any country. The huge profits made by them will cause a continuous foreign exchange drain'.

The state governments should provide more remunerative jobs for bidi workers as alternatives

It should also seriously consider reports of dentists, that a habitual consumption of paan masala and gutka leads to oral submucous fibrosis and other oral lesions.

There should be a radical change in the attitude of Indian society towards smoking, if any tobacco control programme is to succeed. Smoking is now an accepted practice in society.

Indians are only vaguely aware that smoking can injure one's health; very few know how smoking can actually harm a person. Hence, any tobacco control programme should begin by educating the public, about the debilitating effects of smoking. The medical profession and the media can do this best, doctors can be invited to talk to large gatherings, or on television, or radio. Anti-smoking messages in cinemas, could be one of the most powerful means of reaching the masses.

Popular English and regional language dailies should also be inducted in the campaign for non-smoking. *The Hindu*, a widely read popular English daily, is already pioneering a campaign against smoking in south India. It publishes regular articles on the adverse effects of active and passive smoking, on the punishments meted out to offenders who smoke in public places, and so on.

Quitting smoking

Smoking is a difficult habit to quit, once it becomes addictive. An intensive cessation therapy produced a quit rate of only 35 per cent, implying that the rest were unable to quit smoking.

Similar results were obtained at the end of the Interventional Trials by the Basic Dental Research Unit of the Tata Institute of Fundamental Research, in Ernakulam, Kerala. In spite of administering various intervention techniques like personal communication, documentary films, radio talks, folk plays, and cessation camps, for ten years, only 14 per cent of the addicts completely stopped using tobacco, though some reduced their frequency of tobacco use. These studies lasting

for twenty-seven years have, undoubtedly, produced a wealth of information on the prevalence of various tobacco and areca nut habits in this district, and on the pathogenesis of leukoplakia, oral submucous fibrosis and oral cancer. But, as an intervention, it was not a great success. Once again, the same conclusion is reached: The tobacco habit, whether smoking or chewing, is difficult to quit. It is best not to start the habit.

A strong motivation is absolutely necessary for a person to stop consuming tobacco. The addict could also use various aids, like nicotine chewing gum, nicotine patches, and nicotine spray. The Central Tobacco Research Institute can develop methods for their manufacture in our own country. A press report published by the WHO claimed that it would make these products available at subsidised rates. Private 'smoking cessation clinics' have started coming up in our country. As they are likely to be very expensive, often beyond the means of the average smoker, it may be better, if such clinics are started in government hospitals. Smokers can also form self-help groups.

Protective agents

Forty years of attempting tobacco control has revealed that, firstly, tobacco habits will persist, and cannot be eliminated overnight, and secondly, they can be reduced only marginally, as revealed by intervention trials. These disappointing findings led to a third approach as to whether tobacco could be prevented from exerting its harmful health effects, by simultaneously administering a protective agent. This is known as chemoprevention, preventing tobacco's harmful effects, by counteracting it with a protective agent. Drs. Krishnan Nair, Sankara Narayanan, and others in the Regional Cancer Centre, Trivandrum, have investigated the effects of administering vitamin A or beta carotene to fishermen, who regularly chewed betel quid. As many as 65 per cent also drank alcohol, and 30 per cent smoked bidis. Vitamin A was found to prevent the incidence of oral leukoplakia in 52 per cent of the cases, and beta carotene, in 33 per cent. These investigations reveal that chemoprevention is at least partially effective.

We have conducted experiments on chemoprevention of cancer in laboratory animals. We have observed that the induction of gastric cancer in Swiss mice by the potent carcinogen, 3, 4 benzo(a)pyrene; and hepatomas in Wistar rats by 3'-methyl 4-dimethylam inoazobenzene, can be effectively prevented by the simultaneous feeding of cumin seeds (jeera). Poppy seeds (khuskhus), basil leaves (tulasi) and

ponnakanni leaves have also been found to be effective, but to a lesser extent. Various other scientists have shown that turmeric is also anti-carcinogenic. As we are not likely to eliminate or reduce smoking or chewing in the near future, the possibility of preventing their adverse health effects by consuming these plant products holds great promise. Further work on these lines with dietary components as protective agents should be carried out. Investigators in the West have found that regular consumption of yellow-green fruits and vegetables reduces significantly the incidence of breast cancer and heart diseases.

Kerala's experience

Kerala has the highest rates of tobacco addiction in India, though it does not grow any tobacco. It is a major producer of areca nuts and supplies it in a variety of forms (kotapakku, kalipakku, seeval) to other states. The detailed surveys, investigations, and interventions carried out by the Basic Dental Research Unit of the T.I.F.R. in Ernakulam District for over twenty-seven years show that, Kerala, probably has the highest incidence of oral cancer in India, among both men and women. It is also the state, where the first case-control studies confirming betel quid tobacco chewing as the root cause of oral cancer, was carried out by Orr in 1933. The Regional Cancer Centre at Thiruvananthapuram is presently carrying out a wide range of research projects on oral cancer and leukoplakia and their control, with the help of international funding. Kerala has taken the initiative in banning smoking in public places.

The future

It is predicted that deaths due to tobacco consumption for the whole world will increase from the present level of three million to about ten million by the year 2025, out of which a death rate of seven million will be from the developing countries. China alone will account for two million deaths. At present, deaths caused by tobacco addiction in India, is estimated between 630,000 and one million. It is likely to be higher in the future, because of increasing cigarette consumption, and increased longevity. India may thus account for another two million deaths by 2025. Lung cancer, which is a good indicator of smoking behaviour addiction has been steadily increasing at all places in India, as reported by Cancer Registries. Some epidemiologists have predicted a lung cancer epidemic in India, if the present trend continues.

Many countries in Asia are now initiating precautionary measures against the long-term ill-effects of tobacco consumption. China, Malaysia, Hong Kong, Korea and Thailand have established national coordinating organisations on tobacco control. Singapore and Thailand have enacted very strict laws on smoking and tobacco control, and are enforcing them too. The Ministry of Health, Government of India, has recommended a wide range of measures for tobacco control in India; but only some of them have been put into practice. On the whole, India's approach to tobacco control has been half-hearted so far. Public opinion against tobacco use in India is yet to gather momentum.

Smoking will continue to decline steadily in the U.K. and U.S.A., during the coming years. There will be a progressive decrease in mortality due to tobacco-related diseases. But, it is very doubtful, if these countries will be able to completely eradicate smoking. There is a growing public opinion the world over, particularly among health lobbyists that, these countries should restrict the multinational cigarette companies to follow certain definite norms. The U.S. and U.K. tobacco companies and their subsidiaries should adhere to the same standards of product, marketing, promotion and sales in developing countries, as are required in their own countries. They should also stop pressurising governments in developing countries to prevent passing and implementation of anti-tobacco measures. It has been alleged that some U.S. senators and U.S. consulates help these tobacco companies in their export and cigarette promotional activities. In the long run, the U.S. and U.K. governments will earn the goodwill of the whole world, if they put an end to the dumping of cigarettes in third world countries.

The high prevalence of oral cancer in different regions of India has been reported by several investigators from time to time. In Singapore, the incidence of oral cancer among Indians is considerably greater than among Chinese or Malay residents there. Indians in Malaysia account for 52 per cent of the oral cancer admissions although they form only 10 per cent of the Malaysian population. Oral cancer and oral submucous fibrosis are common among the Indian community in Natal, South Africa. The reason for the high prevalence of oral cancer is the practice of chewing betel quid with tobacco.

It is well-known that chewing tobacco leads to various oral lesions, including oral cancer. The advent of paan masala, an areca nut preparation, has led to a vast increase in oral submucous fibrosis. The epidemiogical investigations among Indian women in Natal, South Africa have some common features. About 50 per cent of the women who chew the areca nut, do so without using tobacco or betel quid.

Oral submucous fibrosis occurred in 38 per cent of the people, especially in those who chewed areca nut without betel quid. Oral cancer among women occurred mainly in the buccal mucosa and tongue and 65 per cent of these cancers arose in women who did not use any tobacco. This South African investigation clearly demonstrates that chewing areca nut, alone can lead to oral submucous fibrosis and oral cancer. The messages from all these findings are clear. Chewing of tobacco should be avoided, as it undoubtedly leads to oral cancer. Habitual chewing of areca nut and areca nut preparations like paan masala carry a high risk of oral submucous fibrosis and oral cancer, and are therefore best avoided. Areca nut is an integral part of betel quid. Hence, betel quid should contain only a minimum amount of areca nut and no tobacco. It is safer to use such betel quid, for this does not carry any significant risk for oral cancer. As an educated community, we should restrict ourselves only to safe betel quids; our unenviable reputation of having the highest oral cancer rates, will then be a thing of the past.

Appendix 3

Health effects associated with exposure to Second-hand Tobacco Smok

Summary of findings of the California Environmental Protection Agency, 2005

Effects causally associated with SHS exposure

Developmental effects

- Fetal growth: Low birth weight and decrease in birth weight
- Sudden Infant Death Syndrome (SIDS)
- Pre-term delivery

Respiratory effects

- Acute lower respiratory tract infections in children (e.g. bronchitis and pneumor
- Asthma induction and exacerbation in children and adults
- Chronic respiratory symptoms in children
- Eye and nasal irritation in adults
- Middle-ear infections in children

Carcinogenic effects

- Lung cancer
- Nasal sinus cancer
- Breast cancer in younger, primarily premenopausal women

Cardiovascular effects

- Heart disease mortality
- Acute and chronic coronary heart disease morbidity
- Altered vascular properties

Effects with suggestive evidence of a causal association with SHS exposure

Reproductive and developmental effects

- Spontaneous abortion, intrauterine growth retardation
- Adverse impact on cognition and behaviour
- Allergic sensitization
- Decreased pulmonary function growth
- Adverse effects on fertility or fecundability

Cardiovascular and haematological effects

- Elevated risk of stroke in adults

Respiratory effects

- Exacerbation of cystic fibrosis
- Chronic respiratory symptoms in adults

Carcinogenic effects

- Cervical cancer
- Brain cancer and lymphomas in children
- Nasopharyngeal cancer
- All cancers – adult and child

Summary of findings of the United States Surgeon General, 2006

Reproductive and developmental effects from exposure to SHS

Sudden Infant Death Syndrome
The evidence is sufficient to infer a causal relationship between exposure to SHS and sudden infant death syndrome.

Preterm delivery
The evidence is suggestive but not sufficient to infer a causal relationship between maternal exposure to SHS during pregnancy and preterm delivery.

Low birth weight
The evidence is sufficient to infer a causal relationship between maternal exposure to SHS during pregnancy and a small reduction in birth weight.

Childhood cancer
The evidence is suggestive but not sufficient to infer a causal relationship between prenatal and postnatal exposure to SHS and childhood cancer.

The evidence is suggestive but not sufficient to infer a causal relationship between prenatal and postnatal exposure to SHS and childhood leukaemias.

The evidence is suggestive but not sufficient to infer a causal relationship between prenatal and postnatal exposure to SHS and childhood lymphomas.

The evidence is suggestive but not sufficient to infer a causal relationship between prenatal and postnatal exposure to SHS and childhood brain tumours.

Respiratory effects in children from exposure to SHS

Lower respiratory illnesses in infancy and early childhood
The evidence is sufficient to infer a causal relationship between SHS exposure from parental smoking and lower respiratory illnesses in infants and children.

The increased risk for lower respiratory illnesses is greatest from smoking by the mother.

Middle-ear disease and Adenotons illectomy
The evidence is sufficient to infer a causal relationship between parental smoking and middle-ear disease in children, including acute and recurrent otitis media and chronic middle-ear effusion.

The evidence is suggestive but not sufficient to infer a causal relationship between parental smoking and the natural history of middle-ear effusion.

Respiratory symptoms and prevalent asthma in school-age children
The evidence is sufficient to infer a causal relationship between parental smoking and cough, phlegm, wheeze and breathlessness among school-age children.

The evidence is sufficient to infer a causal relationship between parental smoking and ever having asthma among school-age children.

Childhood Asthma Onset
The evidence is sufficient to infer a causal relationship between SHS exposure from parental smoking and the onset of wheeze illnesses in early childhood.

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The evidence is suggestive but not sufficient to infer a causal relationship betwe exposure from parental smoking and the onset of childhood asthma.

Lung growth and pulmonary function
The evidence is sufficient to infer a causal relationship between maternal smoki pregnancy and persistent adverse effects on lung function across childhood.

The evidence is sufficient to infer a causal relationship between exposure to SHS and a lower level of lung function during childhood.

Cancer among adults from exposure to SHS

Lung cancer
The evidence is sufficient to infer a causal relationship between SHS exposure ar cancer among lifetime non-smokers. This conclusion extends to all SHS exposur regardless of location.

The pooled evidence indicates a 20% to 30% increase in the risk of lung cancer fr exposure associated with living with a smoker.

Breast cancer
The evidence is suggestive but not sufficient to infer a causal relationship betwe and breast cancer.

Nasal sinus cavity and nasopharyngeal carcinoma
The evidence is suggestive but not sufficient to infer a causal relationship betwe exposure and a risk of nasal sinus cancer among non-smokers.

Cardiovascular diseases from exposure to SHS

The evidence is sufficient to infer a causal relationship between exposure to SHS and increased risks of coronary heart disease morbidity and mortality among bot men and women.

Pooled relative risks from meta-analyses indicate a 25 to 30% increase in the risk coronary heart disease from SHS exposure.

The evidence is suggestive but not sufficient to infer a causal relationship betwee exposure and an increased risk of stroke.

Studies of SHS and subclinical vascular disease, particularly carotid arterial wall thickening, are suggestive but not sufficient to infer a causal relationship betwee exposure and atherosclerosis.

Respiratory effects in adults from SHS exposure

Odour and irritation
The evidence is sufficient to infer a causal relationship between SHS exposure an annoyance.

The evidence is sufficient to infer a causal relationship between SHS exposure and na irritation.

The evidence is suggestive but not sufficient to conclude that people with nasal al or a history of respiratory illnesses are more susceptible to developing nasal irrita from SHS exposure.

Respiratory symptoms

The evidence is suggestive but not sufficient to infer a causal relationship between SHS exposure and acute respiratory symptoms, including cough, wheeze, chest tightness and difficulty breathing among people with asthma.

The evidence is suggestive but not sufficient to infer a causal relationship between SHS exposure and acute respiratory symptoms including cough, wheeze, chest tightness, and difficulty breathing among healthy people.

The evidence is suggestive but not sufficient to infer a causal relationship between SHS exposure and chronic respiratory symptoms.

Lung function

The evidence is suggestive but not sufficient to infer a causal relationship between short-term SHS exposure and an acute decline in lung function in people with asthma.

The evidence is suggestive but not sufficient to infer a causal relationship between chronic second-hand smoke exposure and a small decrement in lung function in the general population.

Asthma

The evidence is suggestive but not sufficient to infer a causal relationship between SHS exposure and adult-onset asthma.

The evidence is suggestive but not sufficient to infer a causal relationship between SHS exposure and a worsening of asthma control.

Chronic obstructive pulmonary disease

The evidence is suggestive but not sufficient to infer a causal relationship between SHS exposure and risk for chronic obstructive pulmonary disease.

Appendix 4

Countering the opposition

While effective smoke-free laws are popular, policy-makers must be prepared to respond to many, often-made arguments aimed at dissuading their passage and implementation. These arguments generally involve ideological issues; challenges to science on the health effects of SHS exposure; proposals for alternatives to smoke-free laws; the economic and other negative effects of smoke-free laws as well as the feasibility of implementation and enforcement.

Previous sections provide background information that can be used to refute many of these arguments. Below are other common arguments not found in these sections with their responses.

The risks of involuntary" smoking are trivial, particularly compared to other health issues

This claim has often been made respecting lung cancer. The increase in risk for a never smoker married to a smoker is about 20% compared to that for a never smoker married to a never smoker. As many scientific publications have shown, a 20% increase in risk is substantial, both at the individual and population levels for an exposure that is so widespread. Highly exposed individuals, such as bar and restaurant workers, may have far higher risks than the population average. The risks associated with heart disease are even larger and more immediate than for lung cancer.

The levels of toxic emissions from cigarettes are low compared to other air contaminants

On the contrary, they are exceptionally high compared with most other environmental and workplace toxins.[14] The air pollution emitted by cigarettes is 10 times greater than diesel car exhaust.[150] Moreover, a recent study of fine particulate matter $PM_{2.5}$° exposure in indoor smoking and smoke-free settings in 24 countries found an average level of $PM_{2.5}$ of 317 µg/m^3 in locations were there was tobacco smoking compared to 36µg/m^3 in premi smoking was not observed durinç toring period.[42] This level is more t the WHO general air quality guid recommend maximum 24-hour n sures of 25 µg/m^3.[151] In fact, wor United States exposed to tobacco s regular basis during their working risk of cancer that is between 7 an higher than levels established as c for exposures to contaminants SHS.[138]

Epidemiology, the basis for risk e: exposure to SHS, is "junk science

Use of the pejorative term "junk s describe the scientific method of ep can be traced back to the tobacco ir other industries, which are fearful c cations that epidemiological researc for their products. Tobacco industry have left an extensive trail showing a effort to discredit it. A well-establis mental science of public health, ep is the scientific method for directly information on the health effects of as received in natural settings. approaches employed successfully f SHS have been used over decade: tious diseases and for major acute ic diseases. Epidemiological evid foundation for public policy in many as infection control and managemer water pollution.

Smoke-free laws are unconstitu violate the personal rights and l smokers.

This argument states that smoking i al choice for adults and that legislatic smoke-free environments victimizes a tizes smokers and sets a dangerous about the reach of the state. Howev free legislation does not say that sm not smoke; it only limits where smokin sible to prevent smokers from harm

In addition, there is no "right to smoke" in any national constitution or international human rights law.[152] Conversely, the right to life, the right to the "enjoyment of the highest attainable standard of health," the right to a healthy environment and other rights relevant to protection from exposure to tobacco smoke are found in numerous international human rights laws.[138]

Universal application of smoke-free laws is not realistic or appropriate for developing countries.

The goal of universal protection is also equally valid in high- and low-income jurisdictions, although the means for achieving it may differ. There may be a perception that developing countries cannot afford to implement smoke-free laws, but in reality modest resources are needed to implement these laws; costs go down dramatically following implementation of the laws and improved public health will reduce health-care costs.

Comprehensive smoke-free laws are culturally inappropriate in many places

National, provincial and local governments in varied cultural and ethnic settings and in developed and developing countries have shown that comprehensive smoke-free laws are feasible and successful regardless of a country's income level, language or ethnic background. In Ireland it was argued that smoking was an essential component of the pub atmosphere, yet Ireland has been smoke-free for more than two years with overwhelming public support. Spanish- and French-speaking countries are often cited as places that could never become smoke-free because smoking is such an integral part of their culture. Yet Uruguay is smoke-free, a majority of the French population supports smoke-free bars and restaurants, and the French-speaking province of Quebec in Canada became smoke-free (including in bars and restaurants) on 31 May 2006.

Universal application can only be achieve gradually

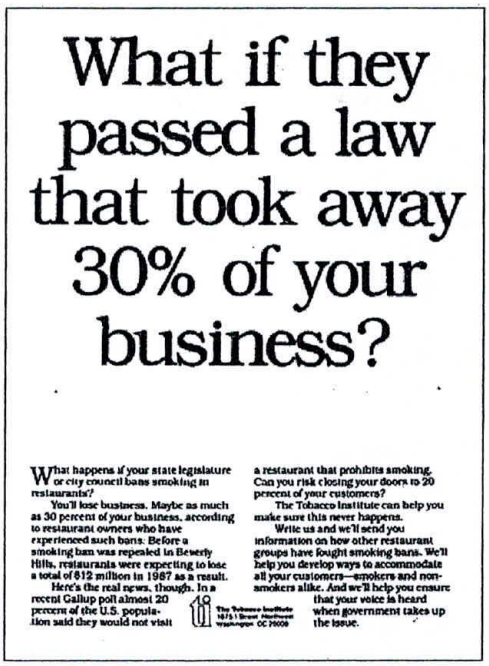
When smoke-free environments becam increasingly widespread in North America an other developed countries throughout the 198(and 1990s, the pace was incremental, wit smoke-free environments being introduce gradually on a sector-by-sector basis. This wa usually necessary because the public was les aware of the damage caused by SHS exposur and because smoke-free environments wer not a familiar part of the public consciousnes: An incremental approach may be the only prac tical initial option for some countries, but may not be required in others. The benchmar for smoke-free environments is now far highe than when policies first began to be imple mented, and this has made rapid change fa more feasible. The many case studies no available show that jurisdictions can go an have gone from virtually no smoke-free legisla tion to comprehensive 100% smoke-free legisla tion in a single step. Scotland and Uruguay ar just two significant examples of this.

Smoke-free environments cannot be imple mented unless combined with support to hel smokers quit

The success of smoke-free laws is not dependei upon providing cessation programmes in smoke free settings. Programmes to help smokers qu in settings that become smoke-free can send supportive message to smokers reminding thei that smoke-free policies are not meant to isola them but to protect everyone's health. Howeve experience shows that they are not necessary fc smooth implementation of smoke-free law While smoking cessation programmes can be useful ancillary intervention to smoke-free env ronments if resources are available, lack c resources for smoking cessation programme should not delay implementation of smoke-fre environments. Protection of public health is th primary goal of smoke-free environment

n Also known as passive smoking

o PM2.5 are harmful fine particles that are easily inhaled deep into the lungs and are emitted in large quantities from burning cigarett



What if they passed a law that took away 30% of your business?

What happens if your state legislature or city council bans smoking in restaurants?

You'll lose business. Maybe as much as 30 percent of your business, according to restaurant owners who have experienced such bans. Before a smoking ban was repealed in Beverly Hills, restaurants were expecting to lose a total of $12 million in 1987 as a result.

Here's the real news, though. In a recent Gallup poll almost 20 percent of the U.S. population said they would not visit a restaurant that prohibits smoking. Can you risk closing your doors to 20 percent of your customers?

The Tobacco Institute can help you make sure this never happens.

Write us and we'll send you information on how other restaurant groups have fought smoking bans. We'll help you develop ways to accommodate all your customers—smokers and non-smokers alike. And we'll help you ensure that your voice is heard when government takes up the issue.

The Tobacco Institute
1875 I Street, Northwest
Washington, DC 20006

Fig. 3 The Tobacco Institute ran this ad in California in the late 1980s. The president of the Beverly Hills Restaurant Association, Barry Fogel, later testified that, "There was no Beverly Hills Restaurant Association before the smoke-free ordinance. We were organized by the tobacco industry. The tobacco industry repeatedly claimed that Beverly Hills restaurants suffered a 30% decline in revenues during the five months that the [original] smoke-free ordinance was in effect. Figures from the State Board of Equalization using sales tax data, however, showed a slight increase in restaurant sales." Vogel went on to say that he regretted his participation in opposing the law. The chart below shows the industry's claim versus actual sales in Beverly Hills.

Smoke-free laws will reduce business in the hospitality sector and harm tourism.

The impact of smoke-free legislation on employment and business has been studied in dozens of jurisdictions. Not a single study using objective data and sound research methodology has found an overall negative impact of smoke-free legislation association.[45, 153] The effects are uniformly neutral or positive, with little short-term effect on the hospitality business and some positive effects in the long-term as non-smokers start going to bars and other venues that they once avoided because of second-hand smoke.

Studies quoted by opposition groups i
dire economic effects from smoke-
normally rely on subjective data or do
uate objective data with acceptable
methods. Data may also be reported o
text. For example, opponents of Ireland
free law noted that receipts for beer a
in pubs declined following implemer
the law. What they failed to mention is
trend began before the law came into e
did not worsen as a result of the law.[1]

Tobacco industry front groups have
many studies presenting as data the pr
or opinions of a select group of bar
These predictions always turn out to b
as the tobacco industry itself has a
(Figs. 3, 4).

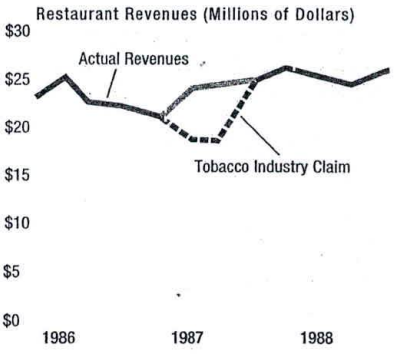


Fig. 4 Actual revenues vs tobacco industry claim

Some places have promoted smoke-fi
ronments in their tourism campaigns
nizing that many visitors will value th
tunity to enjoy entertainment without
smoke (Fig. 5).

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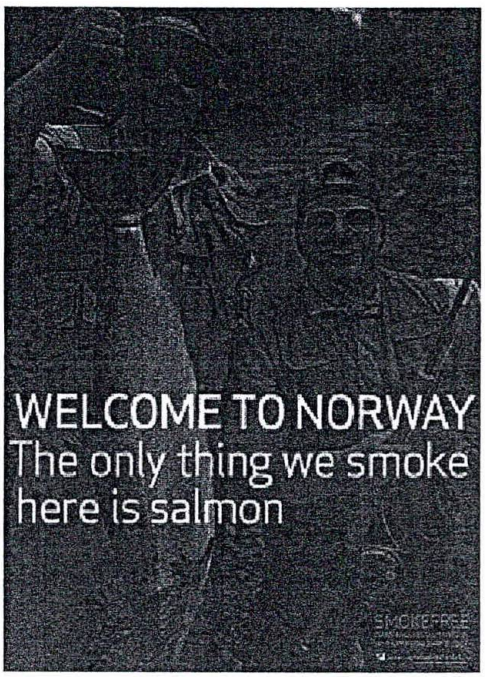

Fig. 5 Norway's tourist promotions highlight its smoke-free policies.

100% smoke-free environments are not enforceable: people will not obey the laws.
The reality is just the opposite. Unclear laws that designate square footage or percentages for non-smoking and smoking sections; prohibit smoking only during certain hours in specific establishments; or set requirements for DSRs create confusion for institutions implementing the law, and for employees and customers and inspectors enforcing the law.

On the other hand, if the law simply requires a certain type of institution (such as schools or retail establishments) to be 100% smoke-free, building managers and owners know that they cannot permit any smoking in their building, employees and customers know that they cannot smoke in the establishment, and inspectors know immediately if an institution is complying with the law: either someone is smoking inside or no one is smoking inside.

Smoke-free workplaces will cause smokers to smoke more in the home, thus increasing children's exposure to SHS.
There is no evidence that smoke-free workplaces will increase children's exposure to tobacco smoke at home. Indeed, a growing body of evidence suggests that legislation banning smoking in public places and workplaces leads to a reduction in smoking in the home. Smoke-free workplaces encourage smokers to quit. The reduction in smoking among adults means that fewer children are likely to be exposed to smoke at home. Smoke-free workplaces are associated with a greater likelihood of workers implementing smoke-free policies in their homes.[155]

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Crowding out effect of tobacco expenditure and its implications on household resource allocation in India☆

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Abstract

This paper examines whether spending on tobacco crowds out expenditure on basic needs and whether it has implications on nutrition intake and household resource allocation in India. The paper uses a household sample survey from India for the year 1999–2000. A system of quadratic conditional Engel curves was estimated for a set of 10 broad groups of commodities. The results suggest that tobacco consuming households had lower consumption of certain commodities such as milk, education, clean fuels and entertainment which may have more direct bearing on women and children in the household than on men suggesting possible 'gender effects' and biases in the allocation of goods and services within the household. Tobacco spending was also found to have negative effects on per capita nutrition intake. The nature of crowding out was found to be similar in low- and high-income households.

Keywords: Tobacco; Consumption; Poverty; Crowd out; India; Expenditure; Gender

Introduction

Expenditure on tobacco occupies a significant portion of household budgets in many developing and developed countries. It varies from close to 1% in countries such as Mexico and Hong Kong to nearly 10% in Zimbabwe and China (Selvanathan & Selvanathan, 2005; Wang, Sindelar, & Busch, 2006). In developing countries, where people in general are relatively constrained by money, it is reasonable to expect that the expenditure on tobacco will have higher opportunity cost in terms of reduced expenditure on basic goods such as food, education and energy over and above the direct health consequences of tobacco consumption.

Most studies on tobacco consumption overlook the nature of crowding out that occurs due to spending on tobacco. Internationally, there is a dearth of sufficient empirical evidence to show whether tobacco spending actually crowds out the consumption of other goods in ways affecting the well being of household members. A few studies, however, address this issue in some detail. The pioneering work in this area came from Bangladesh in a study by Efroymson et al. (2001) which demonstrated that tobacco expenditures exacerbated the effects of poverty and caused deterioration in living

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standards among the poor. Using data from New Zealand, Thomson, Wilson, ÓDea, Reid, and Howden-Chapman (2002) found that if second lowest income decile households with smokers were to be smoker-free this would on average allow an estimated 14% of the non-housing budgets of those households to be reallocated. These studies were early attempts to address the issue of crowding out due to spending on tobacco and are based on descriptive observations of data. Using data from the US population, Busch, Jofre-Bonet, Falba, and Sindelar (2004) found evidence indicating crowding out of housing expenditures as a result of spending on smoking. In an attempt to explain whether spending on tobacco drives out critical expenditures, Wang et al. (2006) found that in rural China, tobacco spending leads to a reduction in expenditures on education, health, insurance and investment in farming. However, since authors have modeled expenditure shares of these items as functions of expenditures on tobacco there is an issue of endogeneity. This is because given the total budget there is simultaneity involved in consumption decisions. Unless one explicitly accounts for this endogeneity using certain instrumental variables, it may have the effect of rendering the estimates biased and inconsistent.

This paper takes the case of India to closely examine the issue of crowding out for a variety of reasons. India is the third largest producer of tobacco (Food and Agricultural Organization, 2007) and the second largest consumer of unmanufactured tobacco in the world (Reddy & Gupta, 2004). India is home to nearly 17% of smokers in the world (Shimkhada & Peabody, 2003), with an estimated 46.5% of all men and 13.8% of all women consuming some form of tobacco (Rani, Bonu, Jha, Nguyen, & Jamjoum, 2003). India has one of the highest rates of oral cancer, a direct result of tobacco use, in the world (Shimkhada & Peabody, 2003). Previous studies (Gupta & Sankar, 2003; John, 2005; Rani et al., 2003; Subramanian, Nandy, Kelly, Gordon, & Smith, 2004) have shown that prevalence of tobacco consumption in India is higher among the low-income groups. Roughly, a quarter of India's population of more than a billion persons live under the official poverty line. An average individual spends around Rs. 486 in rural India and Rs. 855 in urban India on monthly expenses as per the 1999–2000 National Sample Survey (NSSO, 2000). (The exchange rate for Indian Rupees was roughly Rs. 46.5 per US Dollar during this period.) Thus, in India, a thriving tobacco industry coexists with low income and poverty. Hence, consumption of tobacco in India is a concern not only due to its consequent high morbidity and mortality but also due to the opportunity cost of spending on tobacco.

Spending on tobacco may also generate biases in the household allocation of goods and services due to many reasons. In India, tobacco use is primarily an adult male activity with a prevalence of 47% among men and 14% among women in the age group 15 years and older (Rani et al., 2003). Moreover, many Indian households, especially in rural areas, are characterized by the age-old patriarchy, with many household consumption decisions being made by the adult male members. Menon-Sen and Kumar (2001) note that "Indian women are marginalized in decision making and leadership by a variety of processes that begin in infancy." The National Family Health Survey (IIPS, 2000, p. 66) shows that more than 50% of married rural Indian women play no role in household decisions regarding purchases. This figure is 40% in urban India. Children also may bear the brunt of constrained incomes, and parents with a strong taste for adult goods are known to discriminate against female children (Subramanian & Deaton, 1991). Hence, it can be suspected that women and children are affected by the tobacco spending decision of a few (mostly adult male) members in a household.

Data and preliminary results

Household cross section data from the National Sample Survey Organization (NSSO) collected during the period July 1999–June 2000 under the auspices of the Ministry of Statistics and Programme Implementation, Government of India (NSSO, 2000) was used for this study, with similar data from a previous period (July 1993–June 1994) as a check of the robustness of the findings. The data contain information on consumption for a wide variety of goods from 120,309 households spread across 10,140 villages in India. This nationally representative and official household consumption survey collected information on consumption of over 500 commodities over a 30-day recall period. Expenditures on 10 distinct categories which are exhaustive and mutually exclusive, including food, education, health care, and entertainment were considered for the analysis in this paper, though for certain groups disaggregated items were examined to address specific issues.

A categorical variable indicating each household's tobacco expenditure status was constructed first. This categorical variable divided the sample into four mutually exclusive and exhaustive groups: households with no-, low-, moderate-, and high-tobacco spending denoted as NoSpend, LSpend, MSpend and HSpend, respectively. Conditional on having positive tobacco expenditures, if the budget share spent on tobacco is

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in the first 20 percentile of the distribution of budget shares on tobacco of the positive tobacco spending households, such households were defined as low-tobacco spending households. Similarly, if they are in the 20th–80th percentile or 80th–100th percentile, they are categorized as moderate- and high-tobacco spending households, respectively. This classification is purely arbitrary and is done only to see the severity of crowding out among higher tobacco spenders and is used only for the descriptive analysis. A dummy variable taking values 1 and 0 for positive tobacco spending and no spending, respectively, was also constructed. Analyses are carried out separately for both rural and urban India.

Table 1 presents a summary of expenditure and budget shares allocated to tobacco by the tobacco consumption status of households for different expenditure groups in rural and urban India. The middle-income group represents households between the 30th and 70th percentile of the distribution of monthly per capita consumption expenditure of households. Lower and higher income groups are those below and above this range. It can be seen that households with positive tobacco expenditure have higher total monthly average expenditure versus those without tobacco expenditure in rural India. This is true for all the income groups in rural India and low- and middle-income groups in urban India. However, monthly per capita expenditure is lower among tobacco consuming households compared to others, which is due to the fact that the average household size is higher among tobacco consuming households (5.4 and 4.92 in rural and urban India) than non-tobacco consuming households (4.4 and 4.3 in rural and urban India). In addition, within the tobacco consuming households the average monthly expenditure declines as one moves from category LSpend to HSpend while the average monthly per capita expenditure does not decline.

While LSpend households in rural India spent 0.54% of their budget on tobacco the HSpend category spent as much as 6.30% of their budget on consuming tobacco in the all-income groups. These figures are 0.5 and 7.24% in urban India. Though prevalence of tobacco use is higher among the poor, as a share of their total budget poor households spent slightly less than their richer counterparts in India. This is in contrast to some previous studies (de Beyer, Lovelace, & Yurekli, 2001; Nichter & Cartwright, 1991; Shah & Vaite, 2002) which found that the poor spent more of their income on tobacco compared to the rich.

Table 2 gives the results of Student's *t*-test for the differences in mean expenditures between the tobacco

Table 1
Summary averages

	Rural					Urban				
	NoSpend	TotTob	LSpend	MSpend	HSpend	NoSpend	TotTob	LSpend	MSpend	HSpend
All income										
Monthly household expenditure	2361	2498	2919	2493	2090	4086	3536	4331	3480	2907
Monthly per capita expenditure	534	462	482	455	461	958	719	759	695	755
Expenditure on tobacco	0	61	15	53	132	0	92	20	78	209
Share on tobacco	0.00	2.66	0.54	2.15	6.30	0.00	2.93	0.50	2.31	7.24
Low income										
Monthly household expenditure	1482	1778	1944	1784	1577	2264	2455	2795	2480	2037
Monthly per capita expenditure	292	294	295	294	295	430	419	425	417	421
Expenditure on tobacco	0	43	11	37	93	0	64	14	57	137
Share on tobacco	0.00	2.56	0.57	2.11	6.16	0.00	2.84	0.53	2.33	6.84
Middle income										
Monthly household expenditure	2140	2535	2824	2568	2160	3541	3686	4389	3668	2907
Monthly per capita expenditure	486	477	476	477	478	813	785	789	777	810
Expenditure on tobacco	0	62	14	56	129	0	91	21	81	210
Share on tobacco	0.00	2.68	0.53	2.19	6.19	0.00	2.81	0.49	2.27	7.32
High income										
Monthly household expenditure	3549	3824	4944	3811	2800	6236	5658	7485	5632	4334
Monthly per capita expenditure	937	879	937	858	864	1864	1742	1793	1747	1668
Expenditure on tobacco	0	94	24	79	201	0	158	32	124	325
Share on tobacco	0.00	2.82	0.51	2.13	6.75	0.00	3.38	0.46	2.34	7.78

Notes: expenditure in Rs. and share in percentages. LSpend, MSpend and HSpend represent 0–20, 20–80 and 80–100 percentile, respectively, of positive tobacco spending households. Similarly, TotTob is for all the tobacco consuming households and NoSpend is for the rest. All figures are weighted by appropriate sampling weights and hence are representative figures.

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Table 2
T-Test for the differences in mean of shares between tobacco users and non-users (55th round: year 1999–2000)

Categories	Rural India		Urban India	
	Difference	*t*-stat	Difference	*t*-stat
Food	−0.148	−1.65	−2.538	−21.90
Cereals and cereal substitutes	−3.773	−41.69	−3.997	−47.06
Fruits	0.451	28.63	0.513	28.27
Pulses	0.088	4.43	−0.267	−14.59
Milk	0.975	15.57	1.409	24.90
Edible oil	0.123	7.87	−0.256	−14.76
Non-veg	−0.176	−5.57	−0.970	−26.24
Vegetables	−0.068	−2.57	−0.693	−23.48
Beverages	2.068	29.43	2.248	20.64
Pan	−0.089	−7.64	−0.209	−17.12
Alcohol	−0.670	−35.33	−0.896	−34.96
Fuel and light	0.447	13.80	−0.269	−7.41
Firewood	−0.184	−6.84	−0.848	−35.23
Dung cake	−0.333	−20.82	−0.229	−24.74
Clothing	0.070	2.57	0.115	4.31
Education	0.555	23.49	1.359	31.34
Medical non-institutional	0.023	0.44	−0.249	−4.63
Medical institutional	0.130	4.36	0.034	0.94
Entertainment	0.083	9.78	0.298	19.57
Conveyance	0.791	26.31	1.531	33.90
Railfare	0.025	3.41	0.053	3.34
Bus/tram	0.457	19.23	0.297	10.24
Schoolbus	0.026	6.80	0.076	11.28
Durables	−0.026	−0.80	0.191	3.93
Other	1.490	36.55	3.557	45.46

Notes: difference shows 'mean of non-users' − 'mean of users'. The indented items in the first column are subgroups and may or may not sum to the total of the group above it.
t-Stat shows the Student *t*-statistics for the H_0: mean (non-users) − mean (users) = 0 for each of the goods.
All differences in columns 2 and 4 with the corresponding absolute value of *t*-statistics greater than 2 are statistically significant at 5% level.

consuming and non-consuming households. Detailed tables describing actual differences in broad commodity-wise expenditures and shares for rural and urban households by tobacco consumption status are not reported here but can be made available upon request. Statistically significant differences in budget shares are observed between tobacco consumers and non-consumers in all expenditure heads except food, medical non-institutional expenses and durables in rural India and medical institutional expenses in urban India. A brief discussion of these patterns for each expenditure aggregates is given below.

Food

Roughly 62% of the rural and 54% of the urban household expenditure was spent on food consumption in India in the year 1999–2000. This reflects the extent of poverty and low-income levels in this country. However, food expenditure is considerably lower among the high-tobacco spending category especially in rural areas. This may have implications for the nutrition intake of households in this category, a factor which is examined later. Even though the difference in budget share on food is not significant between tobacco consuming and non-consuming households in rural India, it is observed that tobacco consumers allocate more of their budget to cereals and cereal substitutes versus non-tobacco consumers. In contrast, milk and milk products, an item mostly consumed by children, is a highly compromised item among tobacco consuming households. Consumption of fruits and beverages is also compromised in a similar way. This is supportive of evidence from elsewhere in the literature (Thomson et al., 2002) indicating that tobacco spending is likely to affect the level of food quality and nutrition available to children.

Alcohol and Pan

In India, average monthly consumer expenditure on alcohol is roughly half of the expenditure on tobacco

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according to NSSO data. Budget share spent on alcoholic drinks by the non-tobacco consuming households is a mere 0.39% in rural India and 0.22% in urban India. In contrast, the high-tobacco spending category households have alcohol expenditure 1.46 and 1.56% of the budget, respectively, in rural and urban India. Spending on Pan (betel-quid chewing) is also higher among tobacco consumers. As tobacco consumers tend to spend more on alcohol it leaves them more impoverished with less disposable income to spend on other commodities.

Fuel and light

Overall fuel and light expenditure is lower among tobacco consumers in rural India and higher in urban India. But a closer examination of expenditure shares within the fuel and light category shows interesting patterns. Households with tobacco spending systematically allocate more of their budget to unclean fuels such as firewood and dung cake. This pattern was also observed from the previous period of data that was examined. This observation prompts one to ask, what drives tobacco consuming households to allocate significantly more share on unclean fuels than clean fuels? A study by World Bank (2002, p. 158) observes "for the rural poor (in India), the more dominant economic decision-making power and preferences of men play a significant role in fuel use choices at the household level, while women continue to bear the burden of collecting fuel wood and use it for cooking, thus exposing themselves to highest levels of indoor air pollution." More detailed studies are required to explain and establish any potential links between tobacco consumption and household fuel choice decisions.

Clothing

Budget share spent on clothing is higher among non-tobacco households compared to tobacco consuming households in rural and urban areas.

Education and transport

Educational expenditures are significantly lower among tobacco households. It was also observed that, expenditures on school buses are significantly lower among them. This suggests that children may bear the brunt of tobacco consumption by adult members in a household by way of less allocation to education and transportation. However, as noted before, this also cannot be taken as causal evidence linking tobacco consumption and access to education, though it certainly points to possible biases in resource allocation within households.

Health care

Medical institutional and non-institutional expenses are slightly lower among tobacco consuming households. *t*-Tests reveal that medical non-institutional expenses are statistically different between tobacco users and others among urban households but not among rural households. On the other hand, medical institutional expenses are significantly different among rural households but not among urban households.

Entertainment

Entertainment is another expenditure that seems to have been compromised by tobacco spending households across all groups analyzed. Decreased spending on entertainment within a family may have implications on intra-household dynamics, as entertainment is often an avenue for spending quality time together with family members.

Durables

Durables are a highly aggregated item consisting of a variety of durable goods such as furniture, jewelry, household appliances, residential buildings and land. Expenditures on durables are lower among tobacco using households in urban households but not in rural households.

A similar analysis using an earlier round (50th) of data from the year 1993–1994 was carried out to ensure that the findings are not a matter of chance from a single cross section. The patterns of crowding out from this data was found to be similar though differing in magnitudes. The results are not described here but can be made available on request.

The differences in consumption expenditures observed for certain items above do not control for household specific characteristics such as household demographics and other socioeconomic characteristics of households. Moreover, there is simultaneity involved in purchase decisions. One has to control for these other characteristics to examine the crowding out effects properly. One must also check whether preferences of tobacco consuming and non-consuming households are fundamentally different leading to their differing consumption choices. This warrants a more robust

econometric analysis of household consumption patterns which is done in the subsequent sections.

A conditional demand model, conditional on the consumption of tobacco, is estimated to:

1. Test whether tobacco users and non-users have different preferences over the other commodities; and
2. Examine statistically the nature of crowding out of other goods due to tobacco spending controlling for household specific characteristics.

Conditional demand

Let us say household preferences, given a vector of characteristics (**a**), can be represented by a utility function $U = U(x_1, \ldots, x_n; \mathbf{a})$ where x_i denotes its consumption of ith good. Given the prices of all goods, $\{p_1, \ldots, p_n\}$ household maximizes its utility subject to a budget constraint, i.e.,

$$\text{Max } U = U(x_1, \ldots, x_n; \mathbf{a}) \quad \text{s.t} \sum_{i=1}^{n} p_i x_i = Y \tag{1}$$

where Y denotes total expenditure. The solution to this maximization problem will yield the normal unconditional demand curves for each of the goods as a function of Y and the vector of all prices denoted by P given the set of household characteristics, i.e.,

$$x_i = h^i(p_1, \ldots, p_n, Y; \mathbf{a}) = h^i(P, Y; \mathbf{a}) \quad (i = 1, \ldots, n) \tag{2}$$

Following Pollak (1969), let us say that household's consumption of one good has been predetermined. In this case, let us say household has already decided its budget on tobacco consumption and a certain amount has been already "preallocated" for it. This effectively means that the household now has to maximize its utility subject to the expenditure in excess of the preallocated expenditure for tobacco. If tobacco is the nth good, assume that the first $n-1$ goods are available in the market for the prices $\{p_1, \ldots, p_{n-1}\}$ over which the household has no control and the total expenditure on these goods are given by M ($M = Y - p_t t$, where $p_t t$ is the expenditure on tobacco). Now the utility maximization problem for the household will become:

$$\text{Max } U = U(x_1, \ldots, x_n; \mathbf{a}) \quad \text{s.t} \sum_{i=1}^{n-1} p_i x_i = M \tag{3}$$

with the additional constraint $x_n = \bar{x}_n$ where $\bar{x}_n$ denotes household's demand for tobacco. The solution for this maximization problem, solving only for $n-1$ goods, gives what are called conditional demand functions which can be written as:

$$x_i = g^{i,n}(p_1, \ldots, p_{n-1}, M, x_n; \mathbf{a}) \quad (\forall\, i \neq n). \tag{4}$$

The function $g^{i,n}$ above is the conditional demand function for the ith good conditional on the consumption of nth good (here tobacco). Thus one gets the demand for the other commodities as a function of their own price, prices of all goods except the conditioning goods, total expenditures excess of expenditures on the conditioning goods and the quantities of the conditioning goods. It is advantageous to use conditional demand functions especially when dealing with goods that are not consumed by many households, e.g., tobacco (Browning & Meghir, 1991).

Conditional demand functions can be conveniently used to test whether zero expenditures on tobacco arise from corner solutions or sheer abstention. There may be a large number of households reporting zero consumption of tobacco simply because they do not want to consume it. However, theoretically, when one observes a large proportion of zeros against the consumption of tobacco in a cross-sectional consumer expenditure survey, it cannot be concluded that all of them resulted from pure abstention. Ignoring the possibility of infrequent purchases, a zero consumption of tobacco can result either due to corner solutions, resulting from the budget constraint, or sheer abstention. From the point of view of demand functions, corner solutions mean purchases are not made because prices are at unaffordable levels and if the prices actually decrease there may be positive purchases by the same consumers who had not purchased previously. But if abstention is the actual cause of zeros, it typically means tobacco users and non-users have different preferences. Theoretically there is no *a priori* reason why one should assume either case though for all practical purposes one may have reasons to believe that abstention could well be the predominant reason behind such zeros. If abstention is the reason then an estimation of demand functions for tobacco should only have tobacco consuming households in it. Hence one needs to statistically test whether such zeros are due to abstention or corner solutions. A simple test is developed (Vermeulen, 2003) for this purpose by augmenting the conditional demand function with a binary variable indicating the status of tobacco consumption.

A necessary condition for zeros on tobacco to correspond to corner solutions is that both tobacco users and non-users behave according to the demand function as given in Eq. (4), which would mean that some consumers do not preallocate money to tobacco simply

because they are constrained by budget. A simple test of null hypothesis of corner solutions consists of testing whether the demand function 4 depends on a binary variable d, which indicates whether positive ($d=1$) or zero ($d=0$) expenditures on tobacco are observed. If this conditioning binary indicator is significant in the demand for the other commodities for all households, it would mean that both tobacco users and non-users behave differently and would reject the null hypothesis of zeros arising from corner solutions, supporting abstinence as the cause. On the other hand, if the binary indicator d is insignificant it is not sufficient for rejecting zeros to be derived from abstention. "It is possible that both smokers and non-smokers have the same (conditional) preferences on the rest of the commodity bundle (so that the null hypothesis would not be rejected), but that tobacco acts as an argument in a smoker's full utility function, which is not true for non-smokers in the case of abstention" (Vermeulen, 2003). This test can also be seen as a test of whether tobacco is weakly separable from the consumption of other commodities. Separability of x_i from d (i.e., if d is insignificant) implies that if a household starts allocating money for tobacco, this only generates an income effect and no substitution effect on the rest of the commodity bundle (apart from the substitution effects if x_i is not separable from tobacco consumption).

The empirical implementation of this model requires a specific functional form for the U in Eq. (3). The paper now turns to this issue.

Quadratic almost ideal demand system

Empirically, the objective is to estimate the changes in budget shares allocated for various goods of interest due to the changes in expenditure allocated to tobacco. Since direct price information is not available for all goods of interest one can only estimate Engel curves (in this context, conditional Engel curves) instead of demand functions as in Eq. (4). The Engel curves from Quadratic Almost Ideal Demand System (QUAIDS) developed by Banks, Blundell, and Lewbel (1997) were used here. While being consistent with the utility theory QUAIDS permits goods to be "luxuries at some income levels and necessities at others" with the presence of a quadratic income term on the RHS.

Incorporating household characteristics (**a**), conditioning expenditures on tobacco ($p_t t$) and possible heterogenous preferences of tobacco users and non-users via a categorical variable d, the following conditional Engel curves for 10 broad goods of interest were estimated.

$$w_i = (\alpha_{1i} + \alpha_{2i}d + \alpha_{3i}p_t t + \delta_i'\mathbf{a}) + (\beta_{1i} + \beta_{2i}d)\ln M + (\gamma_{1i} + \gamma_{2i}d)(\ln M)^2 \quad (5)$$

where $w_i = p_i q_i / x$ is the budget share of commodity i in the remaining budget excess of expenditures on tobacco, $p_t t$ is the expenditure on tobacco and M is the total expenditure minus the expense on tobacco. The set of demographic and socioeconomic characteristics of the household (**a**), include log of household size, ratio of number of adults (14 years or older) to household size, average education (total education received by all the members in years divided by the household size) of the household, years of education received by the most educated member in the household, dummies for different religious groups, social groups and occupational groups. An indicator variable to control for any effect of residing in tobacco producing states was also included. Seven region dummies were introduced to eliminate broad regional taste differences, if any.

The regressors associated with M and the regressor $p_t t$ are potentially endogenous. The Durbin–Wu–Hausman test for exogeneity (Davidson & MacKinnon, 1993, pp. 237–240) was carried out for the set of explanatory variables. This tests the null hypothesis H_0: Regressors are exogenous. A rejection of the null indicates regressors are endogenous and hence instrumental variables techniques are required. Results of these tests are not reported here. Both M and $p_t t$ were found to be endogenous in most cases except a few. Hence, instrumental variable methods were used, which produce consistent and unbiased estimates. The groups expenditure M was instrumented by the total expenditure and $p_t t$ by the ratio of adult (14 years or older) males to adult females (adult sex ratio). The decision to use the total household expenditure to instrument M was guided by Keen (1986) and Vermeulen (2003) which resort to a similar approach. Adult sex ratio was thought to be a good instrument for tobacco expenditure since tobacco consumption in India is concentrated more among the adult males, and hence this variable is expected to be positively correlated with tobacco expenditure while being uncorrelated with the error term, a condition necessary to qualify as an instrument. One may also expect some of the dependent variables to be correlated with the disturbances of some other equations (*contemporaneous correlation*). Because of this, one should use an estimation method which is robust to the use of instrumental variables along with *Seemingly Unrelated Regression* (SUR). Hence, the paper estimates the system of Engel curves using Three-stage Least Squares (3SLS) method which

is robust to the application of IVs in SUR. Because the dependent variables of the 10 equations add up to one (*adding up* restriction) one has to arbitrarily drop one equation from the system of Engel curves before proceeding with the 3SLS estimation. The equation on "other goods" is dropped here.

Empirical evidence on crowding out

Table 3 reports the results of tests of null hypothesis for corner solutions as discussed above. The null hypothesis is that the three parameters associated with the binary variable d in Eq. (5) are jointly not significant. i.e., H_0: $\alpha_{2i} = \beta_{2i} = \gamma_{2i} = 0$. It turns out that in both rural and urban India, the null hypothesis of zeros arising from corner solutions is rejected, making abstention the likely reason behind zero expenditure on tobacco. This does not indicate that price has no effects on initiating tobacco consumption. The empirical evidence so far on the effect of price on smoking initiation is mixed (Cawley, Markowitz, & Tauras, 2004). The fact that the result here is based on household and not on individual consumption decisions may affect these conclusions to some extend.

Table 4 reports the results on the crowding out effects of tobacco for households irrespective of their income levels. Goods are not separable from the consumption of tobacco except alcohol, travel and durables in rural India and clothing, alcohol and durables in urban India for which d has turned out to be insignificant. This means there is both an income effect as well as substitution effect of consuming tobacco on goods such as food, health care, education, fuel and entertainment in both rural and urban India. An increase in the outlay for tobacco leads to a fall in the budget shares devoted to food, education and entertainment in rural India while it leads to a rise in share devoted to health care, clothing and fuels. A similar effect is seen in urban India, except that fuel expenditure is also decreased. The 50th round also showed a similar pattern in crowding out suggesting that the crowding out patterns may not be specific to one particular round. These results are also not reported here and can be made available upon request. A separate analysis was carried out to see if there is any difference in crowding out between the income groups. The results from the Table 5 show that the nature of crowding out is similar among both low- and high-income households. The effect of spending on tobacco on other commodities, wherever significant, is in the same direction for both these groups though with small differences in magnitudes.

Table 3
Test for corner solutions

Commodities	Rural	Urban
Food	121.22	41.48
Health	65.71	38.15
Education	70.11	12.85
Clothing	51.02	14.56
Fuel and light	177.46	34.32
Entertainment	35.74	32.34
Alcohol	589.36	250.35
Transport	141.12	43.80
Durables	100.02	53.48

Notes: values in each column are the χ^2 statistics from a *Wald Test* for the joint significance of three parameters (α_{2i}, β_{2i} and γ_{2i}) associated with the binary variable d in Eq. (3). All statistics are highly significant at p-values less than 0.01.

Commodities are not classified into necessities and luxuries here based on the sign of the parameters of $\ln M$ since (i) M does not represent the total expenditure here and (ii) the results are conditional on the outlay on tobacco. As expected the parameters of the quadratic term $\ln M^2$ in table turned out to be significant in most cases. It should be noted that the objective is not to analyze the demand for other goods, but rather to examine the effects of tobacco expenditure on the consumption of other goods. Hence, the estimated parameters for household demographic and socioeconomic characteristics are not reported.

It was seen earlier that, though the food share is similar for both tobacco users and non-users, certain items such as milk and milk products were compromised while items like cereals were consumed more by the tobacco consuming households. As the above regression results indicate possible crowding out of expenditure on food among the tobacco consuming households it is of interest to examine if this has any implications on nutrition intake. NSSO provides information on the intake of calories, protein and fat for each of the households. Table 6 gives the per capita per diem intake of nutrients by tobacco spending status for both rural and urban India. Comparing tobacco consumers and non-consumers, one observes that intake of fat is lower while calories and protein intake are higher among the tobacco consuming households in rural India, whereas all three are lower among the tobacco consuming households in urban India. As one moves to higher tobacco spending categories these nutrients are increasingly lacking as compared to the no spending groups. Thus, along with the reduction in consumption of various necessities, intake of sources of nutrition also becomes an issue among the households consuming tobacco as their expenditure on tobacco increases.

Table 4
Conditional Engel curves – (conditional on tobacco spending)

	Food	Health	Education	Cloths	Fuel	Entertainment	Alcohol	Travel	Durable
Rural India									
d	3.886*	−2.422*	0.706*	−0.329**	−0.787*	0.304*	0.008	−0.286	−0.324
	0.514	0.373	0.128	0.136	0.181	0.053	0.147	0.161	0.203
$p_i t$	−0.038*	0.021*	−0.006*	0.003**	0.009*	−0.003*	0.001	0.003	0.003
	0.005	0.003	0.001	0.001	0.002	0.000	0.001	0.001	0.002
$\ln M$	1.437*	−0.701*	0.162*	−0.054*	−0.245*	0.075*	−0.005	−0.151*	−0.307*
	0.131	0.095	0.033	0.035	0.046	0.013	0.037	0.041	0.052
$\ln M^2$	−0.099*	0.048*	−0.010*	0.003	0.014*	−0.005*	0.001	0.011*	0.022*
	0.008	0.006	0.002	0.002	0.003	0.001	0.002	0.003	0.003
$d \ln M$	−1.024*	0.631*	−0.183*	0.089*	0.205*	−0.080*	0.000	0.078	0.091
	0.135	0.098	0.034	0.036	0.047	0.014	0.039	0.042	0.053
$d \ln M^2$	0.067*	−0.041*	0.012*	−0.006*	−0.013*	0.005*	0.000	−0.005	−0.006
	0.009	0.006	0.002	0.002	0.003	0.001	0.003	0.003	0.003
Urban India									
d	4.173*	−2.069*	1.012*	−0.022	0.585*	0.290*	0.358**	−0.822*	−0.783**
	0.697	0.478	0.286	0.175	0.213	0.096	0.166	0.291	0.346
$p_i t$	−0.085*	0.039*	−0.023*	0.003	−0.010**	−0.005**	−0.006	0.020*	0.010
	0.015	0.010	0.006	0.004	0.005	0.002	0.004	0.006	0.008
$\ln M$	0.935*	−0.367*	0.210*	0.003	0.105*	0.059*	0.091*	−0.211*	−0.315*
	0.135	0.093	0.055	0.034	0.041	0.019	0.032	0.056	0.067
$\ln M^2$	−0.064*	0.024*	−0.012*	−0.001	−0.008*	−0.003*	−0.005*	0.015*	0.022*
	0.008	0.006	0.003	0.002	0.002	0.001	0.002	0.003	0.004
$d \ln M$	−1.076*	0.527*	−0.261*	0.007	−0.149*	−0.075*	−0.089**	0.218*	0.202**
	0.180	0.123	0.074	0.045	0.055	0.025	0.043	0.075	0.089
$d \ln M^2$	0.070*	−0.034*	0.017*	−0.001	0.010*	0.005*	0.006**	−0.015*	−0.013**
	0.012	0.008	0.005	0.003	0.004	0.002	0.003	0.005	0.006

Notes: parameters of $p_i t$ are multiplied by 100. d is the tobacco dummy, $p_i t$ is the expenditure on tobacco and $\ln M$ is the log of expenditure in excess of tobacco consumption. Values below each coefficients are standard errors. * and ** shows levels of significance at 1 and 5%, respectively.

Discussion

Literature from developing countries suggest the importance of the economic effects of higher spending on tobacco on household standards of living and expenditure patterns and these effects may be different in different countries (Efroymson et al., 2001; Wang et al., 2006). No study has examined such issues in the context of India which is the second largest consumer of tobacco in the world (Reddy & Gupta, 2004). This study uses a nationwide representative household survey data to examine such crowding out effects of tobacco spending separately for the rural and the urban households in India. This is hence the major contribution of this study. As the study shows, it is obvious that concerns regarding the crowding out potential of tobacco expenditure, over and above the health consequences of tobacco use, are well founded.

To recapitulate, using a system of conditional Engel curves the paper estimated the effect of tobacco spending on broad groups of items. It was found that an increase in the outlay for tobacco led to a fall in the budget share devoted to food, education and entertainment in rural India while it led to a rise in the shares devoted to health care, clothing and fuels. A similar increase in tobacco expenditure in urban India led to a decrease in the budget shares for food, education, fuel and entertainment while leading to a rise in the shares of health care and conveyance. The effects of spending on tobacco on the consumption of other goods were found to be in the same direction for both low- and high-income households. A further analysis of the implications of reduced food expenditure on the nutrition intake of households revealed that per capita per diem intake of nutrients such as calorie, protein and fat are lower among high-tobacco spending households compared to households with no tobacco expenditure.

The findings here support the idea that expenditure on tobacco in India has crowding out effects as observed in other developing countries such as Bangladesh and China. Moreover, the effects of higher spending on tobacco on nutrition intake adds to the findings by Efroymson et al. (2001) in Bangladesh, who discussed the implications of tobacco spending on poverty. The paper thus reiterates, how spending on tobacco affects smokers and their immediate family members in ways other than through direct health consequences. The allocations of household goods and services in this analysis

Table 5
Conditional Engel curves – low- and high-income groups

	Food	Health	Education	Cloths	Fuel	Entertainment	Alcohol	Travel	Durable
Rural – low income									
d	2.180	−2.122*	−0.071	−0.885	−1.029	0.290**	0.818	0.166	0.032
	1.332	0.831	0.226	0.479	0.585	0.122	0.432	0.371	0.301
p_it	−0.081**	0.060*	0.003	0.019	0.035**	−0.007**	−0.009	−0.011	−0.001
	0.035	0.022	0.006	0.013	0.015	0.003	0.011	0.010	0.008
Rural – high income									
d	5.059*	−2.799*	0.871*	−0.631*	−0.204	0.310*	−0.091	−0.336	−1.214*
	0.805	0.697	0.258	0.194	0.245	0.098	0.238	0.334	0.486
p_it	−0.013*	0.005*	−0.002*	0.001*	0.001	−0.001*	0.000	0.002**	0.004*
	0.002	0.002	0.001	0.000	0.001	0.000	0.001	0.001	0.001
Urban – low income									
d	0.759	−0.402	0.413	−0.419	−0.252	0.013	0.504	−0.933*	−0.172
	0.934	0.565	0.298	0.306	0.387	0.119	0.283	0.329	0.237
p_it	−0.022	0.012	−0.014**	0.006	0.003	0.002	−0.009	0.020*	0.006
	0.018	0.011	0.006	0.006	0.007	0.002	0.005	0.006	0.005
Urban – high income									
d	5.363*	−2.189*	0.716	−0.245	0.559*	0.314**	0.623*	0.079	−2.508*
	0.720	0.629	0.403	0.201	0.206	0.132	0.177	0.395	0.613
p_it	−0.042*	0.017	−0.017*	0.006	−0.001	−0.004**	−0.004	0.001	0.011
	0.011	0.010	0.006	0.003	0.003	0.002	0.003	0.006	0.009

Notes: parameters of p_it are multiplied by 100. d is the tobacco dummy and p_it is the expenditure on tobacco. Values below each coefficients are standard errors. * and ** shows levels of significance at 1 and 5%, respectively.

were found to be unfavorable to woman and children by reductions in education, clean cooking fuels, family entertainment and food, especially milk and milk products. Reduced expenditure on children's education among tobacco consuming households may suggest an intergenerational effect of tobacco consumption by adults on the educational opportunities of children. The ramifications of this are enormous, as investment forgone in education can have long lasting effects in terms of adverse implications for human development and loss of future income earning opportunities.

Such unfavorable allocations are not surprising in the Indian context where, more often than not, women and children have less bargaining power versus their male counterparts. It is possible that male decision makers in tobacco consuming households may compromise mostly those items of expenditures which has direct bearing on children and women. As Deaton (1997, p. 223) observes, "since children are not voluntary members of the families to which they belong, there can be no general pre-supposition that their interests are fully taken into account." So is the case with women in India who are "marginalized in decision making and leadership" (Menon-Sen & Kumar, 2001) with more than 50% of married rural Indian women playing no role in household decision making (IIPS,

Table 6
Per capita per diem intake of calorie, fat and protein by tobacco spending status

Category	Rural India			Urban India		
	Calorie	Fat	Protein	Calorie	Fat	Protein
All	2148.59	36.14	59.11	2155.70	49.65	58.47
NoSpend	2133.25	38.87	58.23	2189.95	53.42	59.03
Total tobacco	2156.14	34.79	59.54	2110.46	44.66	57.73
LSpend	2207.96	32.99	59.96	2307.63	52.55	62.62
MSpend	2174.07	35.26	60.11	2078.66	42.59	57.23
HSpend	2050.34	35.19	57.40	2008.69	42.99	54.31

Notes: units of measurements are Kilo calories (kcal) for calorie and gram (gm) for fat and protein. All figures are weighted by appropriate sampling weights and hence are representative figures.

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2000, p. 66). These effects on household allocation of goods and services may have far reaching impacts in the long run, which need not be confined within the household alone.

Limitations

More detailed intra-household analysis of consumption expenditures is warranted in order to examine the full effects of tobacco consumption in terms of the opportunity cost. However, unavailability of detailed consumption data at the individual level does not permit such analysis, which is a limitation of this study. Hence, it should be noted that the unit of analysis in this paper is household, whereas much of the tobacco consumption decisions are made at the individual level. If the current National Sample Surveys on consumption expenditures can be extended to capture information on intra-household allocation in some way, it would be of great benefit in this regard. The data reported in this survey are based on self-reported information for the previous 30-day reporting period. It is possible that the reported consumption suffers from measurement errors. The readers should also note that the link between tobacco consumption and consumption of various other items that are observed here cannot be taken as causal relationships since these relationships are established using only two different cross-sectional time points.

Policy implications

A major implication of the analysis in this paper is that, since expenditure on tobacco has crowding out effects, if a policy recommendation leads to an increase in the expenditure on tobacco, it is likely to have adverse effects in terms of reduced expenditure on items such as food, education and entertainment. In contrast, if a tax policy on tobacco can be devised effecting significant cut in consumption resulting in net reduction of expenditure, it can have positive implications not only on the overall household welfare but also on intra-household allocation of goods and services. Given that tobacco products are generally inelastic, it would require substantial increases in taxes to attain a net reduction in expenditures. Knowledge of price elasticity of tobacco products is very crucial for any such tax policy.

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