Tobacco Control

From North Karelia to the National Level

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ABSTRACT

After World War II, smoking among men was very common in Finland, and especially in North Karelia, contributing to the high rates of cardiovascular diseases and cancer. Thus, the North Karelia Project, from its very start in 1972, took reduction in smoking as one of its main targets. After 1977, the project actively contributed to national tobacco control work, including comprehensive legislation and many other activities. Smoking in North Karelia declined initially much more than in the rest of Finland, but thereafter there has been a steady national decline, resulting in a prevalence of daily smoking among adults of approximately 15% and contributing to the big reduction in the rates of heart disease and tobacco-related cancers, especially among men.

The life expectancy of Finns had clearly risen after World War II, but in the late 1950s, the pace of progress began to wane, especially among men. The slowdown was caused by exceptionally high mortality from coronary heart disease in Finnish men, which was among the greatest in Western Europe [1,2], as well as by the high mortality from lung cancer. A key reason for this was very high prevalence of daily smoking among Finnish men, which has been estimated as having been >70% in the late 1940s. Mortality rates from coronary heart disease remained high up to the 1970s [1].

Regionally, the highest prevalence in smoking among men was found in North Karelia (>50%) in the beginning of the 1970s, when the petition for action was written and when the North Karelia Project was subsequently started. It was clear that reducing smoking in men needed to be one of the most important targets of the project to reduce high mortality rates, particularly among the male population. Women in Finland smoked relatively little, and in North Karelia somewhat less than women in Finland on average.

REDUCING SMOKING IN NORTH KARELIA AND NATIONALLY

In the original North Karelia Project plan, intervention activities to reduce the risk factor levels were described in several categories: 1) general public information; 2) organization of services; 3) personnel training programs; 4) environmental changes; and 5) monitoring systems. The "anti-smoking programme" was initially one of the main subprograms of the project. In the project's continuation phase there were 3 specific target programs: anti-smoking, cholesterol lowering nutrition, and blood pressure lowering.

Much affected by the initiation of the North Karelia Project and its early activities combined with a progressive health policy climate, preparations for tobacco control legislation were started in the first half of 1970s. Finland became one of the world's pioneer countries in tobacco control in 1976, when the nationwide Tobacco Act was passed in the Parliament. The Act came into force in 1977, and the associated total ban on tobacco advertising a year later. The leaders of the North Karelia Project worked actively for the tobacco control legislation.

Along with the ban on advertising, the Tobacco Act of 1976 stipulated that a mandatory warning on the health hazards of smoking be printed on cigarette packs and tobacco products. The law also set maximum limits for harmful substances and restrictions on smoking in schools and public places. In addition, the sale of tobacco products to persons under the age of 16 years was prohibited. It was prescribed that 0.5% of the revenue from the excise duty on tobacco be used for work to reduce smoking.

During the original project period, there was much dissemination of information on the strong role of smoking in the high burden of heart disease in North Karelia. This took place in many types of articles in the press, health education leaflets and posters, mass meetings, and through health services and schools. Initial work also tried to counteract advertising and to promote smoke-free areas. Signs and stickers—"We do not smoke here - we are in the North Karelia Project"—became popular. The project also distributed many "no smoking" signs.

After a few years, the project started to pay attention to the problems of those who had decided to quit smoking. With some international influence, the project developed its smoking cessation model and helped set up many smoking cessation groups in local communities, usually led by the local public health nurse. Following the development in Sweden, the project started to test the at-that-time novel concept of nicotine replacement. The results of the double-blind trial on the effects of nicotine chewing gum in smoking cessation carried out in North Karelia were

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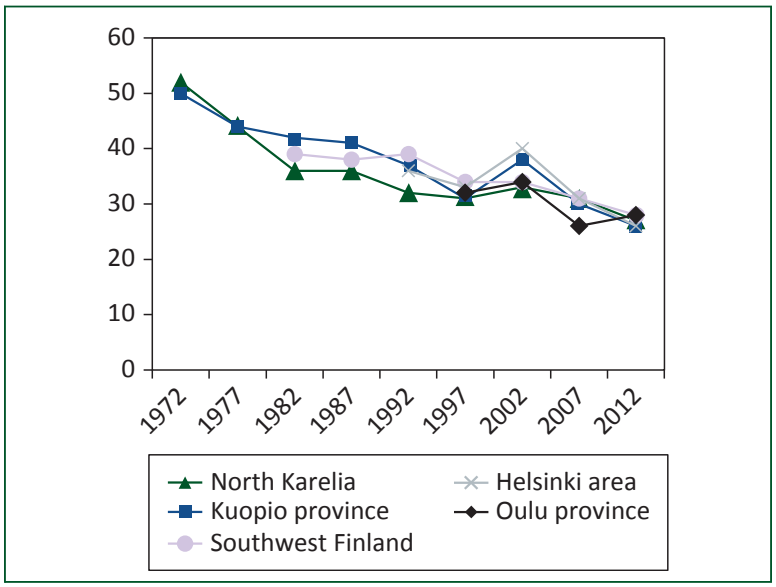

FIGURE 1. Development of male smoking in North Karelia and some other Finnish provinces, 1972 to 2012.

published internationally as the first of its kind [3]. The results of the study were used in the formal process to license the commercial use of the product.

After the original project period (1972 to 1977), the project started to contribute actively to smoking reduction at the national level. A very visible and long-term national action was the series of televised smoking cessation programs of the North Karelia Project that were carried out in 1978, 1979, 1986, and 1989. These were funded by the Finnish Broadcasting Company (YLE) and broadcast on national TV. National Quit and Win contests were linked with the programs of 1986 and 1989 [4]. The 1986 competition attracted >16,000 smokers, of whom about 20% reported having remained nonsmokers at least for 6 months. In 1989, a competition on smoking cessation was held between Finland and Estonia. Even if the percentage of contestants who quit smoking remains low, the competition has a good cost-benefit ratio because of the high number of participants.

Toward the end of the 1970s, more attention was also paid to smoking prevention among youth. The North Karelia youth project aimed at the prevention of cardiovascular risk factors among adolescents aged 13 to 15 years. The youth project included school-based smoking prevention programs with different approaches including, for instance, social influence, life skills training, and competition-based approaches [5].

The Smokefree Class Competition concept was developed further, and similar competitions have been organized nationally since 1989. In addition to national funding, the school programs have also received European Union support. The purpose of the competitions has been to delay the start of smoking and to prevent students who have already experimented with smoking from becoming habitual smokers. The age group has been 11- to 14-year-olds. The research results on the permanent effect of the school programs on preventing smoking among young people have varied, but the majority of studies seem to indicate that the programs have a positive impact. It was emphasized that school programs should always be combined with other smoking reduction measures [6].

The trends in the prevalence of smoking have been assessed by surveys of representative population samples of the working-age population, initially in 1972 in North Karelia and the matched reference area, and since then every 5 years. Since 1992, the FINRISK surveys have included 5 areas in Finland. These surveys have always used the standardized FINRISK criteria that give a higher prevalence than the simple question on current daily smoking. Since 1978, simple national population postal surveys among adults ("AVTK"—Monitoring of Adults' Health Behavior) have been carried out annually. These surveys have also monitored smoking trends and used the criteria of current daily smoking [7,8].

CHANGES IN SMOKING RATES

The proportion of current smokers was 51% among men in the baseline survey of the North Karelia Project in the spring of 1972. The prevalence declined until 1980. Since that period, the recorded smoking prevalence varied between 35% and 40%. In the mid-1990s, male smoking among the age group 25 to 59 years was 30% in North Karelia and the corresponding proportion in the national sample for men was 34%. Since then, the prevalence in the FINRISK surveys has reduced to approximately 25% (Fig. 1).

In North Karelian women, smoking prevalence was 12% in the 1970s. During 1980 to 1987, the female prevalence was <16% but increased to 19% at the end of 1980s. In the mid-1990s, the proportion of current female smokers was 22%. In the early 2000s, the prevalence among women in North Karelia was 18% and 22% nationally. Female smoking was at a lower level in North Karelia than it was in Finland as a whole during the entire follow-up period. Since the year 2000, smoking has further decreased in North Karelia and nationally both in men and women.

The main feature of the decline in smoking in North Karelia in the 1970s was the growing proportion of ex-smokers. In the 1980s, the proportion of ex-smokers remained relatively constant, even seeing a slight decline, while the percentage of never smokers increased. A cohort effect was also found: fewer young men started smoking in the 1960s and 1970s than in the previous decades. Birth cohort analyses from a large population survey data showed that the onset of smoking increased in the birth cohorts born from 1916 to the 1950s [9]. The increase stopped in the later cohorts who were of smoking initiation age at the time when the first Tobacco Act was enacted and thereafter.

Studies at the national level indicate that the Tobacco Act of 1976 has influenced the reduction of smoking among the general population [9,10], and the implementation of the central aspects of the law has been successful. Smoking among Finns has been in line with the model published by Lopez et al. in 1994 [11], according to which smoking among men begins to decline from a high level while smoking increases among women. Later, the rise in smoking among women also stops and takes a downward turn (Fig. 2).

Despite the decrease in smoking, the differences in smoking between population groups have increased over the years (Fig. 3). Nonsmoking is increasingly concentrated in the highly educated population group. In schools, smoking is least common among students performing well in their studies, and in addition it is clearly less common among university students than among vocational school students.

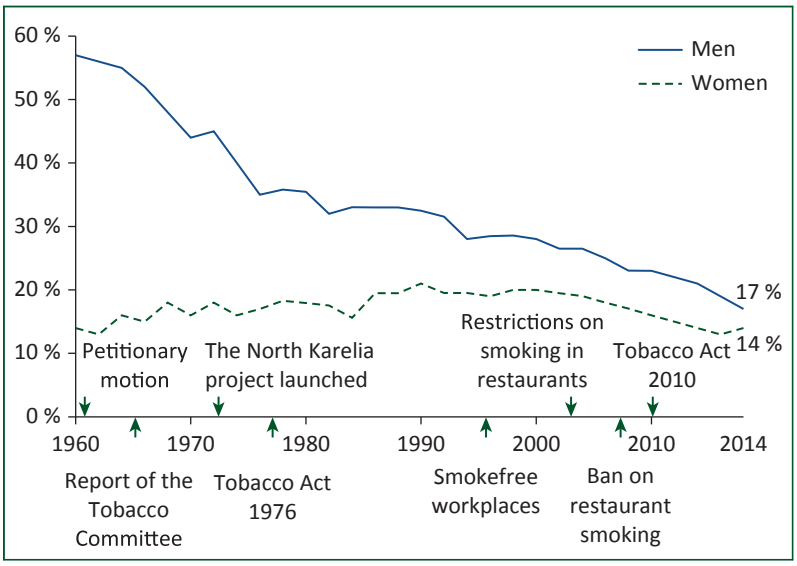

FIGURE 2. Development of smoking prevalence in Finland with actions taken in tobacco control, 1960 to 2014.

LATER DEVELOPMENTS IN TOBACCO CONTROL

No major amendments in the 1976 Tobacco Act were made before 1994. However, the implementation of the Act encountered difficulties, which increased over time. When the law was enacted, the tobacco industry's ability to find loopholes in the law could not be adequately foreseen. Loopholes were found specifically with regard to the ban on advertising even though effort was made to make the advertising ban comprehensive.

Lack of resources proved to be problematic in smoking prevention activities. When the originally modest project financing granted by virtue of the Tobacco Act was spread even thinner by being allocated to health education programs other than just the prevention of smoking, the possibilities for using the funding instrument for smoking reduction programs were naturally decreased. Some mass media campaigns were carried out in 1977 to 1984, but this was done to a lesser extent thereafter. After the revision in 1985 of Section 27 of the Tobacco Act, which expanded the use of project funding, only one-third of the funding was allocated for activities directly related to smoking prevention [12].

The increased circumvention of the ad ban in particular, but also problems with control of the law and numerous complaints concerning exposure to tobacco smoke in the workplace, prompted the Ministry of Social Affairs and Health to start planning reform of the Act. Work to amend the Tobacco Act began at the Ministry in 1992. The greatest amendments in the Tobacco Act were the restriction of smoking in the workplace and tightening of provisions pertaining to the ad ban so that indirect advertising could be prohibited. In addition, it was proposed that the minimum purchase age for tobacco be raised from 16 to 18 years.

The Ministry of Social Affairs and Health stipulated that the implementation of the revised Tobacco Act be monitored at workplaces. The Finnish Institute of Occupational Health launched a study as soon as the Parliament had approved the amendments to the Tobacco Act. Exposure to tobacco smoke in workplaces decreased dramatically within a year of the Act's entry into force. The greatest changes took place in industrial workplaces, whereas the change in service-sector workplaces was smaller. The findings of the questionnaire study were verified by conducting airborne nicotine measurements at workplaces, which supported the questionnaire findings [13]. Exposure levels declined further in the 2000s [14].

A study found that raising the purchase age had reduced minors' access to tobacco. The raise in purchase age brought by reform of the Act significantly reduced the tobacco purchases of 14- and 16-year-olds in particular from shops and kiosks. Only a small percent of young people in this age group reported having purchased tobacco from a commercial source. Instead, young people got their cigarettes a little more often than before through older friends, but availability on the whole decreased [15].

In 2010, a few significant reforms were made in the Tobacco Act, one of the most important being that ending tobacco use in Finland was unequivocally set as the goal of the law, presently called tobacco endgame. In the preparatory work for the Act, the goal was set for the year 2040. The government proposition considered that the new goal described the purpose of tobacco policy better than the objective of merely reducing smoking and thus forms a consistent basis for the bans, restrictions, and other measures prescribed in the Tobacco Act.

DISCUSSION

After the initiation of the North Karelia Project, in which the anti-tobacco element was crucial, the national Tobacco Act was passed in 1976. Finland became one of the

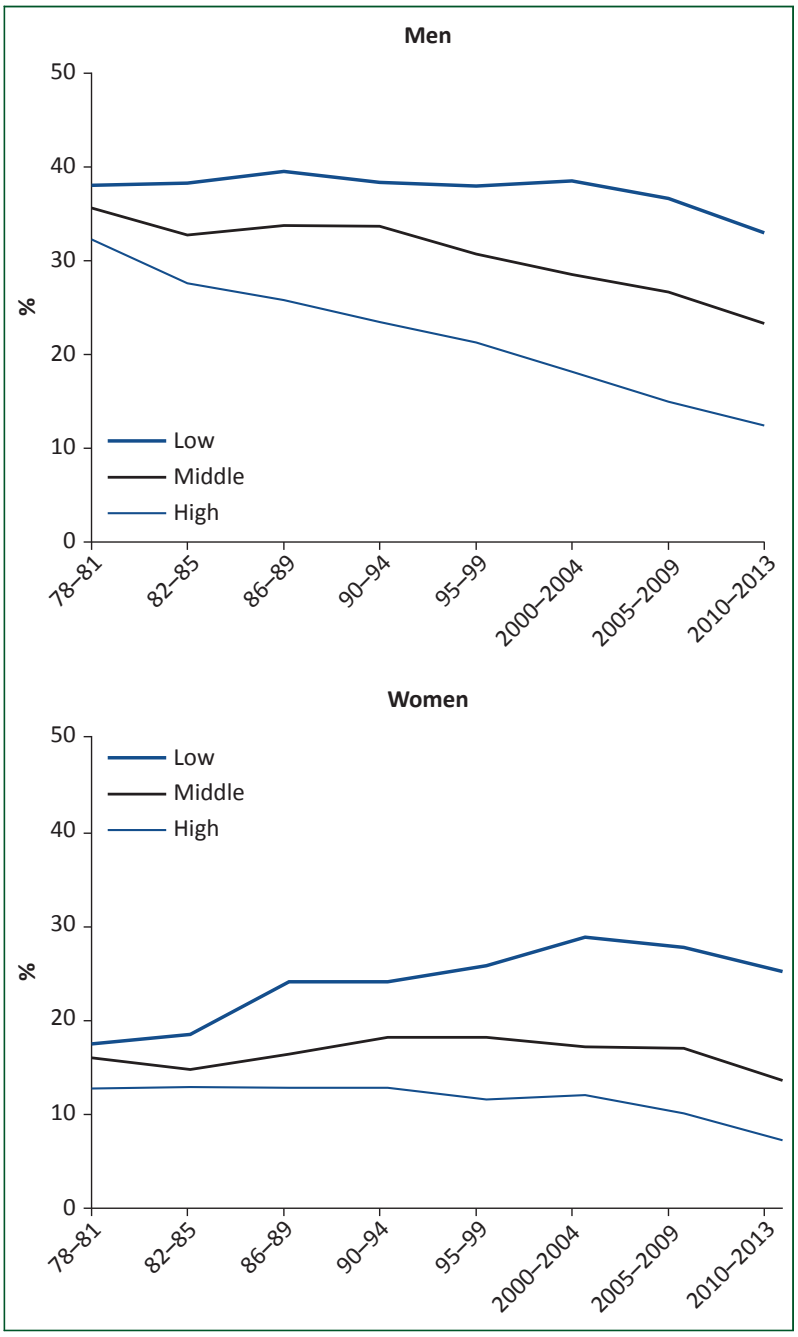

FIGURE 3. Age-standardized proportion of 25- to 64-year-old daily smokers by sex and educational group, 1978 to 2013 (%).

absolute pioneers of comprehensive tobacco control legislation and was praised for this by the World Health Organization. The different areas of tobacco policy were designed to be mutually supportive even though price and tax policy was separate from the law.

In the early years, funds from tobacco excise tax for tobacco control activities were important for starting many of the national activities, many of them originally developed in the North Karelia Project (Quit and Win, Smokefree Class, cessation groups, etc.). However, the funds did not reach the World Health Organization's target of directing a minimum of 1% of the revenue from the excise duty on tobacco for activities to reduce smoking. The effect of the appropriation on the prevalence of smoking has not been studied in Finland.

In America, studies have been conducted on tobacco control programs carried out, for instance, in the states of California and Massachusetts, where legislation has linked the excise duty on tobacco to the appropriation funded. Both smoking rates and health care costs have decreased thanks to these programs [16-18]. The relative level of appropriations in these cases, however, has been nearly 10-fold that of the appropriation in Finland, and in those states the money has enabled the financing of massive campaigns on smoking prevention and cessation, with various elements combined. In spite of the relatively limited resources for tobacco control, the reduction in smoking has been quite favorable, and currently, tobacco consumption in Finland is among the lowest in Europe.

During 1979 to 2010, the prevalence of daily smoking among the working-age population has decreased from 36% to 23% among men and from 20% to 16% among women. The prevalence of daily smoking among adults in 2014 was 17% among men and 13% among women.

Because smoking is one of the most important factors causing health differences between population groups, these absolute differences can be reduced significantly by striving to reduce smoking in all population groups, as has happened among the groups with a high prevalence of smoking. But specific activities are needed. There are, however, some early signs from the last 2 to 3 years that with the continued work, especially with tobacco price increases and smoke-free environments, the socioeconomic differences are slowly declining.

Tobacco control policy can be developed further, especially by increasing the excise duty on tobacco and by limiting the availability of tobacco products, but the most important legislative means may already be exhausted. Despite the low tobacco consumption, Finland ranks below average on the European Tobacco Control Scale [19] when it comes to smoking cessation activities and population targeted campaigning. These should be strongly intensified in the future. Widespread population campaigns on quitting smoking, inspired by the North Karelia Project, were carried out, particularly in the 1980s [20], but extensive campaigning ended for the most part in the 1990s.

In the early years, international tobacco industry did not pay much attention to what happened in Finland. Later, Finland became a "dangerous example" for them and the pressure increased [21]. With the declining markets, the 3 Finnish tobacco factories were actually closed down. Currently, the political climate for a strict tobacco control policy is fairly strong. Growing international development,

in the form of the FCTC ([WHO Framework Convention on Tobacco Control] which Finland ratified in 2005) and the European Union tobacco directives also help.

With early success in North Karelia, the project subsequently contributed actively to the national developments. With stronger and stronger legislation and many national activities (out of which the national smoking cessation TV programs were important ones), the prevalence of tobacco use has fallen in Finland to one of the lowest in Europe; the prevalence of daily smoking among all adults is about 15%.

In spite of the very positive development in smoking and in trends of tobacco-related health problems, there are many challenges. The positive trend cannot be taken for granted. A continuous push is needed. Several amendments for tobacco legislation are planned. Stronger work for smoking cessation is needed, and supportive national communications should be available. Many international challenges also exist: smokeless tobacco (snus), e-cigarettes, etc.

If the present declining smoking trends continue, the World Health Organization's NCD tobacco target for 2025 will be reached in Finland. Reaching the endgame goal by 2030 (<5% of the population smoke daily) will require further action [22], but hopefully, if reached, it will set Finland free of the harmful habit that decades ago caused so much disease and suffering in North Karelia and in all of Finland.

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