Commentary: The Finnish success of cardiovascular risk factor reduction

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More than 20 years ago, I remember being at a cardiovascular scientific meeting where a Finnish scientist told me this ‘true’ story during the conference dinner:

A group of Finnish and Italian scientists decided jointly to conduct an investigation on the influence of the common daily diet in the two countries on plasma cholesterol levels. Forty families in each country were to record exactly what they ate during a period of 8 weeks. Using a cross-over design, the Finnish families should then for the following 8 weeks eat exactly like the Italians did in the previous 8 weeks, and vice versa for the Italian families. The ethical committee in Finland had no comments, while the Italian ethical committee refused to approve the protocol. They found it unethical to ask Italian families to eat the Finnish food.

I do not remember who told me this story and it has probably improved over the years, as I have forgotten the exact wording. Nevertheless, the story nicely illustrates the common lifestyle of people in Finland, Scandinavia and most of Northern Europe not so long ago. Food was dominated by saturated fat from dairy products and a high salt intake, and smoking was prevalent. This led to high cholesterol levels and high blood pressure in the population at large and treatment of hypertension in Finland during 1982-2007. J Hypertension 2009;27:1552–59.
consequently to high cardiovascular morbidity and mortality.

In this issue of the International Journal of Epidemiology, Vartiainen et al. document the changes from 1972 through 2007 in cardiovascular risk factors in Finland. The background for these surveys was that coronary heart disease mortality among Finnish men was the highest in the world in the late 1960s. In 1972, average cholesterol levels were almost 7 mmol/l, the average systolic/diastolic blood pressures were close to 150/90 mmHg, and ~70% of 30- to 59-year-old Finnish men were either current or former smokers. Based on these alarming figures, long-term comprehensive chronic disease prevention and health promotion interventions were launched first in the North Karelia region and later nationally in Finland. During the following 35 years cholesterol levels declined to just above 5 mmol/l in 2007, blood pressure declined until 2002 to ~140/80 mmHg, and the prevalence of smoking decreased among men to 30% in 2007. Despite increases in body mass index, these risk factor reductions were calculated to likely explain a 60% reduction in coronary mortality in middle-aged men in North Karelia, whereas the observed reduction was 80%.

In Finland and in the other Nordic countries like Sweden, Norway, Iceland and Denmark, inequality between women and men has narrowed considerably from 1972 through 2007, such that e.g. 42.5% of the seats in the national parliaments in 2009 were occupied by women in the Nordic countries, the highest regional average in the world. Likewise, while the bad habit of current smoking during this period has declined among men from 50 to 30%, in the same period it has risen in women from 10 to 20%. It is unfortunate that equality between the sexes is not limited to various rights and opportunities, but also seems to include bad habits like smoking. Therefore, after the fraction of women who smoke has reached a similar fraction as in men, we can only hope that the fraction who smoke will start declining in both men and women, in Finland and elsewhere. Fortunately, cholesterol levels and blood pressure have declined in Finnish women over the past 35 years, similarly to the decline observed in Finnish men.

The participation rates in these Finnish risk factor surveys are impressive, starting at >90% in 1972 and remaining high for 35 years with >60% participation rates as late as in 2007. This suggests that these data are representative of the Finnish population at large. Although some changes in the methods used for risk factor monitoring have occurred over the 35 years, these minor changes likely do not have major influences on the trends in the risk factors observed. Also, the small changes in the age ranges and number of participants surveyed in different regions of Finland are unlikely to have biased the results to any large extent. The weakest part of the data presented is the estimation of the exact fraction of the reduction in cardiovascular mortality that can be accounted for by the observed reduction in cardiovascular risk factors over the 35 years. Such estimations are difficult to perform, and depend on representative risk factor data, a number of model choices, statistical errors and on often not validated assumptions. Despite this comment, undoubtedly a major fraction of the decline in cardiovascular mortality from 1972 through 2007 is likely explained by the observed reductions in cardiovascular risk factors in Finland during this period. Compared with other countries, risk factor reduction in Finland likely had a particularly great impact on cardiovascular mortality reduction.

Vartiainen et al., other Finnish scientists and medical doctors, Finnish politicians and the Finnish population at large are to be congratulated on this remarkable reduction in cardiovascular risk factors and more importantly in cardiovascular mortality.

Conflicts of interest: None declared.

References