Eur J Epidemiol (2013) 28:617–619
DOI 10.1007/s10654-013-9835-6

COMMENTARY

The 21st century benefits of smoking cessation in Europe

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Received: 18 July 2013 / Accepted: 19 July 2013 / Published online: 11 August 2013

About 32 million Europeans in the 28 European Union countries[1] have been killed by smoking over the last 50 years [1]. Of these deaths, about 27 million were among men, and 5 million were among women. Over half of these smoking deaths occurred during ages 35–69 years, where the loss of life versus non-smokers is at least 20 years of good life. The absolute number (as well as the proportion of deaths due to smoking) at all ages has fallen substantially since 1990 among men, exceeding over 500,000 deaths in 2005. By contrast, among women the overall total of smoking deaths continue to rise, reaching about 175,000 in 2005 (Fig. 1).

Because the consequences of smoking differ decade to decade in various populations, and between men and women at different time periods, ongoing epidemiological studies of the hazards of smoking and benefits of cessation are required [2]. Five recent large prospective studies in the US, UK and Japan examined large populations of men or women who began to smoke seriously in young life and either quit or did not quit smoking. These studies include the generation of women who began to smoke seriously during the 1960s, in whom the full effects on risk can be measured only early in the 21st century. These five studies find a remarkably consistent tripling of risk of death among female or male smokers, leading to a reduction in survival by at least a decade [3–7]. In particular, these studies note much higher risks of death from myocardial infarction or stroke than estimated in earlier studies, with myocardial infarction continuing to be the leading cause of smoking-attributable deaths.

This issue of the European Journal of Epidemiology publishes two new prospective investigations of smoking risks among eight and twenty thousand adults by Gellert et al. in Germany [8] and by Iversen et al. in Norway [9], respectively. These two studies provide 21st century estimates of the hazards of smoking and benefits of cessation on fatal and non-fatal cardiovascular disease in women and men. Both studies find that the hazards of fatal or non-fatal vascular diseases among smokers are at least as great in women as it is in men. Both studies also find that cessation is very effective at reducing risk of vascular events or mortality, even with cessation at ages 60 or higher. Contemporary measurement of the hazards of tobacco use must take into account the substantial reductions in mortality from vascular diseases and in overall mortality since 1970. As death rates among those who never smoked have fallen, the absolute differences in survival between those who continue to smoke and those who have never smoked have widened [4]. Sharp improvements in the treatment of myocardial infarction or stroke, including better secondary management through control of blood pressure or adverse lipid profiles have likely increased the differences between smokers and non-smokers in vascular disease outcomes. Gellert et al. demonstrate nicely that a 60 year old smoker faces the same risk of myocardial infarction as a 79 year old non-smoker, or the risk of myocardial infarction, stroke or vascular death as a 71 year old non-smoker. The authors correctly state that their studies might underestimate the true benefits of cessation. Some of the excess fatal and non-fatal events among former smokers might be overestimated, since some smokers quit because they become ill.

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[1] The list of the EU28 countries is shown in the legend to Fig. 1.

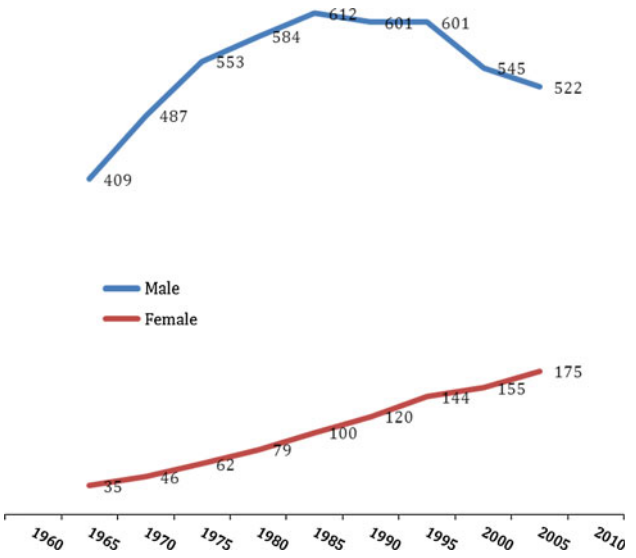

Fig. 1 Annual smoking attributable deaths at all ages in thousands (on the vertical axis) in the EU27 countries, 1965–2005. The EU27 countries are: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom. Croatia became the 28th EU member 2013 and is not included in this figure. *Source* Peto et al. [1]

Similarly, some of the smokers surveyed at the baseline would have quit subsequently, thereby lowering their risk [3].

The findings from these two studies are very consistent with the recent mortality studies [3–7], which report that female or male smokers who quit smoking by age 40 gain back about 9 years of the 10 years of life they would have lost had they continued to smoke. Smoking cessation is most effective at younger ages, and those who quit smoking by age 30 die at the same rates as never smokers. However, even cessation by age 50 returns 6 years of life, and cessation by age 60 returns 4 years of life.

What do these findings mean for tobacco control in Europe? Smoking prevalence at ages 20–64 years in the European Union are still about 37 % among men and 27 % among women (Table 1), representing over 85 million current smokers at these ages [10]. Thus any effort to reduce smoking deaths during the next few decades in Europe will involve substantial increases in cessation among current smokers. A good measure of the success of tobacco control should be a rising proportion of adults quitting in middle age (say ages 45–64), the time where they might expect personal gains in health from quitting [2]. At these ages, as many adults are former smokers as are current smokers in the European Union, suggesting that cessation has become common. Cessation among women continues to lag behind men in all European countries.

Former smoking rates could be raised substantially. For example, while the UK took about 35 years to halve per adult cigarette consumption (from about 10 per adult per day to about 5), France took only 15 years to halve consumption [2, 11]. From 1990 to 2005, cigarette consumption fell from about six to three cigarettes per adult per day. This sharp decline was mostly due to a sharp increase in tobacco taxation starting in 1990 under the then president Jacques Chirac. These price increases raised the inflation-adjusted price threefold. Among men, the corresponding lung cancer rates at ages 35–44, which is a good measure of recent smoking in the population, fell sharply from 1997 onward and the female increase in lung cancer at these ages plateaued [2]. Today, the ratio of former to current smoking in France is far more favourable than the EU25 average. If French former smoking prevalences were applied to the whole of the Europe, there would be about 30 million additional former smokers, averting about 15 million eventual tobacco-attributable deaths.

Iversen et al. also note that non-smoking women who have prolonged exposure to husbands who smoke had higher risk of vascular deaths. These findings need to be integrated within the overall epidemiological evidence on hazards of passive smoking [12]. While bans on public smoking would not, a priori, appear to reduce exposure in the home, they raise substantially the cessation rates of smokers [2, 13], and in doing so reduce exposure to passive smoking at home.

The main implication for EU policy in order to raise cessation rates would be to continue to raise sharply the price of tobacco products [2, 13], while advancing other EU initiatives for tobacco control including further

Table 1 Current and former smoking prevalences at select ages in the EU25 countries

Country	Ages 20–64 years		Ages 45–64 years					
	Male	Female	Males			Females		
	Current	Current	Current	Former	Ratio of former: current	Current	Former	Ratio of former: current
EU25	37.0	26.9	32.7	33.5	1.02	21.3	19.5	0.92
France	35.8	27.2	27.2	46.2	1.70	17.1	34.9	2.04

From Zatonski et al. [10]. Prevalences are standardized to WHO's 2005 world population. The EU 25 country list is the same as the EU28, but excludes Bulgaria, Romania and Croatia

restrictions on smoking in public places, more comprehensive bans on smoking advertising and promotion (including consideration of plain packaging of cigarettes introduced in Australia recently), and expanded efforts to provide support for cessation [2, 13]. The very large benefits of cessation warrant these actions.

Acknowledgments This research is supported by the grants from the Disease Control Priorities 3, the Bill and Melinda Gates Foundation and the US National Institutes of Health.

Conflict of interest I declare that I have no conflict of interest.

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