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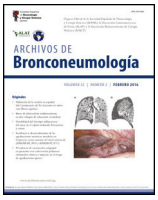

Editorial

Smoking-attributable mortality in Spain: *Quo Vadis?*☆

Mortalidad atribuida al tabaquismo en España: ¿*Quo vadis*?

For too long now, the preventable risk factor associated with the highest global burden of morbidity and mortality has been smoking.[1] Epidemiological methods that estimate the mortality burden attributed to both smoking and exposure to secondhand smoke based on different assumptions are used to assess its impact on the mortality of a given population.[2]

The different methods used to calculate smoking-attributed mortality are generally based on the availability of prevalence data and estimates of the risk of smoking in the various diseases that show firm evidence of association. From these data, we obtain the population attributable risk or fraction. This is simply the proportion of events (mortality, for example) that may be due to the presence of the exposure factor (smoking, in this case) in the population,[3] in other words, the frequency of events in the population that would be avoided if the exposure factor were eliminated. The better the quality of the data and the fewer the number of assumptions, the more accurate the estimate.

The last analysis of smoking-attributed mortality in Spain was carried out in 2016,[4] and estimated that the impact of this habit on the population over 34 years of age was 56,122 deaths, 13.7% of the total mortality that occurred in that year. Furthermore, it was estimated that 1 in 4 deaths caused by smoking (13,849) were premature, that is, they occurred before the age of 65.

In the last 40 years (1978–2016), 11 estimates of smoking-attributable mortality have been conducted in Spain. Despite the variable periodicity, these analyses are useful for monitoring the changing impact of the smoking epidemic in the population, albeit approximately. Smoking-attributable mortality increased steadily between 1978 and 2001, when it fell for the first time in men. However, this stabilization observed in men contrasts with the increase in mortality among women. In the last estimate made in 2016, 84.0% of smoking-related deaths occurred in men, compared to 96.6% in 1978.

It is difficult to directly compare estimates made in different years, given changes in the age structure of the population and in the calculated mortality risk of smokers and former smokers associated with the diverse diseases that have a causal relationship with smoking. Moreover, the number of these diseases is increasing, as our understanding of the harmful effects of tobacco use expands.[5]

These changes in attributable mortality, together with the changes in the prevalence of smoking at the population level, can be used to position a population within the theoretical model of development of the smoking epidemic.[6] In stage I of this model smoking is rare and typically a habit of the privileged classes, while in stage II it becomes more prevalent, especially in men and among higher socioeconomic groups. Attributable mortality is increasing. At stage III, male prevalence begins to decline, while in women, maximum prevalence is reached and stabilizes, with a progressive increase in mortality. In phase IV, prevalence declines in men and women and is higher in disadvantaged socioeconomic groups. Attributable mortality falls in men, but not in women. Spain, overall, and in the case of men, in particular, would be in stage IV, characterized by the decline in the prevalence of smoking and smoking-attributed mortality among the population aged 35–69 years, although women may still be in a late stage III characterized by the stabilization of prevalence and increased mortality.[7] Projections of the prevalence of smoking in Spain suggest that, in both men and women aged 40–64 years, the target reduction in prevalence will not be reached,[8] so we do not expect to see substantial decreases in smoking-attributable mortality in the next decade.

With regard to exposure to second-hand smoke, only two studies have been conducted in Spain with countrywide estimates of attributable mortality. The first study used data from 2002 and was based on a range of exposure prevalences obtained from various local and regional surveys.[9] It calculated a minimum of 1228 deaths (408 in men and 820 in women), considering only the exposure of never-smokers to second-hand smoke at home, and taking into account only those diseases for which there was a well-established causal evidence of association with exposure to secondhand smoke: lung cancer and cardiovascular diseases. The second study used a similar methodology, but this time included prevalence data from a nationally representative sample.[10] The authors reported mortality attributable to exposure to secondhand smoke in 2011 in 1028 people, corresponding to 586 deaths in men and 442 in women.[11] Both studies, then, using estimates that were certainly conservative, found that more than 1000 never-smokers died annually from inhaling smoke from other smokers.

In conclusion, estimating the impact of a risk factor such as smoking on the mortality of a population quantifies the problem and highlights the damage it causes. The message "1 in 4 Spaniards over the age of 16 years smokes" is important, but it cannot be compared to "14% of deaths in Spain in 2016 in people over 34 years of age were smoking-related" or "smoking causes more than 55,000 deaths a year in Spain". These figures should give food for thought

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not only to the general population, health professionals and educators, but also, in particular, to political stakeholders and health policy planners. In the light of these data, it seems clear that investing in primary and secondary smoking prevention policies will have a major impact on improving the health of the population.

More precise estimation models are being developed that will allow us to assess the impact of smoking on various causes of death and identify inequities in attributable mortality, in terms of not only small geographical areas, but also basic demographic variables, such as educational level. These models will analyze the smoking epidemic in Spain in past years and build projections to help us anticipate the future.

Conflict of interests

The authors state that they have no conflict of interests.

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