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ANGIOLOGY 2011 62: 520
DOI: 10.1177/0003319711402986

The online version of this article can be found at:
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>> Version of Record - Oct 7, 2011
What is This?
Passive Smoking: The Democratic Right of Nonsmokers to Survive

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Keywords
secondhand smoke, passive smoking, ischemic heart disease, cancer, respiratory infections, asthma

In the January 2011 issue of the Lancet, Öberg et al1 report the extent of worldwide exposure to secondhand smoke (SHS) in 2004 along with the related disease burden and mortality. In a retrospective analysis from 192 countries, these authors reported that “worldwide, 40% of children, 33% of male nonsmokers, and 35% of female nonsmokers were exposed to SHS.” The highest proportions of exposure to SHS were observed in Europe (51% to 61% of children, 35% to 66% of men, and 32% to 66% of women), Western Pacific (51% to 67% of children, 50% to 53% of men, and 51% to 54% of women), and Southeast Asia (36% to 53% of children, 23% to 32% of men, and 19% to 56% of women), whereas the lowest was recorded in Africa (12% to 13% of children, 4% to 7% of men, and 9% to 11% of women), followed by America (22% to 29% of children, 14% to 16% of men, and 15% to 22% of women) and Eastern Mediterranean (33% to 38% of children, 21% to 24% of men, and 25% to 35% of women).1

Overall, SHS exposure was estimated to have caused 379,000 deaths from ischemic heart disease (IHD), 165,000 from lower respiratory infections, 36,900 from asthma, and 21,400 from lung cancer in 2004, representing almost 1% of worldwide mortality.1 Of these deaths, 47% were recorded in women, 28% in children, and 26% in men. With regard to the disability-adjusted life-years (DALYs), children were most affected (61%), whereas the largest disease burdens were from lower respiratory infections in children <5 years old (n = 5,939,000), IHD in adults (n = 2,836,000), and asthma in both adults (n = 1,246,000) and children (n = 651,000).1 Therefore, women had the greatest burden of deaths, whereas children had the highest burden of DALYs.1

In another article,2 SHS was estimated to cause more than 22,000 lung cancer deaths and approximately 33,800 deaths from IHD in China in 2002. Furthermore, SHS was responsible for the loss of nearly 230,000 years of healthy life from lung cancer and one quarter of a million years from IHD.2 Of note, women had nearly 80% of the total burden from SHS.2 Furthermore, Lopez et al3 reported that exposure to SHS at home and at work in Spain during 2002 could be responsible for 1,228 to 3,327 deaths from lung cancer and IHD with exposure at home causing significantly more deaths than exposure at work.

Such effects are attributed, as for active smokers, to nicotine, carcinogens, chemicals, and toxins that can cause endothelial dysfunction, inflammation (via production of cytokines and acute phase proteins), impaired thyroid hormonogenesis, lipid peroxidation, atherosclerosis, and platelet aggregation.4-6 Even short-term exposure to SHS (ie, 1 hour) at bars/restaurants can lead to a significant decrease in gonadal hormones and increase in thyroid hormone secretion, interleukin-1 beta production, and systolic blood pressure.7 A significant increase in brachial and aortic systolic blood pressure was also observed when healthy young adults were exposed for just 1 hour to SHS in room air.8

In terms of morbidity, SHS exposure in adults has been associated with increased risk for new-onset asthma and exacerbation of preexisting asthma,9 chronic obstructive pulmonary disease and lung cancer,10 tuberculosis,11 cardiovascular disease,4 cardiac remodelling and compromised cardiac function,12 worse early prognosis following acute coronary syndrome,13 and age-related macular degeneration.14 According to the World Health Organization, SHS in children can cause asthma, lower respiratory infections such as bronchitis and bronchiolitis, acute and chronic middle ear disease, and sudden infant death

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syndrome and may increase the risk for cognitive and behavioural deficits, cardiovascular disease, and some cancers including leukemia, lymphomas, and brain tumors. The results of a recent meta-analysis confirm the adverse effects of SHS exposure on lower respiratory infections in children. Pregnant women exposed to SHS are at increased risk of delivering infants with lower birth weight, congenital abnormalities, longer lengths, and smaller head circumference, as reported in a recent meta-analysis. Furthermore, in men, there is also a link between passive smoking and erectile dysfunction.

Interestingly, implementation of smoking bans led to decreased hospital admissions for acute myocardial infarction or other acute coronary events in several countries (eg USA, Canada, and England). These findings were confirmed in a meta-analysis based on locations in USA, Canada, and Western Europe. Furthermore, smoke-free legislation in Arizona (USA) significantly decreased hospital admissions for stroke, asthma, and angina.

Of note, a cross-sectional exposure survey in 31 developed and developing countries in 2006 showed that median air nicotine concentration was 17 times higher in households with smokers than in those without smokers. Furthermore, air and hair nicotine levels in women and children increased with the number of smokers at home, while smoking inside the home increased air nicotine concentration by 12.9 times. These findings support smoking bans at home as well as workplaces, public locations, and transportation. Legislation should lead to a reduction in SHS exposure and smoke-free public places may encourage more quit attempts and more smoke-free homes. Furthermore, the International Tobacco Control Four Country Survey showed that Australian smokers are willing to comply with and support the implementation of smoke-free public places. Enforced home and vehicle smoking bans have also been shown to support youth in maintaining a resolve not to smoke, independently of parental smoking status.

Smoke control policies should be addressed to the specific population in which they will be implemented. For example, several factors may contribute to the differences in SHS exposure between developed and developing countries and should be considered by governments. These factors, highlighted by Öberg et al, include the intensity of tobacco smoking (ie, number of cigarettes smoked/day/smoker), natural ventilation, crowding, and use of solid fuels at home. Furthermore, gender, ethnicity, and socioeconomic status may affect the response to protective policies.

As clinicians, when considering smoking cessation, we are likely to focus on smoking and direct disease causation. However, we should also consider that smoking is associated with other unfavorable events such as house fires and possibly car accidents that may also indirectly lead to morbidity and disability.

In conclusion, exposure to SHS is associated with increased morbidity and mortality in both genders and globally at all ages. Smoke-free policies, when implemented, lead to a substantial and rapid reduction in SHS-related pathology. Therefore, the 1.2 billion of smokers worldwide influence the well-being of nonsmokers. As “majority rule” is a pillar of democracy, the rights of nonsmokers to survive should be respected by smokers and governments. The latter have several legislative options. There is no excuse for further delay and hesitation, even if big financial interests are involved.

Declaration of Conflicting Interest
The author(s) declared no potential conflicts of interests with respect to the authorship and/or publication of this article.

Funding
The author(s) received no financial support for the research and/or authorship of this article.

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