OP15 Exploring the impact of smoke-free legislation on exposure to second-hand smoke among non-smoking adults in England

C Mathew, C Kypridemos

Abstract

**Background** In the presence of mounting evidence on the adverse effects of second-hand smoke (SHS) to non-smokers, England implemented smoke-free legislation on 1 July 2007 that rendered all public enclosed spaces smoke-free. As England considers becoming smoke-free by 2030, an evaluation of the existing smoke-free policy in England utilizing recent data becomes paramount in informing policymakers who are debating an expansion of the legislation in England. This project sought to examine trends in exposure to SHS among adult non-smokers in England from 2003–2015 in order to determine whether the legislation produced changes in SHS exposure among non-smoking adults and whether the policy had a differential impact by sex and socioeconomic status (SES).

**Methods** This study was an interrupted time series analysis of data on self-reported exposure to SHS among adult non-smokers that were obtained from Health Survey England and spanned the period between 2003 and 2015. The study used regression methods to examine trends in not only exposure to SHS as a binary variable but also the number of hours of exposure to SHS both before and after the ban. The analysis was conducted for the general adult non-smoking population as well as by sex and SES, using the quintile groups of the index of multiple deprivation.

**Results** The odd of exposure to SHS was falling annually by 9.1% (95% CI: 6.7% to 11.5%), in relative terms, before the implementation of the smoke-free policy. The odds dramatically reduced by 189.4% (95% CI: 100.2% to 318.7%) as a result of the policy, but slowly increased since then by 1.7% (95% CI: -3.0 to 6.2%) annually. The modelled prevalence of SHS exposure, declined drastically by approximately 50%, from 40.5% (95% CI: 34.5% - 46.9%) to 19.1% (95% CI: 11.2% - 30.6%), in the immediate aftermath of the ban. Nevertheless, the number of hours of SHS exposure declined after the ban. The policy was most effective in men, and it reduces both absolute and relative sex inequalities. When socioeconomic inequalities were considered, the policy was more effective in the most deprived group, and reduced absolute socioeconomic inequality, however, absolute inequality was increased as a result of the policy. The analysis was performed in SPSS v24.

**Conclusion** While the population-wide decline in SHS exposure following the ban is a treatment to the success of smoke-free legislation, the persisting relative inequalities in SHS exposure by SES highlight the need for continued investment in tobacco control policies.