



Smoke-free homes and attitudes towards banning smoking in vehicles carrying children in Spain (2016)



Ana Díez-Izquierdo^{a,b}, Cristina Lidón-Moyano^{a,c}, Juan Carlos Martín-Sánchez^{a,c},
Nuria Matilla-Santander^{a,c}, Pia Cassanello-Peñarroya^b, Albert Balaguer^{a,b},
Jose M. Martínez-Sánchez^{a,c,*}

^a Faculty of Medicine and Health Science, Universitat Internacional de Catalunya, Sant Cugat del Vallès, Spain

^b Paediatrics department, Hospital Universitari General de Catalunya, Sant Cugat del Vallès, Spain

^c Group of Evaluation of Health Determinants and Health Policies, Universitat Internacional de Catalunya, Sant Cugat del Vallès, Spain

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ABSTRACT

Objective: To describe the voluntary adoption of smoke-free homes and social attitudes in Spain towards banning smoking in vehicles in which children are present.

Methods: Cross-sectional study of a representative sample of the adult Spanish population age range, 18–75 years (n = 1036). The field work was conducted via a computer-assisted telephone survey in March and April 2016. Survey respondents answered questions about smoking rules at home and attitudes towards a smoking ban in cars with or without children. Home smoking rules were defined as complete (smoking not allowed anywhere in the house), partial (smoking allowed in some areas inside the house) or absent (smoking allowed everywhere).

Results: Most (83.0%) of the surveyed population had some type of smoking restriction in place at home (45.6% complete and 37.5% partial). There were significant differences between groups according to age group (the highest prevalence was 86.1% from 66 to 75 years and the lowest prevalence was 77.8% from 46 to 65 years) and smoking status (the highest prevalence was 89.4% in people who had never been smokers and the lowest prevalence was 75.0% in current smokers) with regards to the prevalence of smoke-free homes (p < 0.05), with partial bans more prevalent in smoking households (49.0%). Most (61.6%) of the population favored banning smoking in cars, and 90.1% supported a ban in cars carrying minors. Attitudes towards smoking regulation in cars (with or without children) varied significantly by age group (the highest prevalence was 81.9% from 66 to 75 years and the lowest prevalence was 54.5% from 18 to 45 years) and smoking status (the highest prevalence was 71.4% in people who had never been smokers and the lowest prevalence was 46.0% in current smokers). However, no significant differences were found with regard to attitudes towards smoking regulation in cars carrying children, regardless of sex, age, social class, or smoking status.

Conclusion: Approximately half of the adult population in Spain have implemented a complete smoke-free rule at home. More than 9 out of 10 adults favor regulating smoking in cars in the presence of minors. These findings support the expansion of smoke-free regulations to include private vehicles, particularly when minors are in the car.

1. Introduction

Second-hand smoke (SHS) exposure has harmful health consequences because non-smokers exposed to SHS inhale the same damaging substances as active smokers (Oberg et al., 2011; U.S. Department of Health and Human Services, 2006; Strachan and Cook,

1997; Cook and Strachan, 1997). Children are more vulnerable to SHS because of their still-developing immune system, their faster breathing rate, and their inability (in some cases) to avoid the source (Semple et al., 2012, 2010; Rees and Connolly, 2006). SHS exposure has been associated with an increased risk of sudden infant death syndrome (Alm et al., 1998; Hawkins et al., 2016; Dybing and Sanner, 1999; Rees and

Abbreviations: aOR, adjusted Odds Ratio; CDC, Centers for Disease Control and Prevention; CI, Confidence Intervals; cOR, crude Odds Ratio; MUH, Multiunit Housing; Odds Ratio, OR; SHS, Secondhand Smoke; INE, Spanish National Institute of Statistics; US, United States of America; WHO, World Health Organization

* Correspondence to: Group of Evaluation of Health Determinants and Health Policies, Departament de Ciències Bàsiques, Universitat Internacional de Catalunya, Carrer de Josep Trueta s/n, 08195 Sant Cugat del Vallès (Barcelona).

E-mail address: jmmartinez@uic.es (J.M. Martínez-Sánchez).

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Connolly, 2006) and an increase in respiratory diseases such as asthma, persistent wheezing (Cheraghi and Salvi, 2009; Lewis et al., 1995; Tsai et al., 2010; Hawkins et al., 2016; Rees and Connolly, 2006), and otitis media in children (Dybing and Sanner, 1999; Oberg et al., 2011; Rees and Connolly, 2006; Adair-Bischoff and Sauve, 1998).

It is well-known that there is no safe level of SHS exposure (U.S. Department of Health and Human Services, 2006); consequently, in the last decade many countries have implemented laws to protect non-smokers from SHS exposure in indoor workplaces and public places (Oberg et al., 2011; U.S. Department of Health and Human Services, 2006; Guangyuan Liu et al., 2014). Moreover, there is a growing body of evidence indicating that the implementation of smoke-free laws has not—as one might suspect—led to an increase in tobacco use in private settings such as homes or cars (Jarvis et al., 2012; Martínez-Sánchez et al., 2014). Rather, the available evidence suggests that implementation of anti-smoking legislation is associated with a decrease in children's SHS exposure and with an increase in the percentage of smoke-free homes (Martínez-Sánchez et al., 2014; Sims et al., 2012; Jarvis et al., 2012; Lidón-Moyano et al., 2016). Similarly, smoke-free legislation seems to have had a positive impact on the pediatric population (Mackay et al., 2010, 2012; Been et al., 2015, 2014; Millett et al., 2013), as evidenced by reported health benefits associated with smoke-free bans in several countries, including a lower asthma-related hospital admission rate (Mackay et al., 2010; Millett et al., 2013) and a decrease in the rate of preterm births (Been et al., 2014; Mackay et al., 2012).

Despite this progress, many children are still exposed to SHS in private settings (predominantly in homes and cars) (Halterman et al., 2006). These places, where, after school, children spend much of their time, remain somewhat controversially unregulated. At present, there is an open debate on whether smoke-free legislation should be extended to private settings, with some suggesting that this could further reduce the social acceptability of public tobacco use, thereby promoting smoking cessation efforts and positively benefitting the health of the entire population (Kruger et al., 2015; Hopkins et al., 2010; USDHHS, 2012; Pizacani et al., 2004). In this sense, there is growing evidence that children living in homes with absolute smoking bans have lower levels of urinary cotinine (Wakefield et al., 2000; Blackburn et al., 2003).

In Spain, the current law governing smoking (Law 42/2010) (Gobierno de España, 2010) explicitly prohibits smoking in any enclosed space within any communal areas (elevators, hallways, stairs, etc.). However, this law leaves the decision to prohibit smoking in open spaces (common patios, terraces, gardens, swimming pools) not designated as children's areas to the board of owners (Law 42/2010) (Gobierno de España, 2010).

Given this context, the objective of the present study was to assess and describe the prevalence of smoke-free homes in Spain and to evaluate social attitudes towards regulating tobacco use in vehicles with or without children.

2. Methods

This was a cross-sectional study of a representative sample of the Spanish adult population between 16 and 75 years of age ($n=1045$). For this study, we have excluded those under 18 years old ($n=9$) because they would not be able to purchase cigarettes legally, they would have less decision-making in the smoking policy in the home, and in terms of smoking in motor vehicles with a minor they would be considered minors. The final sample for this study was 1036 participants.

We used data from the ÓMNIBUS survey from the DYM Institute (DYM, 2015). The sample size was calculated using the simple random sampling formula ($N = ((Z\alpha/2 \cdot p \cdot (1-p))/e^2)$), using a 50% estimated prevalence (p ; prevalence that maximizes the sample size), a 95% confidence level ($\alpha = 0.05$) ($Z\alpha/2 = 1.96$) and a precision of 3.15%. The ÓMNIBUS survey is a cross-sectional study with more than one variable of interest. For this reason, the estimated prevalence is 50% to

maximize the sample size and the power, although the prevalence of the different variables could be higher or lower. In this sense, having a greater sample size maximizes the external validity of the estimation. However, the precision used (3.15%) is lower than the precision commonly used in the National Health Surveys (precision between 2% and 2.5%) in order to increase the feasibility of the fieldwork. In this sense, increasing the precision (from 2.5% to 3.15%) affects the increase in the amplitude of the confidence interval. The survey was conducted in March and April 2016 using computer-assisted telephone interviews in Spanish. Households were randomly selected for interviews from municipal telephone directories. The interviewee was selected according to quotas based on age, sex, and work activity; this was necessary to ensure a final sample weighted by study design weights (inverse probability) based on the distribution of the data obtained by the Spanish National Institute of Statistics (INE) to obtain a greater representation of Spain. The weighting was performed by sex, age, area of residence (i.e., East, South, etc.), size of municipality of residence, and occupation.

2.1. Variables

We obtained information from the survey respondents ($n=1036$) about the voluntary implementation of smoke-free homes and about attitudes towards a smoking ban in common areas of multiunit housing (MUH) buildings (e.g.: apartments, flats, building, etc.) and in vehicles (with or without children).

2.1.1. Smoke-free home

To estimate the prevalence of smoke-free homes, we asked the following question: "Which of the following situations best describes the smoking rules inside your house? 1) 'Nobody can smoke'; 2) 'You can only smoke in some places'; or 3) 'You can smoke everywhere'. Based on the responses to this question, we defined household smoking rules as complete (smoking not allowed inside or connected outdoor areas of the house), partial (smoking allowed in some places inside or in connected outdoor areas of the house), or absent (smoking allowed everywhere inside the house). We then dichotomized this variable as 'rules' vs. "no rules" to indicate, respectively, the existence of some kind of smoking rules (complete or partial) or no smoking rules in the house.

2.1.2. Attitudes towards smoking regulations in common areas (i.e. elevator, stairs, walkways, etc.) of MUH

We measured attitudes towards smoking regulation in common areas using the following question: "Should smoking be prohibited within the common areas (i.e.: elevator, stairs, lobby, walkways, etc.) of MUH, with six possible answers: "totally agree", "agree", "neither agree nor disagree", "disagree", "totally disagree", "don't know/no answer". We recoded this variable according to whether the respondents agreed with regulating smoking ("totally agree" and "agree"), disagreed (disagree" and "totally disagree"), and neither agree nor disagree ("neither agree nor disagree"). We asked all participants this question regardless of where they lived (flat, multiunit housing, house, etc.).

2.1.3. Attitudes towards smoking regulations in vehicles

We assessed attitudes towards regulating smoking in cars in general and in cars carrying children (minors). Smoking "in the presence of a child" was defined as smoking inside a vehicle where a minor under 18 was present. We asked the following two questions: "Should smoking be prohibited inside cars in the presence of minors?" and "Should smoking be prohibited inside cars, without exception?". The possible answers for both questions were: "totally agree", "agree", "neither agree nor disagree", "disagree", "totally disagree", "don't know/no answer". Again, we recoded this variable according to whether the respondents agreed with regulating smoking ("totally agree" and "agree"), disagreed (disagree" and "totally disagree"), and neither agree nor disagree ("neither agree nor disagree").

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