Are physicians aware of their role in tobacco control? - A cross-sectional study in Portugal

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Abstract

**Background:** The crucial role of physicians in tobacco control (TC) is widely recognized. In 2008, Portugal implemented a non-comprehensive smoke-free policy (SFP). In 2009, a conference-survey was carried out to explore the awareness of Portuguese physicians regarding their role in tobacco control, specifically: 1) their TC training needs and participation in TC activities; 2) their awareness of public health benefits of SFPs; 3) the strength of their support for SFPs. **Methods:** Questionnaire-based cross-sectional study conducted during two major national medical conferences targeting GPs, hospitalists, and students/recent graduates. Descriptive analysis and logistic regression were performed.

**Results:** Response rate: 63.7%. Participants: n=605: 58.3 % GPs; 32.4% hospitalists; 9.3% others; 62.6% female; mean age: 39.0±12.9 years. Smoking prevalence was 29.2% (CI:23.3-35.1) in males; 15.8% (CI:12.1-19.5) in females, p<0.001. While the overwhelming majority of physicians strongly agreed that second-hand smoke (SHS) endangers health, awareness of SFP benefits and TC law was limited, p<0.001. A significant minority (35.5%) believed that SHS can be eliminated by ventilation systems. Most physicians lacked training; only a minority (9.0%) participated regularly in tobacco control. General agreement with SFPs was high; but significantly lower for indoor leisure settings, outdoors bans in healthcare/schools settings and smoking restrictions in the home/car, p<0.001. **Conclusions:** The findings suggest that Portuguese physicians are not aware of their role in tobacco control. Poor engagement of physicians in tobacco control may contribute to the current lack of comprehensive policies in Portugal and Europe and undermine social norm change. Medical education on tobacco control should be made a top priority.

**Key words:** tobacco control, physicians, doctors, smoke-free policies, SHS, training.
Background

The tobacco epidemic continues to expand globally and remains a leading cause of morbidity and premature death[1]. The World Health Organization (WHO) estimates that tobacco use and exposure to second-hand smoke (SHS) will cause over 8 million deaths in 2030 unless urgent action is taken[2]. Tobacco remains, however, the most readily preventable cause of death. In order to curb the pandemic, WHO recommends the implementation of comprehensive tobacco control (TC) policies, including price policies, and smoke-free policies (SFPs); bans on tobacco advertising, promotion and sponsorship; health education on the hazards of tobacco use and access to tobacco dependence treatment; regulation of tobacco products and other evidence-based interventions. These are based on the Framework Convention on Tobacco Control (FCTC)[2]. Currently, all EU countries have ratified the FCTC. Despite this commitment, many European countries have failed to implement comprehensive policies due to tobacco industry interference in policy-making and inconsistent advocacy; underfunding and poor enforcement of TC policies. In fact, TC progress remains deadly slow in several European countries such as Portugal[3-6]. In January 2008, Portugal enacted a TC law[7]. A non-comprehensive and poorly-enforced smoke-free policy (SFP) was implemented disregarding FCTC guidelines. Many exemptions apply, particularly in hospitality venues, and frequent breaches have been reported[8,9]. The role of healthcare professionals (HCPs) and its organizations has been highlighted by the WHO. Among HCPs, TC efforts should discourage tobacco use, disseminate TC training and promote smoke-free environments and other evidence-based strategies. Similarly, physicians should publicly lead TC advocacy and monitor policy impact over time[10,11]. The roles of physicians as both exemplars and leaders are, moreover, crucial to the TC movement and to social norm change. Note too that TC progress has been greater in countries where few physicians smoke and their commitment to public health policy is strongest[10,12]. Given this
evidence, physicians’ TC awareness and training should be top priorities. Although this matter is a TC and a research relevant goal, knowledge gaps persist. The Portuguese tobacco law highlights the need to engage all HCPs, and particularly physicians, with TC activities, including training. To date, little information is available concerning this requirement’s implementation. The purpose of this study was to explore the awareness of Portuguese physicians regarding their role in TC and more specifically: 1) their TC training needs and participation in TC activities; 2) their awareness of public health benefits of SFPs; 3) the strength of their support for comprehensive SFPs. Study objectives were the following: 1) To describe and compare TC practices, attitudes and beliefs between younger and older physicians, and between general practitioners (GPs) and hospital physicians (hospitalists); 2) To identify factors associated with TC practices and support for comprehensive SFPs.

**Methods**

**Study design, study population, site and sampling**

This was an exploratory cross-sectional study, conducted in 2009 during two major national medical conferences using a purposive-sampling procedure, and following Nardini et al’s methodology[13]. All data were self-reported. Self-administered questionnaires were delivered and collected during conferences targeting GPs, hospitalists, and undergraduate medical students and recent-graduates (SRGs) from all over the country. These conferences were: 1) Portuguese Stroke Society Annual Conference where questionnaires were distributed to all registered physicians (n=450); 2) Portuguese GP Society Annual Conference where questionnaires were distributed to a systematic random sample of the attendees (33% out of 1500; n=500). The theoretical sample size was 500 physicians assuming an expected smoking prevalence of 22.0%[14], with a 95% confidence interval (CI) and a precision of 3.6%. A total of 950 questionnaires were delivered, assuming an expected response rate of 60%[13]. The questionnaire included a cover letter explaining the study’s aims, the institutions
involved, the researchers’ contact details and guarantees as to anonymity. The study was approved by the Beira Interior University-Hospital Research Ethics Committee.

**Questionnaire and Measures**

Physicians’ beliefs and attitudes to SFP were the main outcomes, as those measures are strongly associated with tobacco social norms[15]. Additionally, physicians’ participation in TC was accessed. A validated questionnaire was adapted[16]. Additional items were developed addressing TC attitudes and beliefs and pilot tested among a small group of GPs, hospitalists and SRGs. The questionnaire collected standard information on socio-demographics and specialty. The second part of the questionnaire explored smoking behaviour, attitudes to being role-models (RMs) as non-smokers (RM attitudes) and smoking in private settings. The third part addressed TC practices, attitudes and beliefs, and training in smoking prevention/treatment. Smoking status was self-reported and categorized according to WHO guidelines for tobacco use[17]. Smoking in private settings was accessed by the following questions: Do you usually smoke 1) in the home 2) in the car? Answer: never (0); yes, only at an open window (1); yes, sometimes (1); yes regularly (1). Specific training in smoking prevention/cessation was categorized as undergraduate (UGT) or graduate (GT) and quantified in hours (h): (<5 h; 5-8 h; >8-12 h; >12 h). Physicians’ TC practices were accessed by the following question: Do you participate in or have you ever participated in 1) smoking prevention/TC activities 2) smoking cessation activities? Answer: regularly (1); occasionally (1); never (0). Response categories were re-coded and dichotomized into “no” (0) and “yes” (1). TC attitudes and beliefs were accessed by four items:

1. **Awareness of training needs.** Question: Do you consider that you need specific training in smoking prevention/treatment?

2. **SHS and SFP beliefs.** The wording of questions is shown in the results section (see tables).
3. Smoking restrictions in private settings. Questions: Do you allow smoking 1) in your home 2) in your car?

4. Support for SFP in public settings. Question: Please state your agreement regarding smoking restrictions in the following settings.

Response options to item 1 and 3 were dichotomized (yes/no). Answers to items 2 and 4 were scored on a three-point and a four-point scale, depending on the contents; answer categories and re-codification is shown in data analysis and results sections (see tables).

**Data analysis**

Categorical variables are presented as absolute and relative frequencies with 95% CI, while quantitative variables are presented as mean and standard deviation (SD). Bivariable analyses were conducted using chi-square, McNemar, and Man-Whitney tests, and crude odds ratio (OR) where suitable. All associations between variables of interest were tested. Statistical analyses were conducted using SPSS-19 statistical software. A two-sided p value < 0.05 was considered to be statistically significant. Multiple logistic regression analysis (MLR) was conducted to investigate factors associated with training needs awareness (1-yes/0-no), participation in TC activities (1-yes/0-no) and strong support for SFPs (1-strongly agree/0-others). Never smokers and ex-smokers were aggregated as non-smokers. The following independent variables were tested in the bivariable analysis and included in the MLR-models: gender (male/female), age (<45/≥45 years), specialty (GPs/hospitalists), GT/UGT attendance (1-yes/0-no); RM attitudes as non-smokers (1-most positive/0-others), SHS beliefs (SHS is the major indoor pollutant: 1-strongly agree/0-others; ventilation is effective for eliminating SHS: 1-strongly disagree; disagree/0-others); smoking behaviour (smokers/non-smokers) and having a smoke-free home/car (allowing smoking in the home/car: 0-yes/1-no). A backwards stepwise procedure was set at the 0.05 significance level. Results were presented as adjusted ORs (aORs) with 95% CIs.
Results

Response rate and socio-demographics

Overall response rate was 63.7%: 605/950. Of the participants, 62.6% (379) were females; 58.3% (353) GPs, 32.4% (196) hospitalists, and 9.3% (56) SRGs; mean age was 39.0±12.9 years (range: 21-70). GPs were significantly older than hospitalists (mean age ±SD: 42.1±12.6 versus 37.7±12.2 years; p<0.001).

Smoking behaviour and smoking restrictions in private settings

Smoking behaviour trends were analysed elsewhere[18]. Smoking prevalence was 29.2% (CI:23.3-35.1) in males; and 15.8% (CI:12.1-19.5) in females, p<0.001. Current smoking was similar among GPs, hospitalists and SRGs[1]. Of the smokers, 52.4% (95%CI:43.7-61.1) admitted smoking in the home and 46.8% (95%CI:38.1-55.5) in the car (26.2% did not answer). Smoking restrictions in the home were significantly less reported than in the car: 76.5% (CI:73.1-79.9) versus 84.0% (CI:81.1-86.9); p<0.001; (2.8% and 3.1% respectively did not answer).

Training in smoking prevention/cessation

Participants’ attendance at UGT or GT is shown in table-1. The great majority of physicians reported little or no UGT, particularly the older ones. About half of GPs reported GT, contrasting with hospitalists. Awareness of training needs was more frequently reported by GPs, non-smokers, under-45s, those reporting GT and females (table-1). Workplace training programmes were reported more often by GPs than hospitalists (OR: 3.6; 95% CI: 2.4-5.4; p<0.001) (not shown).

Tobacco control activities

Table 2 presents physicians’ participation in TC activities. Of the responders, around 9.0% reported participating regularly in TC activities [smoking prevention: n=53 (8.8%; CI: 6.5-11.1%); smoking cessation: n=33 (5.5%, CI: 3.3-6.7%)]. GPs reported being involved in TC
more often than hospitalists, \( p<0.001 \). Participation in TC activities was predicted by reporting GT or more favourable RM attitudes, being a GP or under 45 (see table 2).

**Tobacco control beliefs**

Table-3 depicts awareness of the TC law, perception of compliance with SFPs and SFP/SHS beliefs. Most physicians strongly agreed that SHS is harmful (88.8%), although only half strongly reported being the major indoor pollutant (51.2%), \( p<0.001 \); about half totally agreed that SFPs could reduce tobacco consumption (52.5%) and disease burden (52.9%), \( p<0.001 \); over 1/3 were fully aware of the TC law (35.9%), \( p<0.001 \); in addition, 35.5%, \( p<0.001 \), totally agreed that SFPs could help smokers to quit; and 33.7% believed that SHS could be eliminated by ventilation. Low compliance with the ban was reported by 78.8%. Smokers believed more often that ventilation could eliminate SHS (OR: 2.12; 95% CI: 1.41-3.17; \( p<0.001 \)), and were less likely to report low compliance with the ban (OR: 0.59; 95% CI: 0.37-0.94; \( p=0.025 \)). Reporting favourable RM attitudes or extensive GT (>5hours) and being a non-smoker or female were significantly associated with some TC beliefs, but not all (not shown).

**SFP support**

Strong support for SFP were reported, respectively in healthcare premises (94.7%), schools (94.4%), public administration buildings (91.4%), and workplaces (89.9%); but significantly less support was observed in other leisure settings such as restaurants (70.2%), shopping malls (64.1%), and bars and discos (55.0%), \( p<0.001 \). In addition, strong support for outdoors bans was lower, respectively in healthcare settings (58.7%) and schools (52.6%), \( p<0.001 \) (see table-4). MLR showed that reporting a smoke-free home was predicted by reporting a smoke-free car (aOR: 15.5; 95%CI: 8.0-30.1, \( p<0.001 \)), followed by being under 45 (aOR: 4.6; 2.7-7.6, \( p<0.001 \)), being a non-smoker (aOR: 2.4; 95%CI: 1.3-4.2, \( p=0.003 \)), being a female (aOR: 2.0; 95%CI: 1.2-3.4,\( p=0.013 \)), and reporting that SHS is a major pollutant (aOR:1.7; 95%CI:1.0-2.7, \( p=0.038 \)). Reporting a smoke-free car was predicted by
reporting a smoke-free home (aOR: 13.0; 95%CI: 7.0-24.1, p<0.001), followed by being a non-smoker (aOR: 5.6; 95%CI: 3.0-10.2, p<0.001), or being a female (aOR: 2.6; 95%CI: 1.4-4.8, p=0.003), and reporting that SHS is a major pollutant (aOR:2.0; 95%CI:1.1-3.7, p=0.033). Table 5 shows factors associated with strong support for comprehensive SFPs in public settings. Reporting a smoke-free home was the most consistent predictor of strong agreement with SFPs, followed by reporting SHS beliefs, favourable RM attitudes and being a non-smoker. Being a non-smoker was one of the main predictors of SFP support with restaurants and bars/discos and healthcare outdoors (table-5); and smoking restrictions in the home/car.

**Discussion:**

This exploratory study suggests that few Portuguese physicians are engaged in tobacco control. While the overwhelming majority strongly agree that SHS endangers health, strong awareness of SFP public health benefits and the current TC law is limited; a significant minority believes that SHS can be eliminated by ventilation systems. Furthermore, most physicians lacked TC training and only a minority participated regularly in smoking prevention or cessation activities. General agreement with SFPs was high, but significantly lower for indoor leisure settings, outdoors bans and private smoking restrictions. Moreover, participants reported high smoking rates. Among smokers, smoking in the home or car was common. GPs were more involved in TC activities, including training, than hospitalists. Younger physicians reported UGT more often and being more aware of training needs than the older ones; they also reported participating more often in cessation activities. Among physicians, 2/3 recognize that they should receive training on TC, but less than 1/3 received undergraduate training and less than half reported graduate training. Training was the most consistent predictor of participation in TC activities, followed by being a GP. As underscored by other authors[16,19-22], these findings highlight the importance of engaging medical
education and medical associations with TC and disseminating TC training both in medical schools, and in primary care and hospital settings. Whereas physicians receive special training to provide effective and safe health care to populations, there is a need for specific training on smoking cessation to guarantee systematic and effective cessation counselling and support[20,23]. Similarly, specific TC training is crucial to engage physicians and other HCPs in advocacy and policy-making[10,11,24]. It is also worth noting that training influenced few items in SFP support and SHS/SFP beliefs, suggesting that those concerned received inadequate training on TC policy. In fact, following the preparation of Portugal’s TC law, HCP training and involvement in smoking cessation expanded to different healthcare settings. Nevertheless, training and awareness of TC policy and advocacy are seldom included in these programmes[25]. When comparing physicians’ overall support in public settings, acceptance was significantly higher where the ban is long-standing and has fewer exemptions; and also for role-model professional workplaces, i.e. healthcare and school settings. These findings are consistent with past research that has concluded that support is stronger where bans have been implemented for a longer time and where there are fewer exemptions[26,27], and that additionally, workplaces rules and beliefs influence support for SFP[28]. Furthermore, cross-country research has consistently shown that smoke-free bars and pubs are significantly less well accepted than smoke-free workplaces and restaurants. This same trend was observed in this study; moreover, physicians reported slightly less support for smoke-free restaurants and bars than the general population[29]. It should be emphasized that if there is no safe level of SHS exposure, strong SFP support should apply for all settings. These findings clearly indicate that physicians are not particularly aware of public health science or more specifically of the fact that only comprehensive SFPs protect populations effectively against SHS. Moreover, the great majority of physicians reported low compliance with the partial ban; suggesting that they should be more aware of the need for a comprehensive policy.
Factors associated with stronger support for SFPs followed the same pattern as for general population, although smoking behaviour did not strongly influence most items. However, being a non-smoker was a strong predictor of agreement with bans in settings such as restaurants and bars/discos and healthcare outdoors, as well as smoking restrictions in private settings. These settings were, in turn, those with lower physicians’ support. As reported by other studies[16,30,31], these findings clearly indicate that smoking among physicians is still a major barrier to social norm change. On the other hand, reporting a smoke-free home was the most consistent factor associated with strong SFP support. In fact, regulation of smoking in the home is a strong predictor of self-enforcement and compliance with SFPs and social norm change, even among smokers[32,33]. Furthermore, younger physicians did not consistently report stronger support for SFPs, which may suggest that they are not trained on TC policy and that the social norm did not change after the implementation of the partial ban. In sum, all these findings suggest that physicians’ attitudes to SFP are not influenced by evidence-based public health science. This, in turn, is in line with previous studies[16,19]. Physicians’ attitudes and behaviours do, however, clearly influence their clinical and public health practice[12,13,20-22]. In Portugal, the great majority of physicians are not active in leading public health policy and TC advocacy. The Portuguese Medical Association has neither a clear commitment to tobacco control advocacy, nor an official policy on tobacco use and tobacco control. Indeed, its publicly expressed positions are frequently contradictory[34,35]. On the other hand, and in line with evidence-based guidelines[23], GPs and respiratory physicians have shown greater commitment to smoking cessation[34]. In Portugal, TC advocacy is led by a handful of non-profit NGOs and HCP associations. To date, these NGOs have, however, failed to launch a concerted effort to advance the TC agenda. Meanwhile, many HCPs and physicians continue to smoke. When physicians are noticed smoking in public, this reinforces smoking visibility and social acceptance, undermining
social norm change[18,25,36]. In times of financial crisis, obtaining appropriate funding for
disease prevention and health promotion is as important as ever, but more difficult to
achieve[37]. Moreover, the serious recession in Portugal should draw special attention to the
threat that the government may be more vulnerable to tobacco industry influence than in more
normal times. The Portuguese position regarding the EU tobacco directive and the opposition
to a 100% SFP assumed both by the current government and the overwhelming majority of
parliamentarians strongly suggest tobacco industry interference in policy-making. Thereby,
consistent advocacy for comprehensive tobacco control policies should play a crucial role.

**Main limitations**

Several study limitations should be noted. First, because of the study’s cross-sectional design,
causality cannot be established. Sampling procedures also limit representativeness and
generalization. The study relies on self-reported responses, thus social desirability bias should
be stressed. Given the response rate, non-response bias should be allowed. Finally, whereas
responders generally include those more interested in the subject, the authors should assume
that physicians’ involvement in TC is probably even more limited. In spite of these
limitations, this survey is one of the few that explored physicians’ involvement in TC in
Portugal and obtained good response rates.

**Conclusions**

The findings suggest that Portuguese physicians are not aware of their role in tobacco control.
Poor engagement of physicians in tobacco control may contribute to the current lack of
comprehensive policies in Portugal and Europe, and undermine social norm change. Medical
associations should acknowledge their leadership role and assume a core responsibility in
promoting smoke-free environments and tobacco control best practices. To achieve this,
medical education on tobacco control should become a top priority.
**List of abbreviations:** CI: confidence interval; FCTC: Framework Convention on Tobacco Control; GPs: general practitioners; GT: graduate training in smoking prevention/treatment. HCPs: health care providers; OR: odds ratio; aORs: adjusted ORs; MLR: multiple logistic regression; RM: role model; SD: standard deviation; SFP: smoke-free policy; SHS: second-hand smoke; SRGs: students and recent graduates; TC: tobacco control; UGT: undergraduate training in smoking prevention/treatment; WHO: World Health Organisation.

**Competing interests:** The authors declare that they have no competing interests.

**Authors’ contributions:** SBR conceived the study and gathered the information, completed data entry, data analysis and drafting of the manuscript. All authors participated in the design of the study, analysed and interpreted the data, critically reviewed the original draft and read and approved the final manuscript. SBR and JMC coordinated the study design. PA coordinated the statistical analysis.

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References


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**Tables 1-5** (in separate files)
Additional files provided with this submission:

Additional file 1: Table_1-TC_Training.docx, 26K
http://www.biomedcentral.com/imedia/1352879775118193/supp1.docx

Additional file 2: Table_2-Participation_in_TC.docx, 15K
http://www.biomedcentral.com/imedia/7268733871181934/supp2.docx

Additional file 3: Table_3-SHS-SFP beliefs.docx, 14K
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Additional file 4: Table_4-SFP_support.docx, 14K
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Additional file 5: Table_5-Factors-SFP_support.docx, 15K
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