Attitudes towards anti-smoking legislation and prevalence of tobacco consumption in Spanish primary healthcare personnel

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ABSTRACT

INTRODUCTION Our aim was to ascertain how the anti-smoking legislation of 2005/2010 has affected the behavior of primary healthcare center (PHC) personnel (medical and non-medical) with respect to their attitudes towards tobacco, its consumption and the legislative changes.

METHODS We conducted a multi-center descriptive study of a randomized conglomerate sample of PHC personnel from each Autonomous Community in Spain. The questionnaire covered tobacco consumption, and knowledge/attitudes towards smoking and legislation. The statistical analysis used SPSS software.

RESULTS The sample consisted of 2040 PHC employees (1578 women, 77.4%). Never smokers, ex-smokers, and smokers represented 46.7%, 37.8%, and 15.5% of the sample, respectively. Tobacco prevalence amongst physicians and nurses was 12.3%. Following the introduction of the anti-smoking legislation, a decrease in consumption was observed. Most of the participants considered that tobacco consumption affected health, was an addictive illness, and passive smoking had an impact on the health of non-smokers. Whilst 91.6% agreed with the current legislation, only 25% felt that it encouraged cessation.

CONCLUSIONS Spanish primary healthcare professionals have a relatively low prevalence of smoking compared to the general population. It is necessary to implement more legislative measures to improve and maintain this outcome.

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KEYWORDS
primary healthcare, epidemiology, smoking behaviours, attitudes health personnel, smoking ban, Spain

Received: 8 November 2018
Revised: 24 January 2019
Accepted: 15 February 2019

Tob. Prev. Cessation 2019;5(March):9 https://doi.org/10.18332/tpc/104434

INTRODUCTION

The World Health Organization (WHO) Framework Convention on Tobacco Control (FCTC) protects 4700 million people, worlwide. Its MPOWER package

(2008) consists of six measures: monitoring tobacco use and prevention policies; protecting people from tobacco smoke; offering help to quit tobacco use; warning about the dangers of tobacco; enforcing bans on tobacco advertising, promotion and sponsoring; and raising taxes on tobacco[1].

Primary Healthcare (PHC) personnel play a key role in the prevention and cessation of smoking, and their counselling substantially increases success rates[2-4]. Multi-component PHC interventions, via telephone support and medication, for individuals wanting to quit, have achieved long-term abstinence with a 10-25% success rate in comparison with individual counselling[5,6]. Nevertheless, some studies have reported that many PHC personnel do not employ enough resources to encourage patients to stop smoking[7,8].

In Spain especially, two prohibitions have been introduced in smoke-free legislation (SFL) in 2006, with partial measures (regulations on the sale, supply, consumption and advertising of tobacco products). Subsequently, this was extended with the enactment of an integral SFL (Law 42/2010), which came into force in January 2011. This comprehensive law extended smoking restriction in all hospitality places, regardless of the area of the establishment and, as a result, smoking was banned in all enclosed public places, including bars, restaurants and nightclubs, and in some outdoor public places, such as playgrounds. In European countries where anti-tobacco laws have been evaluated, it has been demonstrated that the impact of such legislation has been positive and has led to a decrease in the prevalence of smoking[9].

The 2017 WHO Report evaluating legislation enforcement stated that 22 (40%) of the 55 countries with comprehensive smoke-free legislation had elevated compliance rates[10]. The Smoke Free Partnership placed Spain among the countries that best followed the principles of Article 8 of the WHO FCTC[11].

A meta-analysis carried out by Fichtenberg and Glantz[12] observed that smoke-free policies were related to a 3–4% decline in tobacco consumption. Hopkins et al.[13], in another systematic review, reported a decrease of 2.2 cigarettes/day following legislation. Frazer et al.[14] , however, found that anti-smoking laws had an inconclusive impact on tobacco prevalence and consumption[14].

Various Spanish authors have evaluated tobacco consumption amongst PHC personnel and their attitude towards its treatment[15-16,18-23]. For example, in 1997 prevalence was found to be 38.1% decreasing to 28.7% by 2008[18,23]. A later study in 2015, which included 612 PHC personnel (155 physicians), observed a prevalence of 11.7% (8.9% and 11.2% for physicians and nurses, respectively), although it might not have been possible to accurately distinguish the different groups[16].

The aim of the present research is to establish how the legislative measures have affected PHC medical and non-medical personnel with respect to their behavior towards tobacco consumption and their opinions concerning smoking and the changes in legislation.

METHODS

Study design

A multi-center, transversal, descriptive study was conducted that included PHC medical and non-medical personnel from the Spanish National Healthcare System. The study was conducted between June 2016 and March 2017.

Sample size

The sample (n=3994 participants) was made up of 1842 physicians (general practitioners and paediatricians), 1076 nurses (nurses and midwives), and 1076 non-medical personnel. A smoking prevalence of 20% for the first group, and 30% for the other two groups was assumed. A 20% dropout rate was taken into consideration for calculations.

Cluster sampling was carried out in which, initially, by simple random sampling, 5% of the health centers of each Autonomous Community were selected, which constituted the primary sampling units. Subsequently, as secondary sampling units, all members of the primary care teams of the centers selected in the first phase were selected.

Study survey

A questionnaire designed by the members of the Approach to Smoking Group (GAT) from the Spanish Family and Community Medical Society was validated during the first phase in a pilot study. The final version was anonymous and online. The voluntary

collaboration of individuals in charge of the selected PHC was requested by email, and in order to improve participation they were reminded by telephone.

Variables

Sociodemographic characteristics

Sociodemographic characteristics included age, gender, PHC location (rural/urban), professional status (general practitioner, paediatrician, nurse, midwife and administrative assistant), years working in the PHC and employment status (permanent, temporary, employed/contracted and other).

Tobacco consumption status

Consumption status included habitual smoker, occasional smoker, ex-smoker, and never smoked. For smokers, information included: number of cigarettes/day, number of previous attempts to quit, reasons for relapse and at what stage according to the change model of Prochaska and DiClemente[17]. For ex-smokers, information included: length of time without smoking.

Attitudes towards smoking

Attitudes included opinions on the impact of tobacco on health, efficacy of counselling, importance of healthcare personnel as role models, compliance with current regulations, and the wish to really quit (for smokers).

Opinions about anti-smoking legislation

Attitudes towards the law regarding smoke-free areas, the effect on smokers, smoke-free public areas, and regulation of electronic cigarettes, were obtained. The responses were evaluated on a Likert scale ranging 1 to 5 (1 the least and 5 the most favourable; in the statistical analysis ≥4 was considered in agreement).

Whilst not included in the objectives of this publication, the participants were additionally asked, in the case of healthcare personnel, about *the smoking interventions carried out in the PHC* such as importance, frequency, type of intervention: annotation in medical records, identification of stage of change, no action carried out, brief advice given, intense intervention, frequency of interventions (habitual, related to problems linked to tobacco, etc.). Views with respect to passive smoking were also obtained.

Participants were also asked about *prior training to approach smoking*, such as whether the participants had received any specific training in tobacco cessation (if so, what kind), and the management of diagnostic and therapeutic measures (medication, psychosocial strategies). A complex variable was produced that considered the management level of diagnostic and treatment measures as two categories (good practice and could be improved).

Ethical considerations

Prior to the study, participants were informed about the aim of the research and that the questionnaire was voluntary and anonymous. The study was exempt from the Institutional Review Board. No individual identifiers were used at any analytical step.

Data analysis

Descriptive statistics were used to summarize overall information. A high dropout rate and greater response from participants who were more aware of smoking issues were assumed. Categorical variables were expressed as percentages and continuous ones as means and standard deviation (±SD). Comparative analysis was performed with the χ^2 test for the former group and Student's t-test and ANOVA for the latter, as applicable. Statistical significance was established by $p<0.05$. All analyses were performed with the SPSS software program.

RESULTS

Of the 3994 participants planned, an e-mail interview could be sent to 3965 and 2040 responses (51.45%) were obtained. The mean age of the respondees was 50.49±9.59 years, and the mean number of years worked in the PHC was 17.34±10.06. A figure that was higher in medical personnel and lower in midwives (11.88±10.27 years) and non-medical personnel (14.04±9.20 years). More than 75% were women (77.4%) and 73.7% were employed in urban areas. Most of the personnel had permanent contracts (68.1%). With respect to tobacco consumption, almost half were never smokers (46.7%), 37.8% ex-smokers, and 15.5% smokers (daily plus occasional smokers). With respect to physicians and nurses, smoking prevalence was 11.8% and 12.8%, respectively. For non-medical (administrative) personnel, the prevalence was 24.8%. Electronic

cigarette consumption was minimal (2%) and so was the number currently not employed (Table 1). Among the healthcare personnel who smoked, the mean age at commencement was 18.84±5.09 years, with 3±4.95 attempts to quit. There was a mean consumption of 10.59±8.8 cigarettes/day. With respect to the Prochaska and DiClemente stages of change model[17], 14% were at the determination (preparation) stage, 25.4% at contemplation, and 60.6% precontemplation.

As to the ex-smokers, 2 in 3 had been abstinent for more than 10 years, 17% between 5 to 10 years, and 11% between 1 and 5 years. The main reasons for quitting were the effect on one's own health (86%), seeking freedom from an addiction (82.3%), and concern about the impact on close family members (64.1%). Issues such as anti-smoking legislation (13.9%) and pressure from relatives and friends (20.6%) were of less importance. More than half of the healthcare personnel highlighted the importance of representing a role model although significant differences were observed between physicians and nurses, 53.3% and 40.7% (p=0.002), respectively. Nurses (22.8%) and non-medical personnel (26.3%) were influenced more by other healthcare workers than the physicians (p=0.021).

Cessation was quite/very easy for 41.6% of the ex-smoker participants and quite/very difficult for 34.3%. In addition, 4 in 5 of the healthcare personnel quit tobacco without any kind of help whilst 8.7% received professional care or other kind of support (e.g. books, hypnosis).

Table 1. Sociodemographic characteristics and smoking prevalence among the PHC personnel who answered the questionnaire

Variables	Total* N (% total)	Physician N (% total)	Nurse N (% total)	Pediatrician N (% total)	Midwife N (% total)	Other N (% total)	p
Participants*	2040 (100)	736 (38.2)	698 (36.2)	56 (2.9)	24 (1.2)	413 (21.4)	
Age (*Mean±SD)	50.49±9.59	51.22±9.59	49.75±9.84	51.09±11.55	49.58±10.76	49.95±8.48	0.038
Years employed in PHC (*Mean±SD)	17.34±10.06	20.65±9.55	16.25±9.86	18.02±11.35	11.88±10.27	14.04±9.20	0.000
Gender							
Male	462 (22.6)	251 (34.1)	106 (15.2)	9 (16.1)	1 (4.2)	78 (18.9)	0.000
Female	1578 (77.4)	485 (65.9)	592 (84.8)	47 (83.9)	23 (95.8)	335 (81.1)	
Healthcare Center							
Urban	1504 (73.7)	525 (71.3)	506 (72.5)	42 (75)	21 (87.5)	326 (78.9)	0.073
Rural	536 (26.3)	211 (28.7)	192 (27.5)	14 (25)	3 (22.5)	87 (21.1)	
Laboral Status							
Permanent	1389 (68.1)	527 (71.6)	471 (67.5)	43 (76.8)	14 (58.3)	252 (61.1)	0.006
Temporary	344 (16.9)	102 (13.9)	126 (18.1)	9 (16.1)	6 (25)	84 (20.3)	
Employed/Contracted	228 (11.2)	72 (9.7)	83 (11.8)	4 (7.1)	4 (16.7)	57 (13.8)	
Other	79 (3.8)	35 (4.8)	18 (2.6)	-	-	20 (4.8)	
Smoking status (N=2024)							
Non-smoker	1710 (84.5)	649 (88.2)	609 (87.2)	54 (96.4)	18 (75.0)	310 (75.1)	
Never smoked	945 (46.7)	383 (52.0)	315 (45.1)	45 (80.4)	10 (41.7)	168 (40.7)	
Ex-smoker	765 (37.8)	266 (36.1)	294 (42.1)	9 (16.1)	8 (33.3)	142 (34.4)	0.000
Smoker	314 (15.5)	87 (11.8)	89 (12.8)	2 (3.6)	6 (25.0)	103 (24.9)	
Daily	231 (11.4)	58 (7.9)	67 (9.6)	2 (3.6)	4 (16.7)	82 (19.9)	
Occasionally	83 (4.1)	29 (3.9)	22 (3.2)	-	2 (8.3)	21 (5.1)	
Electronic cigarette status (N=2024)							
Non-user	2008 (99.2)	733 (99.6)	692 (99.2)	56 (100)	24 (100)	408 (98.8)	
Never	1968 (97.2)	721 (98.0)	679 (97.3)	56 (100)	24 (100)	391 (95.9)	
Ex-user	40 (2.0)	12 (1.6)	13 (1.9)	-	-	17 (2.9)	0.000
User	16 (0.8)	3 (0.4)	6 (0.8)	-	-	5 (1.2)	
Daily	6 (0.3)	1 (0.1)	3 (0.4)	-	-	1 (0.2)	
Occasionally	10 (0.5)	2 (0.3)	3 (0.4)	-	-	4 (1.0)	

*In total number is included 113 missing dates from profession.

Opinion about tobacco

Whilst no significant differences in opinion about tobacco were observed between men and women, location of the PHC (urban/rural), and professional status, there was, however, a difference between those who had been employed for more or fewer than 10 years. The former considered tobacco a chronic illness (p=0.003) that increased the risk of ischemic cardiopathy (p=0.036). Moreover, they believed that healthcare personnel represented a role model, their advice was effective in quitting tobacco, and that electronic cigarettes were harmful to one's health (p=0.000 for all points). Regarding PHC medical personnel and their opinion about anti-smoking legislation changes, there were significant differences with respect to the efficacy of counselling (p<0.001), and whether or not electronic cigarettes were harmful (p=0.002), again in favour of those employed for more than 10 years (Table 2).

Table 2. Opinions about tobacco according to profession and smoking status among primary healthcare personnel

OPINIONS	PROFESSION					SMOKING STATUS			
	Total N (%)	All Physician* N (%)	All Nurse** N (%)	Non-medical N (%)	p	Total N (%)	Non-smoker N (%)	Smoker N (%)	p
Tobacco has harmful effects on smokers' health	1923 (99.8)	791 (99.9)	721 (99.9)	411 (99.5)	0.378	2019 (99.6)	1707 (99.8)	312 (99.4)	0.130
Exposure to tobacco smoke has an impact on non-smokers	1910 (99.0)	786 (99.2)	719 (99.6)	405 (98.1)	**0.027**	2005 (98.4)	1699 (99.4)	306 (97.5)	**0.001**
Smoking is a chronic illness	1678 (85.5)	749 (94.6)	609 (84.3)	320 (77.5)	**0.000**	1759 (86.4)	1490 (87.1)	269 (85.7)	0.479
Healthcare workers are a role model for patients in some aspects	1662 (84.7)	712 (89.9)	634 (87.8)	316 (76.5)	**0.000**	1747 (82.2)	1507 (88.1)	240 (76.4)	**0.000**
Passive smoking increases the risk of ischemic cardiopathy in non-smokers	1630 (82.2)	704 (88.9)	637 (87.8)	289 (70)	**0.000**	1706 (79.4)	1479 (86.5)	227 (72.3)	**0.000**
Smoking is an addictive illness	1889 (97.8)	781 (98.6)	710 (98.3)	398 (96.4)	**0.022**	1982 (97.6)	1677 (98.1)	305 (97.1)	0.285
Medical counselling is effective for smoking cessation	1550 (77.3)	718 (90.7)	581 (80.5)	251 (60.8)	**0.000**	1632 (74.2)	1428 (83.5)	204 (65)	**0.000**
Electronic cigarettes are harmful for health	1282 (63.6)	576 (72.7)	508 (70.4)	198 (47.9)	**0.000**	1344 (61.2)	1175 (68.7)	169 (53.8)	**0.000**

*All Physician: In this table Physician plus Pediatrician. **All Nurse: In this table Nurse plus Midwife.

Opinion about anti-smoking legislation

Concerning the current legislation, 92% of the participants agreed with it. Nevertheless, 25% were of the view that it did not encourage individuals to quit. Almost 100% considered that healthcare centers and closed public areas should be smoke-free, although almost 1 in 5 thought that electronic cigarettes need not be prohibited in closed areas (1 in 4 in the case of non-medical personnel).

We did not observe differences in opinion about anti-smoking legislation, whether healthcare centers and closed public spaces should be smoke-free, and prohibition of electronic cigarettes in closed public areas with respect to gender, PHC location, professional status, and years of PHC employment (Table 3).

Table 3. Opinions about anti-smoking legislation according to profession and smoking status among primary healthcare personnel

OPINIONS	PROFESSION					SMOKING STATUS			
	Total N (%)	All Physician* N (%)	All Nurse** N (%)	Non-medical N (%)	p	Total N (%)	Non-smoker N (%)	Smoker N (%)	p
I totally agree with the current anti-smoking legislation	1777 (91.6)	736 (92.9)	676 (93.6)	365 (88.4)	**0.005**	1861 (87.0)	1610 (94.2)	251 (79.9)	**0.000**
Healthcare centers should be smoke-free	1919 (99.5)	789 (99.6)	720 (99.7)	410 (99.3)	0.515	2013 (99.1)	1703 (99.6)	310 (98.7)	0.076
Anti-smoking legislation helps smokers to consider quitting	1445 (72.7)	637 (80.4)	558 (77.3)	250 (60.5)	**0.000**	1520 (81.7)	1331 (77.8)	189 (85.7)	**0.000**
Closed public spaces should be smoke free	1898 (98.8)	778 (99.5)	717 (99.3)	403 (97.6)	**0.004**	2000 (97.6)	1699 (99.4)	301 (95.9)	**0.000**
Electronic cigarettes should be banned in closed public spaces	1578 (80.6)	666 (84.1)	608 (84.2)	304 (73.6)	**0.000**	1659 (80.1)	1468 (99.4)	191 (60.8)	**0.000**

*All Physician: Physicians and Pediatricians. **All Nurse: Nurses and Midwives.

DISCUSSION

We presented the results of a national survey carried out in 2017 with a total of 2040 PHC personnel: 15.5% were smokers, with a greater prevalence among administrative staff (24.9%), and more nurses consumed tobacco (12.8%) than physicians (11.8%) or paediatricians (3.6%). The use of electronic cigarettes was very low (0.8%). Our findings show minor differences regarding opinion about tobacco and legislation in smoke-free areas between smoking and non-smoking personnel.

Comparison of consumption data in Spain

Research carried out prior to the first legislation of 2006 shows that healthcare personnel smoked far more than we found in our present study. In 1997, Gordo et al.[23] reported that 38.1% were smokers although data were only obtained from one region (Guadalajara). In 2002, Casas et al.[22] found 26.5% in Barcelona, however, the study included other medical specialists and differences in consumption were found among administrative staff (35.9%), nurses (31.2%), and physicians (15.8%). A follow-up study by Fernández Ruiz and Sanchez[21] from 1998 to 2001 of 1235 female medical personnel representing 31.65% (1998) and 39.1% (2001) of the personnel in their PHC, reported a smoking prevalence of 43.1% in 1998 and 43% in 2001. In both years, tobacco consumption was more frequent among the nurses (47.6% and 47%, respectively) than the physicians (34.7% and 37%, respectively), and among those employed in hospital care (46.6% and 46.7%, respectively) compared to PHC (35.3% and 37.3%, respectively). The 2005 study by Cerrada et al.[20] with healthcare personnel in Madrid observed a 21.6% prevalence of tobacco consumption.

Following the initial 2006 legislation, Tenas et al.[19], in 2008, reported that 28.7% of PHC personnel in the region of Murcia declared themselves smokers.

In 2015, Jiménez-Ruiz et al.[16] published consumption data from a sample of 612 healthcare personnel (155 PHC physicians). They reported a prevalence of 11.7% with differences between physicians (8.99%) and nurses (11.2%).

In conclusion, our findings show a reduction in the prevalence of smokers among PHC medical personnel. There was a 13% decrease compared to 2006 and even greater when compared with 1998.

Comparison with other countries

Studies by Ravara et al.[24,25] with 605 physicians (196 family doctors) in northern Mediterranean countries and Portugal observed that 20.4% of the smokers were family doctors. In Italy, Nobile et al.[26] reported that there were 13.4% smokers from a sample of 722 PHC physicians. Sonmez et al.[27], in Turkey, with a sample of 1182 physicians and 1063 nurses, found a smoking prevalence of 34.4% and 30.7%,

respectively. In Croatia, Juranic et al.[28] reported that 35.1% of healthcare personnel were habitual smokers whilst Azuri and Nashef[29], in Israel, with a sample of 302 physicians, observed a prevalence of 13.5%. Stamatopoulou et al.[30], in a study undertaken in 40 health centers in rural mainland and island Greece, reported that 32% of the nurse respondents were smokers. Data from a study carried out by Huddlestone et al.[31] in the UK with a sample of 171 PHC personnel revealed that 11% consumed tobacco.

A possible explanation for the differences found between these countries may be a different application of the laws, if we take as reference the Smoke Free Partnership and the data of The Tobacco Control Scale 2016 (Table 4). In conclusion, our data show a low level of consumption, compared to some of the studies in the Mediterranean area, which have been carried out in different years but all in primary healthcare and similar to the study in England.

Comparison with other healthcare personnel in Spain

In a four-year follow-up (2001, 2004, 2008, and 2011) carried out with hospital employees in Spain, Reyes et al.[18] observed an increase in smoking prevalence from 30.00% in 2001 to 36.21% in 2008 followed by a decrease to 29.42% in 2011. In the group of physicians, it decreased progressively from 25.97% in 2001 to 8.88% in 2011 (p=0.007) whilst in that of nurses it went from 35.15% in 2001 to 25.61% in 2011 (p=0.007). With respect to administrative staff, the highest figure for this group was 43.93% in 2008, decreasing to 35.71% in 2011. Perez-Rios et al.[9] also analyzed data before and after the 2010 legislation and found a non-significant reduction of 23.4% in 2006 and 20.7% in 2011. Our data partially coincide with the reduction found in other health professionals in Spain. A possible explanation can be that primary healthcare professionals attend to a higher number of patients with this problem and that several initiatives have been developed in primary healthcare to reduce tobacco consumption such as the 'smoke-free week' in primary care.

Comparison with other data from the general population

According to data from the 2017 Eurobarometer[34], 24% of the population in the European Union (EU) consider themselves daily smokers. A figure that rises in some southern European countries (36% in Bulgaria, 35% in Greece, and 33% in Croatia) and France (33%). In contrast, most of the countries in northern Europe,

*Table 4. Ranking according to The Tobacco Control Scale (TTS) 2016 * in Europe and MPOWER framework in a selection of WHO Europe Region countries***

Author and Country	Ranking TTS *	Punctuation TTS *	Smoke-free legislation **	Number of articles fully implemented**	Price and tax measures**	Tobacco dependency and cessation**	Tobacco use in Primary Care	
							Doctors	Nurses
Huddlestone et al.[31] UK (2015)	1	81	Yes	4	Yes	Partly	11%	-
Spain[30] (2018)	8	55	Yes	7	No	Partly	11.8%	12.8%
Sonmez et al.[27] Turkey (2015)	9	53	Partly	2	Yes	Partly	34.4%	30.7%
Nobile et al.[26] Italy (2012)	13	51	Yes	2	Partly	Partly	13.4%	-
Ravara et al.[25] Portugal (2009)	15	50	Yes	4	Partly	Yes	20.4%	-
Juranic et al.[28] Croatia (2017)	23	45	Yes	9	Yes	Yes	35.1%	-
Stamatopoulou et al.[30] Greece (2014)	31	40	Yes	1	No	No	-	22%

* Glahn et al.[32] (2018), ** Joossens & Raw[33] (2017).

particularly Sweden (5%) but also the UK, Holland and Denmark (all 16%), Belgium (17%), and Finland (28%) report a lower prevalence. Whilst at 26% Spain is little higher than the EU mean[29], our findings show that PHC personnel (15.5%) are more than 10% below the European value. Moreover, if we take into consideration prevalence for physicians (11.8%) and nurses (12.8%), the difference is even more marked.

According to the same 2017 survey, electronic cigarette use stands at 2% throughout the EU[31] and 1% in Spain. We found a slightly lower value of 0.8%.

Comments with respect to opinions about tobacco and anti-smoking legislation

In 1997, Alonso et al.[23] reported that 91.3% of non-smoking healthcare personnel, compared to 48.2% of the smokers, were in favor of a normative that would prohibit smoking in the PHC. In 2002, Casas et al.[22] found that 68.1% of the healthcare personnel considered that the non-smoking signs in the centers were inadequate, 72.8% did not respect the legislation, 77.2% thought there should be reserved areas for smokers, and 61.2% objected to other people smoking in the center. Fernández Ruiz and Sanchez[21] observed similar opinions regarding legislation. Such findings contrast with those of our study, where 99.6% thought there should be smoke-free areas and 92.2% agreed with the normative, although there were some differences between non-smokers (94.2%) and smokers (79.9%). We are thus led to conclude that the 2010 legislation has had a very positive effect on the opinions and behavior of PHC healthcare personnel towards tobacco consumption and associated legislation. It has had an influence on their acceptance of the normative and resulted in a decrease in tobacco consumption.

Limitations and strengths

Our study has some limitations. Due to the possible self-selection of the participants and the questionnaire that was based on self-reporting, bias may be implied. There could have been an underestimation of the real rate of smoking prevalence and misrepresentation of attitudes towards smoking and legislation. We are aware that such questionnaires are open to respondees' prejudices, particularly regarding a theme such as smoking behavior.

Participation was voluntary and some smokers may have avoided answering the questionnaire or changed their response. Whilst our results are not completely representative of Spanish healthcare personnel, they do reflect those who habitually work in PHC[35]. Moreover, our sample is the largest to date and has included the whole of Spain. Some sociodemographic data that could have been of interest, such as marital status and socioeconomic level, have, however, not been included.

CONCLUSIONS

For several years now, the prevalence of smokers among PHC medical personnel in Spain has been steadily decreasing possibly due to, among other reasons, legislative initiatives. Opinions and attitudes regarding smoking and smoke-free regulated areas have improved among PHC personnel. There have been no major changes in primary healthcare since 2005. In Spain, activities have been carried out, such as the 'smoke-free week', in which only primary care professionals participate, with activities that encourage the population to stop smoking. There have been no changes in the financing of treatments to stop smoking, or in the attention to the smoker by the health system. At the public level, the laws of 2005 and 2010 have been widely discussed in the daily press and possibly this has influenced the behavior of health professionals in general, especially those in primary healthcare.

In Spain, the National Committee for the Prevention of Smoking (CNPT) has proposed several actions to promote the denormalization of tobacco such as: implementation of generic packaging, an increase in advertising campaigns to prevent consumption, price equalization of different tobacco products, equivalent legislation for electronic cigarettes, consideration of new smoke-free areas, especially in places where minors can be exposed (home, private vehicle), and the expansion of help for cessation of consumption (financing of pharmacological treatment in certain groups and promoting the training of health professionals in effective interventions to stop smoking). Implementing these measures is expected to give better results.

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ACKNOWLEDGEMENTS
We thank all our colleagues from the Spanish Primary Healthcare Centers for their collaboration in our study.

CONFLICTS OF INTEREST
The authors have completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest and none was reported.

FUNDING
There was no source of funding for this research.

PROVENANCE AND PEER REVIEW
Not commissioned; externally peer reviewed.