Nicotine & Tobacco Research, 2016, 1–7
doi:10.1093/ntr/ntw162
Original investigation

Original investigation

General Practitioners and Dentists: A Call for Action Against Tobacco

Silvano Gallus ScD[1], Alessandra Lugo PhD[1], Silvio Garattini MD[1], Roberta Pacifici ScD[2], Luisa Mastrobattista ScD[2], Giuseppe Marzo MD[3], Luigi Paglia MD[4,5]

[1]Department of Epidemiology, IRCCS—Istituto di Ricerche Farmacologiche Mario Negri, Milan, Italy; [2]Department of Therapeutic Research and Medicines Evaluation, Istituto Superiore di Sanità, Rome, Italy; [3]Department of Life, Health and Environmental Sciences, University of L'Aquila, L'Aquila, Italy; [4]Department of Maternal and Child Dentistry, Istituto Stomatologico Italiano, Milan, Italy; [5]Fondazione dell'Istituto Stomatologico Italiano (ISI), Milan, Italy

Corresponding Author: Silvano Gallus, ScD, Department of Epidemiology, IRCCS—Istituto di Ricerche Farmacologiche Mario Negri, Via G. La Masa, 19, 20159 Milan, Italy. Telephone: 39-0239014657; Fax: 39-0233200231; E-mail: silvano.gallus@marionegri.it

Abstract

Introduction: To investigate the frequency of advice to quit smoking received by the Italian population from general practitioners (GP) and dentists, we analyzed a cross-sectional study.
Methods: A face-to-face survey was conducted in 2014 on 3052 individuals, representative of the general Italian population aged 15 years or more.
Results: During the previous year, 89% of individuals (82% of smokers) reported that they had visited a GP while 71% (67% of smokers) had visited a dentist. Among smokers, 25% reported that they had received advice to quit smoking from their GP, and 26% from their dentist. Advice by GPs was less frequently received by smokers with higher education (multivariate odds ratios (*OR*) were 0.48 for intermediate and 0.38 for high as compared to low education), and more frequently by heavy smokers (≥15 cigarettes/day; *OR* = 1.78), those with intention to quit (*OR* = 2.59), with previous quit attempts (*OR* = 2.09), and those aware of the existence of smoking cessation services (*OR* = 1.59). Advice by dentists was more frequently received by smokers aged 25–44 years (*OR* = 3.55 compared to those aged 15–24) and those with an intention to quit (*OR* = 2.46). Among Italian current smokers, 32% reported that their GP and 17% that their dentist was a current smoker. The corresponding figures among young smokers were 40% and 26%, respectively.
Conclusion: Healthcare providers have the potential to become a key reference point in the fight against smoking. However, before acting, GPs and dentists should set a good example: those who smoke should urgently quit or at least refrain from smoking during working hours.
Implications: GPs and dentists, reaching the large majority of Italian smokers, can make a major contribution in the fight against tobacco. Future studies are needed to investigate possible reasons of the apparently high smoking prevalence among GPs, in order to develop tailored smoking cessation interventions for healthcare providers.

Introduction

In high-income countries, tobacco smoking remains the leading risk factor for mortality and morbidity.[1] Despite the increasing knowledge on the issue, the public opinion remains poorly informed about the health risks of smoking.[2] Thus, smokers should be further informed on the harmful effects of tobacco use and helped to quit. Who can do that? Nowadays, those who have the potential (and the moral duty) to do something concrete to counter the tobacco epidemic are healthcare providers. These professionals are in fact informed—or have the capability to easily gather unbiased and updated information from the scientific literature—on the harmful effects of smoking on health and the benefits of smoking cessation. Moreover, healthcare providers are generally well respected as a source of reliable health-related information.[3–5] Among healthcare professionals, general practitioners (GP) and dentists, who are well placed to reach a large number of smokers, are the ideal candidates to become tobacco control advocates. In fact, in both GP and dental offices smoking patients can be easily identified and smoking-related early symptoms or unfavorable health effects are easily detectable.[6,7] Showing patients the tangible consequences of their unhealthy lifestyle habits can be an effective stimulus to quit. For all the aforementioned reasons, there is today evidence that smoking cessation interventions provided by adequately trained healthcare providers are extremely worthwhile: also a brief advice significantly increases the patient's success in smoking cessation, and the rate of success is directly related to the length in time spent by the healthcare provider.[8–11] Consequently, several national health services or public health organizations worldwide, including the US Public Health Service, recommend all healthcare providers to promote tobacco cessation to all patients who smoke.[12–14]

To investigate the frequency of advice to quit smoking received by the Italian population from GPs and dentists, we analyzed a representative survey conducted in Italy.

Methods

Data were collected through a face-to-face survey conducted in 2014 by DOXA, the Italian branch of the Worldwide Independent Network/Gallup International Association (WIN/GIA). The overall sample consisted of 3052 individuals aged 15 years or more (1464 men and 1588 women), representative of the general Italian population, in terms of sex, age, geographic area and socioeconomic characteristics.[15]

Participants were selected through a representative multistage sampling. The first stage was used to select municipalities in all the 20 Italian regions. Thus, taking as criteria two characteristics, region and size, we identified 116 municipalities representative of the Italian municipalities. In the second stage, in each municipality an adequate number of electoral wards was randomly extracted, so that the various types of more or less affluent areas of the municipality were represented in the right proportions. In the third stage, individuals were randomly selected from electoral lists, within strata of sex and age group. Adolescents aged 15–17 years, whose names were not included in the electoral lists, were chosen by means of a "quota" method (by sex and exact age). Field substitution was used as the preferred strategy to deal with nonrespondence. Unavailable participants were replaced by their neighbors with the same sex and age group. In the phase of data processing, statistical weights were also generated to assure representativeness of the Italian population aged 15 years or over.

Ad hoc trained interviewers conducted interviews using a structured questionnaire in the context of a computer-assisted personal in-house interview (CAPI). Besides general information on sociodemographic characteristics, data were collected on smoking status. Ever smokers (current and ex-smokers) were participants who had smoked 100 or more cigarettes in their lifetime. Ex-smokers were participants who had quit smoking since at least 1 year, and current smokers were individuals continuing to smoke or having stopped for less than 1 year. Ex-smokers were asked to provide the single main way used to stop smoking among selected pre-determined items, including the item "following the recommendation or advice by the general practitioner/physician." Current smokers were asked about: (1) smoking intensity (ie, number of cigarettes per day); (2) intention to quit smoking within the next 6 months; (3) previous attempts to quit; (4) awareness of the existence of Smoking Cessation Services (SCS).

One section of the questionnaire referred to the healthcare providers of the survey participants. One question was formulated as follows: "Do you know whether your GP is a current smoker?" Possible choices were: (1) Yes; (2) No (I met my GP over the last 12 months and s/he is a nonsmoker); (3) I don't know (I met my GP but I don't know his/her current smoking status); (4) I don't know (I did not see my GP during the last 12 months). On the basis of this question, we assumed that those being visited by their GP were those reporting one of the first three answers. A second question was formulated as follows: "Did your GP spontaneously advise you to quit smoking over the last 12 months?" The same two questions were also formulated referring to dentists instead of GPs.

Statistical Analysis

Odds ratios (*OR*), and the corresponding 95% confidence intervals (CI), for visit by an healthcare provider over the last year and for reception of advice to quit smoking (in current smokers only) were computed using unconditional multiple logistic regression models including terms for sex, age, level of education, and smoking status (when appropriate). All the analyses were performed with SAS version 9.2 statistical package (SAS Institute).

Results

Out of 3052 Italian individuals aged 15 years or more, 2002 (65.6%) were never, 662 (21.7%) current and 388 (12.7%) ex-smokers. Among current smokers, mean number of cigarettes per day was 13.2 (*SD*: 6.7), 45.7% smoked 15 or more cigarettes per day, 11.0% had an intention to quit within the next 6 months, 28.2% previously attempted to quit, and 63.6% were not aware of the existence of SCSs (data not shown in Tables). Among ex-smokers, 86.6% reported having quit without any support/advice, 9.7% through recommendation or advice from their GP, and 3.7% attending an SCS or using a psychological/pharmacological support. Recent quitters more frequently reported that they stopped smoking with the help of their GP, the proportion being 13.5% for those having quit less than 8 years ago, 11.7% for those having quit 8–17, and 4.8% for those having quit at least 18 years ago (p for trend = .019; data not shown in Tables).

Table 1 shows the distribution of Italians who visited their GP or dentist over the latest 12 months, according to selected characteristics. The proportion of Italians who visited a GP was 89.0% and increased with increasing age (*OR*s were 1.41 for 25–44, 2.18 for 45–64 and 3.07 for ≥65 years compared to 15–24 years; p for trend < .001). Women (*OR* = 1.73; 95% CI: 1.36–2.20) more frequently visited their GP than men, whereas no relation was observed with

Table 1. Distribution of 3052 Italians Aged 15 Years or More According to Whether They Visited a Healthcare Provider (ie, General Practitioners [GP] and Dentists) During the Last 12 Months, and Corresponding Odds Ratios[a] (*OR*) and 95% Confidence Intervals (CI) by Selected Individual-Level Characteristics—Italy, 2014

		Individuals who visited a GP		Individuals who visited a dentist	
	N	%	*OR* (95% CI)	%	*OR* (95% CI)
Total	3052	89.0	—	70.9	—
Sex					
Men	1464	86.0	1[b]	69.8	1[b]
Women	1588	91.7	**1.73 (1.36–2.20)**	71.9	1.08 (0.92–1.27)
Age group (y)					
15–24	341	81.5	1[b]	72.5	1[b]
25–44	987	85.9	**1.41 (1.01–1.97)**	73.7	1.13 (0.85–1.50)
45–64	982	90.8	**2.18 (1.52–3.13)**	72.7	1.24 (0.93–1.65)
≥65	742	94.1	**3.07 (1.97–4.78)**	64.1	0.99 (0.73–1.34)
p for trend			**<.001**		.858
Level of education					
Low	1203	90.5	1[b]	62.5	1[b]
Intermediate	1363	87.4	1.06 (0.80–1.39)	75.6	**1.81 (1.50–2.18)**
High	486	89.6	1.22 (0.84–1.77)	78.6	**2.06 (1.59–2.68)**
p for trend			.313		**<.001**
Smoking status					
Never smokers	2002	90.2	1[b]	73.7	1[b]
Ex-smokers	388	94.3	**1.69 (1.06–2.69)**	63.3	**0.66 (0.52–0.84)**
Current smokers	662	82.2	**0.56 (0.44–0.73)**	66.9	**0.69 (0.57–0.84)**

[a]*OR*s were estimated using unconditional multiple logistic regression models after adjustment for sex, age, level of education, and smoking status. Estimates in bold are those statistically significant at the .05 level.
[b]Reference category.

level of education. Compared with never smokers, ex-smokers more frequently (*OR* = 1.69; 95% CI: 1.06–2.69) and current smokers less frequently (*OR* = 0.56; 95% CI: 0.44–0.73) visited their GP. The proportion of Italian adults who visited a dentist was 70.9% and increased with increasing level of education (compared to low, *OR*s were 1.81 for intermediate and 2.06 for high education; *p* for trend < .001), whereas no relation was observed with age and sex. Compared to never smokers, both ex-smokers (*OR* = 0.66; 95% CI: 0.52–0.84) and current smokers (*OR* = 0.69; 95% CI: 0.57–0.84) less frequently visited their dentist.

Among current smokers, 25.3% reported that they have been advised to quit smoking by their GP (Table 2). Smokers receiving advice from their GP less frequently had a high level of education (compared to low, *OR*s were 0.48 for intermediate and 0.38 for high education; *p* for trend = .001), They more frequently were heavy smokers (ie, smoking ≥15 cigarettes/day; *OR* = 1.78; 95% CI: 1.14–2.78), with an intention to quit (*OR* = 2.59; 95% CI: 1.40–4.77), with previous attempts to quit (*OR* = 2.09; 95% CI: 1.32–3.29), and aware of the existence of SCSs (*OR* = 1.59; 95% CI: 1.02–2.49). Overall, 25.5% of current smokers visited by their dentist over the latest 12 months reported to be advised to quit smoking by their dentist. Smokers aged 25–44 years (compared with smokers aged 15–24, *OR* = 3.55; 95% CI: 1.28–9.89) and smokers with an intention to quit (*OR* = 2.46; 95% CI: 1.16–5.23) were more likely to be advised by their dentist to quit smoking. No significant relationship with advice from a dentist was found with reference to sex, education, smoking intensity, previous quit attempts, and knowledge of SCSs.

Among Italian current smokers who were aware of the smoking status of their healthcare providers, 31.6% (95% CI: 26.9%–36.4%) reported that their GP, and 17.2% (95% CI: 12.6%–21.8%) that their dentist was a current smoker (Table 3). The corresponding proportions among the young (ie, aged 15–24) were 40.0% (95% CI: 22.4%–57.5%) and 26.2% (95% CI: 9.5%–42.9%) for GPs and dentists, respectively. However, overall, no significant differences in the perception of smoking status of healthcare providers was observed according to sex, age, and education.

Discussion

GPs and dentists come into contact with the large majority of Italian smokers, yet too few healthcare providers advise smoking patients to quit, and still too many Italian GPs and dentists smoke. These are the main findings from our representative survey conducted among Italian adults.

Around 90% of Italian adults visit their GP each year, and 70% visit their dentist. In agreement with previous studies,[16,17] current smokers, despite being at higher risk of morbidity for respiratory or cardiovascular conditions and oral diseases,[17–21] have a lower propensity to seek (oral) health care. This phenomenon was independent of selected demographic or socioeconomic characteristics.[16] Nevertheless, more than 80% of current smokers visited a GP and more than two-thirds of smokers visited a dentist in the past 12 months. These estimates are relatively high; for example in the United States around 70% of smokers reported an annual visit to a physician[22] and less than 60% visited a dentist.[23,24]

Compared to ex-smokers who had quit several years previously, recent quitters more frequently reported having stopped smoking with the help of their GP. This suggests a growing role of physicians in smoking cessation in Italy. However, physician-delivered advice to quit during a patient–provider visit only slightly increased over the last decade. In fact, in a similar survey conducted in Italy in 2004–2006, the percentage of Italian smokers who received advice to quit from their GP was 22%,[25] which is not substantially different from the current 25%. In agreement with this previously conducted

Table 2. Distribution of Current Smokers Who Visited a Healthcare Providers (ie, General Practitioners [GP] and Dentists) During the Last 12 Months, According to Whether They Were Advised to Quit Smoking, and Corresponding Odds Ratios[a] (*OR*) and 95% Confidence Intervals (CI) by Selected Individual-Level Characteristics—Italy, 2014

	Smokers who visited a GP			Smokers who visited a dentist		
		Smokers advised by GPs			Smokers advised by dentists	
	N[b]	%	*OR* (95% CI)	N[b]	%	*OR* (95% CI)
Total	458	25.3	—	380	25.5	—
Sex						
Men	235	24.9	1[d]	188	27.2	1[d]
Women	223	25.7	1.02 (0.66–1.57)	192	23.8	0.81 (0.50–1.29)
Age group (y)						
15–24	38	23.6	1[d]	41	11.3	1[d]
25–44	190	23.6	0.89 (0.39–2.04)	164	31.4	**3.55 (1.28–9.89)**
45–64	172	26.5	0.96 (0.41–2.24)	131	25.2	2.60 (0.91–7.44)
≥65	58	28.5	0.84 (0.32–2.25)	44	17.7	1.49 (0.42–5.25)
p for trend			.909			.691
Level of education						
Low	170	34.6	1[d]	116	28.4	1[d]
Intermediate	226	20.6	**0.48 (0.30–0.77)**	205	24.1	0.75 (0.44–1.28)
High	63	16.9	**0.38 (0.18–0.80)**	59	24.7	0.77 (0.37–1.60)
p for trend			**.001**			.381
Smoking intensity[c]						
<15 cigs/day	249	20.1	1[d]	215	23.5	1[d]
≥15 cigs/day	208	31.5	**1.78 (1.14–2.78)**	163	27.8	1.18 (0.73–1.92)
Current smokers only						
Intention to quit[c]						
No	340	23.7	1[d]	289	23.4	1[d]
Yes	53	47.1	**2.59 (1.40–4.77)**	38	42.2	**2.46 (1.16–5.23)**
Previous attempts to quit						
No	311	20.7	1[d]	278	24.7	1[d]
Yes	147	35.1	**2.09 (1.32–3.29)**	102	27.6	1.06 (0.63–1.80)
Awareness of smoking cessation services						
No	278	22.3	1[d]	241	24.1	1[d]
Yes	180	29.8	**1.59 (1.02–2.49)**	139	27.9	1.22 (0.75–2.00)

[a]*OR*s were estimated using unconditional multiple logistic regression models after adjustment for sex, age, and level of education. Estimates in bold are those statistically significant at the .05 level.

[b]Number of smokers visited by the corresponding healthcare provider during the last 12 months.

[c]The sum does not add up to the total number of current smokers because of some missing values.

[d]Reference category.

companion survey, smokers with a higher level of education, lighter smokers and those without previous quit attempts were less likely to receive advice to quit.[25] Clearly, advising patients to quit smoking is still not a common practice among GPs in Italy compared with several other high-income countries, including the United States[14,26–29] and the United Kingdom,[30] where each year over 50% of smokers receive physician-delivered advice to quit. One out of four Italian smokers reported that they had received advice to quit smoking from their dentist. This proportion is comparable or even greater than that recently observed in the United States, which ranges between 10% and 30%.[14,26] However, our finding contrasts with that from a survey conducted in 2014 on 883 Italian dentists where 98% reported that they had informed their patients about the harmful effects of tobacco smoking on the oral cavity and 93% reported that during the past 12 months they had recommended (at least once) to their patients to quit smoking.[31]

In a companion survey using the same set of questions of our study, we found that 29.7% of Italian smokers in 2004–2006 believed that their GP was a current smoker.[25] Surprisingly, in 2014 this disappointing estimate further increased to 32% in the general adult smoking population and 40% among young smokers. If 32% represents a reasonably accurate estimate of the smoking prevalence among Italian GPs (or an underestimate of it), the smoking prevalence of GPs is far higher than that of the general Italian adult population (ie, 21.7%). Smoking prevalence among GPs would also be higher than that of the economically active Italian population of men; in fact, the smoking prevalence of those aged 25–64 years is 26.7% overall (29.2% in men and 24.3% in women). The striking finding of the smoking prevalence among GPs is consistent with available literature, showing a smoking prevalence among Italian medical doctors ranging between 24% and 39% over the last 3 decades.[32] Accordingly, the most recent studies on the issue were two hospital-based cross-sectional surveys which showed smoking prevalence estimates among Italian medical doctors of 34%,[33] and 42%,[34] respectively. For other hospital healthcare professionals the figures remained extremely unfavorable: smoking prevalence ranged between 36% and 50% among nurses, and between 40% and 50% among technicians, service staff and auxiliary employees.[33–35] Overall, 17% of Italian smokers perceived that their dentist was a current smoker. This estimate is in broad agreement with findings

Table 3. Distribution of Current Smokers Who Visited Healthcare Providers (ie, General Practitioners [GP] and Dentists) During the Last 12 Months, According to the Perceived Smoking Status of the Healthcare Provider—Italy, 2014

	% of smokers (95% confidence interval) who perceived their healthcare provider is a smoker			
	N[a]	GP	*N*[b]	Dentists
Total current smokers	363	31.6 (26.9–36.4)	256	17.2 (12.6–21.8)
Sex				
Men	191	35.0 (28.2–41.7)	125	12.3 (6.5–18.1)
Women	172	28.0 (21.3–34.6)	131	21.8 (14.7–28.9)
p-value[c]		.159		.053
Age group (y)				
15–24	30	40.0 (22.4–57.5)	27	26.2 (9.5–42.9)
25–44	133	32.4 (24.4–40.4)	106	13.3 (6.8–19.7)
45–64	143	32.9 (25.2–40.6)	85	21.0 (12.3–29.6)
≥65	57	22.4 (11.6–33.2)	38	13.3 (2.5–24.1)
p for trend[c]		.093		.667
Level of education				
Low	149	33.4 (25.8–40.9)	93	18.9 (11.0–26.9)
Intermediate	166	32.0 (24.9–39.1)	126	19.7 (12.7–26.6)
High	48	25.1 (12.9–37.4)	37	4.3 (0.0–10.8)
p for trend[c]		.171		.067

[a]Among current smokers reporting that they visited a GP in the last 12 months (n = 544), 33.2% did not know the smoking status of the GP (n = 181), and were therefore excluded from the analysis.

[b]Among current smokers reporting that they visited a dentist in the last 12 months (n = 443), 42.2% did not know the smoking status of the dentist (n = 187), and were therefore excluded from the analysis.

[c]Multivariate *p*-values adjusted for sex, age, and level of education.

from a cross-sectional study conducted in 2014 on Italian dentists, showing a smoking prevalence of 16.5%.[31] In Italy, the prevalence of smoking among dentists has been steadily declining from more than 30% observed two decades ago,[36] to 28% in 2000,[37] down to less than 20% in 2014. Our data leave little doubt that a very large proportion of Italian dentists and particularly GPs are still smokers. Our findings are in stark contrast with those from other high-income countries, including northern Europe, with recent estimates generally around or below 10%, and the United States, New Zealand, and Australia, with estimates around or below 5% for both medical doctors and dentists.[32,37–47]

It is particularly important that healthcare providers in Italy act as smoking cessation advocates. One important reason for this is that the country has a relatively limited adoption of national tobacco control policies, at least over the last decade.[48] Moreover, Italy is now in the final stage of the tobacco epidemic model proposed by Lopez and colleagues in 1994, characterized by a declining trend in smoking prevalence not only for men but also for women.[15,49] For countries reaching this stage, tobacco control measures should target smoking cessation among adults.[49] The health benefits of smoking cessation are huge: a smoker quitting at age 30 virtually averts all the excess risk of death caused by smoking; quitting at age 50 halves the risk and also stopping at age 60 and even 70 leads to significant benefits.[50] Approximately the same relative reductions in risk were observed on cumulative incidence from cancer of the oral cavity and pharynx.[51] Accordingly, the rate of periodontal disease progression increases in smokers, but decreases to that of a nonsmoker following tobacco cessation.[52] Therefore, both GPs and dentists who help their patients to quit would substantially contribute to improve the general and oral health of their patients.

GPs and dentists need to understand how they could best contribute to smoking cessation, according to the level of commitment in tobacco control they want to administer. It needs to be stressed that even a minimal contribution may have important favorable consequences.[8–10] Among possible contributions, GPs and dentists may distribute informative brochures/leaflets, or provide details on the closest SCS, whose help has been proved to substantially increase the success of smoking cessation.[53] In Italy almost 400 SCSs are spread across the country, but almost two-thirds of smokers are unaware of the existence of such centers. The contribution of healthcare providers may also involve the supply of interactive monitors in waiting rooms showing informative and personalized videos for healthcare prevention. This tool may be used not only for smoking cessation purposes, but it may also include informative videos on the harm of secondhand smoke, an issue which is more and more frequently discussed by pediatricians and pediatric dentists.[54,55] Finally, healthcare providers may also offer partial to complete interventions for smoking cessation. To be effective, these interventions should follow international guidelines,[56] which are generally based on 5A's for smokers with high readiness to quit (*Ask* about tobacco use at every visit; *Advise* to quit; *Assess* willingness for a quit attempt; *Assist* quitters through psychological and/or pharmacological support; *Arrange* a follow-up contact).[8,12–14,25]

Whenever GPs and dentists decide to offer interventions for smoking cessation to their patients, it is crucial that they receive an appropriate training. Unfortunately, several studies highlighted a lack of preparation for delivering effective interventions for smoking cessation in their patients, both in Italy[57] and elsewhere.[58] Moreover, only 1 hour of training to GPs has been shown to significantly increase their involvement in the delivery of smoking cessation advice.[11,59]

Limitations of the present survey include those inherent to the cross-sectional study design. Moreover, the self-reported assessment of data may be affected by misreporting, information and recall biases. Additionally, the relatively small sample size did not allow us to obtain stable estimates in selected subgroups of smokers,

including the young. Finally, questions on healthcare providers were not validated. However, the same questions were already used in a previous nationally representative survey,[25] thus reassuring comparability in time. The strengths of this study also include the face-to-face survey design, and the representativeness of the sample of the general adult Italian population.

In conclusion, the high proportion of Italian smokers visited by GPs and dentists suggests that these healthcare providers can make a major contribution to the fight against tobacco. GPs and dentists should do more, given that currently only one out of four of them systematically advise their patients to quit. Future studies are needed to further confirm our findings on the apparently high smoking prevalence among GPs, and to investigate possible reasons of this unfavorable habit in order to develop tailored smoking cessation interventions for healthcare professionals.

Funding

The survey was conducted with the contribution of the Italian Ministry of Health. The work of SG and AL is partially supported by the Italian League Against Cancer (Milan).

Declaration of Interests

None declared.

Acknowledgments

We thank Dr Cristina Bosetti and Dr Norman J Temple for their editorial assistance.

References

1. Lim SS, Vos T, Flaxman AD, et al. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet*. 2012;380(9859):2224–2260.
2. Cummings KM, Morley CP, Hyland A. Failed promises of the cigarette industry and its effect on consumer misperceptions about the health risks of smoking. *Tob Control*. 2002;11(suppl 1):I110–I117.
3. Grol R, Wensing M, Mainz J, et al. Patients in Europe evaluate general practice care: an international comparison. *Br J Gen Pract*. 2000;50(460):882–887.
4. Ford P, Tran P, Cockburn N, Keen B, Kavanagh DJ, Gartner C. Survey of dental clinic patients: smoking and preferences for cessation support. *Aust Dent J*. 2016;61(2):219–226.
5. Hum AM, Robinson LA, Jackson AA, Ali KS. Physician communication regarding smoking and adolescent tobacco use. *Pediatrics*. 2011;127(6):e1368–e1374.
6. Succar CT, Hardigan PC, Fleisher JM, Godel JH. Survey of tobacco control among Florida dentists. *J Community Health*. 2011;36(2):211–218.
7. Terrades M, Coulter WA, Clarke H, Mullally BH, Stevenson M. Patients' knowledge and views about the effects of smoking on their mouths and the involvement of their dentists in smoking cessation activities. *Br Dent J*. 2009;207(11):E22; discussion 542–E22; discussion 543.
8. Raw M, McNeill A, West R. Smoking cessation guidelines for health professionals. A guide to effective smoking cessation interventions for the health care system. Health Education Authority. *Thorax*. 1998;53(suppl 5)(pt 1):S1–19.
9. Watt RG, Daly B, Kay EJ. Prevention. Part 1: smoking cessation advice within the general dental practice. *Br Dent J*. 2003;194(12):665–668.
10. Stead LF, Buitrago D, Preciado N, Sanchez G, Hartmann-Boyce J, Lancaster T. Physician advice for smoking cessation. *Cochrane Database Syst Rev*. 2013;5:CD000165.
11. Caplan L, Stout C, Blumenthal DS. Training physicians to do office-based smoking cessation increases adherence to PHS guidelines. *J Community Health*. 2011;36(2):238–243.
12. West R, McNeill A, Raw M. Smoking cessation guidelines for health professionals: an update. Health Education Authority. *Thorax*. 2000;55(12):987–999.
13. Fiore MC, Jaén CR, Baker TB, et al. *Treating Tobacco Use and Dependence: 2008 Update. Clinical Practice Guideline*. Rockville, MD: Department of Health and Human Services. Public Health Service; 2008.
14. Danesh D, Paskett ED, Ferketich AK. Disparities in receipt of advice to quit smoking from health care providers: 2010 National Health Interview Survey. *Prev Chronic Dis*. 2014;11:E131.
15. Lugo A, Asciutto R, Pacifici R, Colombo P, La Vecchia C, Gallus S. Smoking in Italy 2013–2014, with a focus on the young. *Tumori*. 2015;101(5):529–534.
16. Jorm LR, Shepherd LC, Rogers KD, Blyth FM. Smoking and use of primary care services: findings from a population-based cohort study linked with administrative claims data. *BMC Health Serv Res*. 2012;12:263.
17. Azagba S, Sharaf MF, Xiao Liu C. Disparities in health care utilization by smoking status in Canada. *Int J Public Health*. 2013;58(6):913–925.
18. Rostron BL, Chang CM, Pechacek TF. Estimation of cigarette smoking-attributable morbidity in the United States. *JAMA Intern Med*. 2014;174(12):1922–1928.
19. Albandar JM, Streckfus CF, Adesanya MR, Winn DM. Cigar, pipe, and cigarette smoking as risk factors for periodontal disease and tooth loss. *J Periodontol*. 2000;71(12):1874–1881.
20. Chrcanovic BR, Albrektsson T, Wennerberg A. Smoking and dental implants: a systematic review and meta-analysis. *J Dent*. 2015;43(5):487–498.
21. Duane B. Further evidence that periodontal bone loss increases with smoking and age. *Evid Based Dent*. 2014;15(3):72–73.
22. Jamal A, Dube SR, Malarcher AM, et al. Tobacco use screening and counseling during physician office visits among adults--National Ambulatory Medical Care Survey and National Health Interview Survey, United States, 2005–2009. *MMWR Morb Mortal Wkly Rep*. 2012;61(suppl):38–45.
23. Stapleton S, Finlayson TL, Ohmit A, Hunte HE. Correlates of past year dental health visits: findings from the Indiana black men's health study. *J Public Health Dent*. 2016;76(2):157–165.
24. Akinkugbe A, Lucas-Perry E. Trends in dental visits among the US Non-Institutionalized Civilian Population: findings from BRFSS 1995 - 2008. *J Theory Pract Dent Public Health*. 2013;1(2):32–36.
25. Ferketich AK, Gallus S, Colombo P, et al. Physician-delivered advice to quit smoking among Italian smokers. *Am J Prev Med*. 2008;35(1):60–63.
26. Agaku IT, Ayo-Yusuf OA, Vardavas CI. A comparison of cessation counseling received by current smokers at US dentist and physician offices during 2010-2011. *Am J Public Health*. 2014;104(8):e67–e75.
27. Shadel WG, Elliott MN, Haas AC, et al. Clinician advice to quit smoking among seniors. *Prev Med*. 2015;70:83–89.
28. Kruger J, Shaw L, Kahende J, Frank E. Health care providers' advice to quit smoking, National Health Interview Survey, 2000, 2005, and 2010. *Prev Chronic Dis*. 2012;9:E130.
29. Lee DJ, Fleming LE, McCollister KE, et al. Healthcare provider smoking cessation advice among US worker groups. *Tob Control*. 2007;16(5):325–328.
30. Kotz D, Willemsen MC, Brown J, West R. Light smokers are less likely to receive advice to quit from their GP than moderate-to-heavy smokers: a comparison of national survey data from the Netherlands and England. *Eur J Gen Pract*. 2013;19(2):99–105.
31. Paglia G, Gallus S, Crippa R, Mancini GE, Zuccaro P, Paglia L. Fumo e stili di vita in Odontoiatria: un'indagine sui dentisti italiani. *Il Dentista Moderno*. 2014;9:126–142.
32. Smith DR, Leggat PA. *Smoking Among Healthcare Professionals*. Sydney, Australia: Darlington Press, University of Sydney; 2011.
33. Ficarra MG, Gualano MR, Capizzi S, et al. Tobacco use prevalence, knowledge and attitudes among Italian hospital healthcare professionals. *Eur J Public Health*. 2011;21(1):29–34.
34. Giorgi E, Marani A, Salvati O, et al. Towards a smoke-free hospital: how the smoking status of health professionals influences their knowledge,

attitude and clinical activity. Results from a hospital in central Italy. *Ann Ig*. 2015;27(2):447–459.
35. Masia MD, Solinas G, Piana A, Dettori M, Sotgiu G, Castiglia P. [Smoking habit and behaviour among health professionals]. *Ann Ig*. 2006;18(3):261–269.
36. Lodi G, Bez C, Rimondini L, Zuppiroli A, Sardella A, Carrassi A. Attitude towards smoking and oral cancer prevention among northern Italian dentists. *Oral Oncol*. 1997;33(2):100–104.
37. Allard RH. Tobacco and oral health: attitudes and opinions of European dentists; a report of the EU working group on tobacco and oral health. *Int Dent J*. 2000;50(2):99–102.
38. Bergstrom J, Petrén V, Bark J, Preber H. Smoking habits among Swedish dental hygienists: a 15-year perspective (1987-2002). *Int J Dent Hyg*. 2009;7(1):49–54.
39. Underwood B, Fox K, Nixon PJ. Alcohol and drug use among vocational dental practitioners. *Br Dent J*. 2003;195(5):265–268; discussion 259.
40. John JH, Thomas D, Richards D. Smoking cessation interventions in the Oxford region: changes in dentists' attitudes and reported practices 1996–2001. *Br Dent J*. 2003;195(5):270–275.
41. Smith DR, Leggat PA. A comparison of tobacco smoking among dentists in 15 countries. *Int Dent J*. 2006;56(5):283–288.
42. Kenna GA, Wood MD. The prevalence of alcohol, cigarette and illicit drug use and problems among dentists. *J Am Dent Assoc*. 2005;136(7):1023–1032.
43. Sarna L, Bialous SA, Sinha K, Yang Q, Wewers ME. Are health care providers still smoking? Data from the 2003 and 2006/2007 Tobacco Use Supplement-Current Population Surveys. *Nicotine Tob Res*. 2010;12(11):1167–1171.
44. Ford P, Tran P, Keen B, Gartner C. Survey of Australian oral health practitioners and their smoking cessation practices. *Aust Dent J*. 2015;60(1):43–51.
45. Smith DR, Leggat PA. Tobacco smoking prevalence among a cross-section of dentists in Queensland, Australia. *Kurume Med J*. 2005;52(4):147–151.
46. Smith DR, Leggat PA. An international review of tobacco smoking in the medical profession: 1974-2004. *BMC Public Health*. 2007;7:115.
47. Sarna L, Bialous SA, Nandy K, Antonio AL, Yang Q. Changes in smoking prevalences among health care professionals from 2003 to 2010-2011. *JAMA*. 2014;311(2):197–199.
48. Joossens L, Raw M. *The Tobacco Control Scale 2013 in Europe*. Brussels, Belgium: Association of European Cancer Leagues; 2013. www.europeancancerleagues.org/images/TobaccoControl/TCS_2013_in_Europe_13-03-14_final_1.pdf. Accessed May 28, 2014.
49. Lopez A, Collishaw N, Piha T. A descriptive model of the cigarette epidemic in developed countries. *Tob Control*. 1994;3:242–247.
50. Doll R, Peto R, Boreham J, Sutherland I. Mortality in relation to smoking: 50 years' observations on male British doctors. *BMJ*. 2004;328(7455):1519.
51. Bosetti C, Gallus S, Peto R, et al. Tobacco smoking, smoking cessation, and cumulative risk of upper aerodigestive tract cancers. *Am J Epidemiol*. 2008;167(4):468–473.
52. Johnson GK, Hill M. Cigarette smoking and the periodontal patient. *J Periodontol*. 2004;75(2):196–209.
53. Bauld L, Bell K, McCullough L, Richardson L, Greaves L. The effectiveness of NHS smoking cessation services: a systematic review. *J Public Health (Oxf)*. 2010;32(1):71–82.
54. Kruger J, Trosclair A, Rosenthal A, Babb S, Rodes R. Physician advice on avoiding secondhand smoke exposure and referrals for smoking cessation services. *Tob Induc Dis*. 2012;10(1):10.
55. Gallus S. Second-hand smoke in Italy. *Eur J Paediatr Dent*. 2015;16(4):257.
56. Aveyard P, Begh R, Parsons A, West R. Brief opportunistic smoking cessation interventions: a systematic review and meta-analysis to compare advice to quit and offer of assistance. *Addiction*. 2012;107(6):1066–1073.
57. Nobile CG, Bianco A, Biafore AD, Manuti B, Pileggi C, Pavia M. Are primary care physicians prepared to assist patients for smoking cessation? Results of a national Italian cross-sectional web survey. *Prev Med*. 2014;66:107–112.
58. Prakash P, Belek MG, Grimes B, et al. Dentists' attitudes, behaviors, and barriers related to tobacco-use cessation in the dental setting. *J Public Health Dent*. 2013;73(2):94–102.
59. Verbiest ME, Crone MR, Scharloo M, et al. One-hour training for general practitioners in reducing the implementation gap of smoking cessation care: a cluster-randomized controlled trial. *Nicotine Tob Res*. 2014;16(1):1–10.