French smoking cessation services provide effective support even to the more dependent

Monique Baha [a,*], Abdelali Boussadi [a,b], Anne-Laurence Le Faou [a,c]

[a] AP-HP, Hôpital Européen Georges Pompidou, 20 rue Leblanc, F-75015 Paris, France
[b] INSERM UMRs 1138, équipe 22, Paris, France
[c] Univ Paris Diderot, Sorbonne Paris Cité, UMRS1123, Hôtel-Dieu 1, place du Parvis Notre-Dame, F-75004 Paris, France

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ABSTRACT

Objective. France is one the few European countries offering a national quit line along with partially cost-covered nicotine replacement therapy (NRT) and cessation services. This study assesses outcomes and predictors of continued abstinence in French smoking cessation services.

Method. The French national smoking cessation registry (CDTnet) included 23,810 adult smokers followed-up between 2011 and 2013. We assessed 1-month continued abstinence among 10,161 who initiated a quit attempt before or during follow-up. Predictors of abstinence were determined using multivariable regression model.

Results. Among quitters, 45.2% achieved CO-validated abstinence. Prescription of pharmacotherapy was associated with abstinence rates as high as 47% for combination NRT and 53% for varenicline. The effect of behavioural support associated with combination NRT versus behavioural support alone increased with attendance: OR 1.11 (95% CI 0.89–1.39) for 2–3 visits, OR 1.43 (95% CI 1.13–1.80) for 4–6 visits, OR 1.60 (95% CI 1.21–2.12) for ≥7 visits. Unemployed participants were as likely to be successful as participants in employment (OR 0.88; 95% CI 0.75–1.04). High cigarette dependence also did not significantly hinder abstinence. Young adults achieved the lowest abstinence rates. Predictors that significantly reduced odds of abstinence were: being aged 18 to 24 and a history of alcohol abuse.

Conclusion. With adapted treatment, even the more dependent or less affluent maintained abstinence. Our findings suggest that French cessation services have been successful in providing cessation support. Nevertheless, there is room for improvement in tailoring treatment for some subgroups of smokers.

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1. Introduction

In the European Union, the average tobacco smoking prevalence can be estimated to about 28% (WHO, 2015). France matches this average with 28.2% of daily smokers in the general population (Guignard et al., 2015a). A few countries are at 20% or below like Belgium (Gisle, 2014), the Netherlands (Verdurmen et al., 2015) or the UK (Health and Social Care Information Centre, 2014). However, even in countries with low prevalence, there are socio-demographic groups among which tobacco prevalence remains high such as young adults, less educated or unemployed smokers (European Commission, 2015; Gisle, 2014; Guignard et al., 2015a; Health and Social Care Information Centre, 2014; Verdurmen et al., 2015).

According to the WHO report on tobacco epidemic, few European countries have implemented comprehensive smoking cessation support (WHO, 2014). France is one of the few countries offering a national quit line (Smadja et al., 2012) along with partially cost-covered nicotine replacement therapy (NRT) and cessation services. Between 2010 and 2014, the proportion of French daily smokers who had made a quit attempt during the previous year has increased from 25.2% to 29.0% (Guignard et al., 2015a). Over a third of daily smokers have reported cutting down their cigarette consumption.

According to the WHO guidelines, national efforts at tobacco reduction could be improved with an efficient network of cessation services. Indeed, provision of cessation support and treatment contributes to reinforce national guidelines and policies at an individual level (WHO, 2014). For instance, despite massive health campaigns, many smokers suffering from tobacco-related illness require professional counselling to increase awareness of the association between cessation and their health (Baha and Le Faou, 2010). Likewise, despite national recommendation for its proven effectiveness along with the offer of financial

* Corresponding author at: Hôpital Européen Georges Pompidou, 20 rue Leblanc, 75015 Paris, France.
E-mail address: moniquebaha@yahoo.fr (M. Baha).

coverage, half of French smokers planning to quit do not intend to use any pharmacotherapy (Guignard et al., 2013). This suggests that addressing misconceptions about pharmacotherapy through individual support would reinforce the effectiveness of a national programme for financial coverage.

Consequently, information on the effectiveness of French smoking cessation services is an important contribution to tobacco control. About 1 out of 6 existing smoking cessation services contributes data from attendees to the French national smoking cessation on-line database (the "Consultation de tabacologie" – CDTnet). The present analysis assesses 1-month continued abstinence rates and predictors of abstinence among smokers followed-up between 2011 and 2013, a period during which it appears that some improvement had occurred in tobacco reduction in the general population.

2. Material and methods

2.1. Population

163 French smoking cessation services nationwide contributed data from first-time attendees to the CDTnet registry, representing every region in France. During their first visit in a cessation service between January 2011 and December 2012, smokers completed a standardised paper questionnaire. Anonymised questionnaires are registered in the database by staff in cessation services. CDTnet has received the agreement of the French National Auditing Committee on Informatics and Individual Liberty

Staff in cessation services also routinely register records of follow-up visits. We examined retrospectively follow-up records up to a year, until December 2013. The present analysis focuses on 23,810 adult smokers of manufactured or hand-rolled cigarettes (age ≥ 18) who took up cessation support by attending at least two visits in a cessation service.

2.2. Intervention routinely offered in French smoking cessation services

In routine care, smokers were offered one to one behavioural support along with prescriptions of NRT (patch, oral forms or a combination of both) or varenicline. Previous analyses of the CDTnet registry have shown that treatment plans are usually discussed between cessation specialists and smokers during their first visit (Baha and Le Faou, 2009, 2014).

For an updated description of the organisation of services participating to CDTnet, an online survey was conducted in 2014 with a 41% response rate (n = 50 responding services). 76% of responding services were outpatient hospital-based services. Services were staffed on average with 0.12 full-time equivalent (FTE) physician trained in smoking cessation, 0.33 FTE nurse trained in smoking cessation and 0.20 FTE medical secretary. Cessation specialists reported that the most frequently used behavioural change techniques according to Michie et al.'s taxonomy (Michie et al., 2013) were: action planning; feedback on behaviour; social reward (e.g. verbal encouragement); pharmacological support; reduce negative emotions; goal setting; review outcome goals; biofeedback (e.g. carbon monoxide monitoring); information about emotional consequences; pros and cons of cessation versus continued smoking.

2.3. Measures from the French smoking cessation services' questionnaire

Routinely collected baseline data include smokers' self-reported socio-demographic information, history of depression, tobacco-related information, alcohol and cannabis consumption. To evaluate self-efficacy, smokers are asked to mark from 0 to 10 how confident they are in their ability to quit. Cigarette dependence is assessed using the Fagerström test for cigarette dependence (previously known as the Fagerström test for nicotine dependence) (Fagerstrom, 2012; Heatherton et al., 1991). The French version of the CAGE test is used, with a score ≥ 2 suggesting alcohol abuse (Malet et al., 2005). The Hospital Anxiety Depression scale (Zigmond and Snaith, 1983) is used to

screen for symptoms of anxiety and depression with a threshold score of 11 for anxiety and 8 for depression. For analysis, we categorised the following baseline continuous variables as shown on Table 1: age, self-efficacy, Fagerström score and number of previous quit attempts.

2.4. Smoking status assessment

During the present study period, follow-up visits were scheduled every 15.8 days in median. During follow-up, cessation specialists measure carbon monoxide (CO) levels in expired air. When examining follow-up records, we only considered quit attempts validated by CO measures <10 ppm (Judge et al., 2005). In this article, "quitters" refers to participants who made at least one CO-validated quit attempt during follow-up as well as participants who quit prior to their first visit, thus in need for support to maintain abstinence.

Table 1
Characteristics of participants who initiated a quit attempt (before or during follow-up) and continued abstinence rates in French smoking cessation services between 2011 and 2013.

		Valid values n (%)	Abstinence rates n (%)
Women		5370 (52.8)	2435 (45.3)
Men		4791 (47.2)	2158 (45.0)
	p-Value	–	0.378
Aged 18–24 years		361 (3.6)	110 (30.5)
Aged 25–44 years		4291 (42.2)	1938 (45.2)
Aged 45 or more		5509 (54.2)	2545 (46.2)
	p-Value	–	<0.0001
No education		1861 (18.3)	713 (38.3)
Low-level vocational education		2736 (26.9)	1224 (44.7)
Secondary school		2071 (20.4)	957 (46.2)
Higher education		3493 (34.4)	1699 (48.6)
	p-Value	–	<0.0001
Employed		6637 (65.3)	3048 (45.9)
Retired		1374 (13.5)	672 (48.9)
Unemployed		767 (7.6)	306 (39.9)
Inactive		584 (5.7)	230 (39.4)
Trainee or Student		162 (1.6)	52 (32.1)
Disability pension		637 (6.3)	285 (44.7)
	p-Value	–	<0.0001
Symptoms of anxiety		3092 (30.4)	1398 (45.2)
No symptoms of anxiety		6789 (66.8)	3046 (44.9)
	p-Value	–	0.748
Symptoms of depression		1636 (16.1)	731 (44.7)
No symptoms of depression		8245 (81.1)	3713 (45.0)
	p-Value	–	0.794
History of episodes of depression		2510 (24.7)	1149 (45.8)
No history of episodes of depression		7381 (72.6)	3290 (44.6)
	p-Value	–	0.295
No previous attempt to quit		2549 (25.1)	1071 (42.0)
1–2 previous attempt to quit		4723 (46.5)	2083 (44.1)
≥3 previous attempts to quit		2646 (26.0)	1302 (49.2)
	p-Value	–	<0.0001
≤10 cigarettes per day at first visit		1934 (19.0)	852 (44.1)
11–20 cigarettes per day at first visit		5263 (51.8)	2392 (45.4)
≥21 cigarettes per day at first visit		2623 (25.8)	1168 (44.5)
	p-Value	–	0.511
Low Fagerström score 0–4		2842 (28.0)	1259 (44.3)
Medium Fagerström score 5–6		3031 (29.8)	1326 (43.7)
High Fagerström score 7–10		4045 (39.8)	1871 (46.3)
	p-Value	–	0.081
Low self-efficacy to quit 0–4		1899 (18.7)	832 (43.8)
Medium self-efficacy to quit 5–6		3609 (35.5)	1547 (42.9)
High self-efficacy to quit 7–10		4382 (43.1)	2062 (47.1)
	p-Value	–	0.0005
Daily cannabis use in the previous 30 days		246 (2.4)	83 (33.7)
Non-daily cannabis use or no cannabis use		9635 (94.8)	4361 (45.3)
	p-Value	–	0.0003
History of alcohol abuse		2115 (20.8)	895 (42.3)
No history of alcohol abuse		7766 (76.4)	3549 (45.7)
	p-Value	–	0.006
Total		10,161 (100.0)	4593 (45.2)