Preventive Medicine 65 (2014) 99–102

Contents lists available at ScienceDirect

Preventive Medicine

journal homepage: www.elsevier.com/locate/ypmed

Brief Original Report

Determinants of use of smoking cessation aids in 27 European countries

Filippos T. Filippidis [a,b,*], Vasiliki Gerovasili [c], Constantine I. Vardavas [d], Israel T. Agaku [d], Yannis Tountas [b]

[a] School of Public Health, Imperial College London, The Reynolds Building, St. Dunstan's Road, London W6 8RP, UK
[b] Center for Health Services Research, University of Athens, Alexandroupoleos 25, 11527, Athens, Greece
[c] 1st Critical Care Medicine Department, Cardiopulmonary Exercise Testing and Rehabilitation Laboratory, "Evgenidio" Hospital, NKUA, Papadiamantopoulou 20, 15128, Athens, Greece
[d] Center for Global Tobacco Control, Department of Social and Behavioral Sciences, Harvard School of Public Health, 401 Park Drive, 4th West, Boston, MA, 02215 USA

ARTICLE INFO

Available online 14 May 2014

Keywords:
Smoking cessation
Tobacco
Europe
Tobacco use cessation products

ABSTRACT

Objective. To identify determinants of use of smoking cessation aids among current and former smokers in the European Union (EU).

Methods. Data from n = 9921 current and ex-smokers from 27 European countries (Eurobarometer 77.1, February–March 2012) were analysed. Multivariate binary logistic regression was used to assess for correlates of use of any recommended aid with proven efficacy, defined as use of pharmacotherapy or psychosocial counselling ($p < 0.05$). The regression analyses assessed for socio-demographic characteristics, EU region, as well as scope of national smoking cessation policies.

Results. Among current smokers who had made a quit attempt and ex-smokers, 19.9% had used any recommended aid with proven efficacy. Respondents from Northern (adjusted odds ratio [aOR] = 1.90), Western (aOR = 3.21) and Eastern Europe (aOR = 1.69) were more likely to have used an efficacious smoking cessation aid compared to respondents from Southern Europe (all $p < 0.05$). Respondents in countries with comprehensive tobacco cessation programmes that offered cost-covered national quit lines, medication, and other cessation services had increased likelihood of using efficacious cessation aids (OR = 1.29; 95% Confidence Interval: 1.07–1.55).

Conclusions. These findings underscore the need for enhanced and sustained efforts to ensure increased access to cessation services and aids as part of a comprehensive tobacco control programme.

Introduction

Smoking cessation is one of the main strategies suggested by the World Health Organization's (WHO) MPOWER package against the tobacco epidemic (World Health Organization, 2008). The majority of smokers who make a quit attempt, do so without assistance (Cokkinides et al., 2005; Ismailov and Leatherdale, 2010; Rutqvist, 2012), even though several cessation aids, such as medication and provision or referral for counselling, have been proven highly effective (Cahill et al., 2013; Stead et al., 2012, 2013a,b) and are recommended by organisations like the United Kingdom National Health Service (NHS, 2008) and the U.S. Public Health Service Guidelines for tobacco dependence treatment (Tobacco Use and Dependence Guideline Panel, 2008). Other aids are also available, even though evidence of their effectiveness on long-term cessation remains inconclusive (Bullen et al., 2013; White et al., 2014). Smoking cessation and quit attempts have been associated with gender, socioeconomic status, age and employment (Bacigalupe et al., 2013; Davila et al., 2009; Kaleta et al., 2012). However, European-wide research on the determinants of cessation aids' use has been limited (Ismailov and Leatherdale, 2010; Messer et al., 2008; Rutqvist, 2012). Hence, the objective of this study was to assess determinants of smoking cessation aids' use among current and former smokers in the European Union (EU).

Methods

We analysed publicly available data from the Eurobarometer survey, wave 77.1 (February–March 2012) (n = 26,751) (European Commission, 2012a). The survey was conducted in the 27 European Union member countries and included respondents aged ≥15 years. Nationally representative samples of persons aged ≥15 years were selected through a multi-stage sampling design in each of the 27 EU member countries. Interviews were conducted in people's homes and in the language of each country.

Smoking status was assessed with the question "Regarding smoking cigarettes, cigars or a pipe, which of the following applies to you?". Categorical answers included "You currently smoke" (i.e. current smokers);

* Corresponding author at: School of Public Health, Imperial College London, The Reynolds Building, St. Dunstan's Road, London W6 8RP, UK.
E-mail addresses: f.filippidis@imperial.ac.uk (F.T. Filippidis), gerovasili.v@gmail.com (V. Gerovasili), vardavas@hsph.harvard.edu (C.I. Vardavas), iagaku@post.harvard.edu (I.T. Agaku), ytountas@med.uoa.gr (Y. Tountas).

http://dx.doi.org/10.1016/j.ypmed.2014.05.004
0091-7435/

"You used to smoke but you have stopped" (i.e. former smokers); and "You have never smoked" (i.e. never smokers). Former and current smokers who had tried to quit smoking in the past were asked: "Which of the following did you use in order to quit or to try to quit smoking?" Categorical responses were: (a) Nicotine replacement medications (nicotine gum, patch, inhaler, etc., [NRT]) or other medications; (b) support from the doctor or other health professional or special stop-smoking services (clinics, specialists, etc.); (c) telephone quit line services; (d) internet quit line services; (e) alternative therapies (acupuncture, hypnosis, etc.); (f) oral tobacco (snus), chewing or nasal tobacco (snuff); (g) electronic cigarettes or smokeless cigarettes; (h) other; and (i) you quit or you tried to quit without assistance. Any response of (a)–(h) was classified as "having used any aid", whereas any response of (a)–(c) was classified as "having used a recommended aid with proven efficacy" (Cahill et al., 2013; Stead et al., 2012, 2013a,b).

Member countries were grouped into four sub-regions, following the United Nations geoscheme (United Nations Statistics Division): Southern Europe (Greece, Italy, Malta, Portugal, Slovenia, Spain, Cyprus), Western Europe (France, Belgium, Austria, Germany, The Netherlands, Luxembourg), Northern Europe (Denmark, Ireland, United Kingdom, Latvia, Lithuania, Estonia, Finland, Sweden), and Eastern Europe (Slovakia, Czech Republic, Hungary, Poland, Bulgaria, Romania). Following the WHO's categorization of national policies for tobacco dependence treatment (based on scope) (World Health Organization, 2013) we classified countries into two: (a) those providing "NRT and/or some cessation services (at least one of which is cost-covered)" and (b) those providing "national quit line, and both NRT and some cessation services cost-covered".

Data were also collected on respondents' gender (male or female), age (15–24; 25–39; 40–54; or ≥55), area of residence (rural area/village; small/middle-sized town; or large town, [self-reported]), age at completion/stopping full-time education (≤15; 16–19 or ≥20 years). In addition, based on self-rating on a scale of 1–10 (1 corresponding to the lowest level in the society and 10 to the highest), respondents' socio-economic status (SES) was categorized as low (1–4); middle (7–10); or high (7–10).

Statistical analysis

Multi-variable logistic regression models were fitted to assess correlates of use of "any smoking cessation aid" and "any recommended aid with proven efficacy" ($p < 0.05$). The models assessed for age, EU region, scope of national cessation policies, education, SES, gender and area of residence analyses were further stratified by former and current smokers. Data were weighted and analysed with Stata 12.0.

Results

In total, 9921 respondents were either current smokers who had made a quit attempt (n = 4341) or former smokers (n = 5580). Overall, 32.2% reported using "any smoking cessation aid" (from 16.4% in Greece to 45.9% in Sweden), while 19.9% reported using "any recommended aid with proven efficacy" (from 6.4% in Greece to 41.4% in Ireland) (Table 1, Fig. 1). NRT and other medications were the most popular smoking cessation aids (14.6%), followed by health professional support (6.7%). Wide country-specific variations were observed in use of cessation aids. While certain similarities were observed between countries within a given EU region, some obvious exceptions were also seen, such as the Baltic countries, which were more similar to Eastern than Northern EU countries in use of cessation aids.

Results from the multi-variable logistic regression models (Table 2) indicated that Northern (adjusted odds ratio [aOR] = 2.40), Western (aOR = 1.68) and Eastern European respondents (aOR = 1.38) were more likely to have used "any smoking cessation aid" in comparison to respondents from Southern Europe. The association with use of "any recommended aid with proven efficacy" was even stronger (aOR = 3.21, aOR = 1.90 and aOR = 1.69 respectively) (all $p < 0.05$). Current and former smokers living in countries with a comprehensive national cessation programme (i.e., offering cost-covered national quit lines, NRT and some cessation services) were more likely to report the use of "any recommended aid with proven efficacy" (aOR = 1.29; 95% CI: 1.07–1.55), but not use of "any smoking cessation aid" (aOR = 1.07; 95% CI: 0.91–1.26). Age was associated with both outcome variables, while gender, education, socioeconomic status and area of residence were not associated with either.

Stratified analyses by smoking status (i.e., former or current smokers) showed similar results overall, with few exceptions. Notably, comprehensive national cessation policies were associated with the use of "any recommended aid with proven efficacy" among current but not among former smokers; regional and age differences persisted.

Discussion

Our findings demonstrated that the use of smoking cessation aids varied greatly between countries and regions within the EU, whereas age was the only individual-level factor that was a significant determinant of cessation aid use. Extensive coverage/availability of cessation services was also associated with the use of aids of proven efficacy.

Current and former smokers in Southern European countries were less likely to have used smoking cessation aids. This might reflect regional variations in attitudes towards cessation methods or/and

Table 1
Self-reported use of smoking cessation aids among current smokers who had tried to quit and former smokers in 27 European countries, 2012.

Country	Use of any aid[a] % (95% CI)	Use of any recommended aid with proven efficacy[b] % (95% CI)
Southern Europe		
Italy	24.5 (19.0–30.0)	12.1 (7.9–16.3)
Greece	16.4 (12.2–20.6)	6.4 (3.7–9.1)
Spain	22.1 (17.9–26.2)	10.1 (7.1–13.1)
Portugal	16.8 (12.2–21.5)	9.3 (5.8–12.8)
Cyprus	30.4 (23.0–37.8)	19.6 (13.2–25.9)
Slovenia	25.1 (20.1–29.7)	9.0 (5.9–12.0)
Malta	24.4 (17.0–31.8)	21.2 (14.2–28.3)
Western Europe		
France	34.8 (29.9–39.7)	25.3 (20.8–29.8)
Belgium	36.1 (31.2–41.1)	25.4 (21.0–29.8)
The Netherlands	28.5 (24.3–32.7)	16.2 (12.8–19.7)
Austria	40.4 (35.0–45.8)	28.7 (23.7–33.6)
Luxembourg	36.8 (29.9–43.8)	24.5 (18.4–30.6)
Germany	32.4 (28.2–36.6)	15.9 (12.6–19.2)
Northern Europe		
Denmark	36.1 (31.9–40.3)	26.8 (23.0–30.6)
Ireland	45.1 (39.9–50.3)	41.4 (36.3–46.6)
United Kingdom	42.9 (38.3–47.4)	31.8 (27.5–36.1)
Finland	42.2 (35.9–48.6)	32.6 (26.6–38.7)
Sweden	45.9 (40.7–51.1)	26.6 (21.9–31.2)
Estonia	26.2 (21.4–31.0)	15.1 (11.2–19.0)
Latvia	19.5 (15.7–23.4)	11.8 (8.8–14.9)
Lithuania	33.2 (28.1–38.4)	10.6 (7.2–13.9)
Eastern Europe		
Czech Republic	30.1 (24.8–35.4)	18.6 (14.1–23.1)
Hungary	29.7 (24.8–34.6)	16.7 (12.7–20.7)
Poland	31.8 (27.0–36.6)	22.3 (18.0–26.5)
Slovakia	28.5 (23.6–33.3)	18.6 (14.5–22.7)
Bulgaria	22.5 (17.7–27.3)	11.1 (7.5–14.6)
Romania	29.3 (24.1–34.6)	12.4 (8.5–16.2)
Total	32.2 (30.7–33.7)	19.9 (18.7–21.2)

[a] Includes nicotine replacement medications (nicotine gum, patch, inhaler, etc.) or other medications; support from the doctor or other health professional or special stop-smoking services (clinics, specialists, etc.); telephone quit line services; internet quit line services; alternative therapies (acupuncture, hypnosis, etc.); oral tobacco (snus), chewing or nasal tobacco (snuff); electronic cigarettes or smokeless cigarettes; and other.

[b] Includes nicotine replacement medications (nicotine gum, patch, inhaler, etc.) or other medications; support from the doctor or other health professional or special stop-smoking services (clinics, specialists, etc.); and telephone quit line services.