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ORIGINAL ARTICLE

Support for smoke-free policies in a pro-smoking culture: findings from the European survey on tobacco control attitudes and knowledge

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Abstract
Objectives To assess support for tobacco control policies between smokers and non-smokers, and the effects of nicotine dependence on smokers' policy support in a country with high smoking rates and pro-smoking norms.
Methods Population-based, cross-sectional telephone survey of a random sample of 700 Greek adults (mean age = 40.2, SD = 10.9) assessing smoking status and attitudes towards tobacco control policies.
Results Almost half of the respondents were current smokers, and smoking prevalence was significantly higher in males than females. Compared to non-smokers and former smokers, current smokers were less supportive of smoke-free public places and taxation policies. All groups appeared equally supportive for policies against sales of tobacco products to minors. Daily smokers with higher nicotine dependence were less supportive for smoke-free public places and taxation policies compared to smokers with lower dependence scores.
Conclusions Smoking status and nicotine dependence differentiate the level of support for smoke-free policies. However, both smokers and non-smokers seem to be supportive for policies aiming to prevent youth from smoking, even in a country with pro-smoking social norms and high smoking rates.

Keywords Survey · Tobacco control · Policy support · Nicotine dependence

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Introduction

Tobacco use accounts for millions of deaths worldwide, and the World Health Organization (2003) predicts that the tobacco epidemic will grow even larger in the upcoming decade. Over the past years, there has also been a growing concern on the effects of passive exposure to environmental tobacco smoke (ETS) on non-smokers' health. Several studies, for instance, have supported a causal link between involuntary ETS exposure and various adverse health outcomes, including heart disease and lung cancer (Barnoya and Glantz 2005; Raupach et al. 2006). Being strongly committed to the struggle against the tobacco epidemic, the WHO initiated the Framework Convention on Tobacco Control (FCTC), the first global public health treaty against smoking. Currently, the treaty has been signed and ratified by more than 130 countries, and requires the implementation of tobacco control policies to prevent tobacco use, and reduce exposure to ETS (West 2006).

A key element in the design and implementation of smoke-free policies is the public's support for these policies (Laforge et al. 1998). Borland et al. (2006) echoed this argument and studied smokers' supportiveness of smoking restrictions in public places in four countries (UK, USA, Canada and Australia). They found that policy support was

related to the existence of bans, low cigarette consumption, older age and beliefs about the effects of passive smoking. A study in China showed that support for smoke-free policies in public places was stronger among non-smokers and people who were chronically exposed to and annoyed by passive smoking in public places (Lam et al. 2005). A more recent study extended the previous findings by assessing former and current smokers' support for different tobacco control policies, in Germany, a country with poorly established tobacco control regulations. It was also found that current smokers were less supportive of tobacco control policies as compared to former smokers (Schumann et al. 2006). However, both groups appeared equally supportive of the policies against cigarette sales to minors and advertisement/promotion of tobacco products.

Alongside smoking status, another variable that has been linked to the policy support is nicotine dependence. Previous research has shown that the smokers with higher nicotine dependence scores were less supportive of tobacco control policies (e.g., Schumann et al. 2006). Similarly, another study found that nicotine dependence was inversely related to support for smoking restrictions in public places, but this association turned non-significant when demographic variables were controlled for (Lacchetti et al. 2001).

While increasingly more countries adopt smoke-free policies and provide empirical data on public's support for those policies, there has been a considerable dearth of relevant studies in countries with comparably higher prevalence of tobacco use and exposure to ETS and ineffective means to reduce tobacco use in the population. Specifically, in Greece the rates of smokers are comparably higher (approximately 40% of adults are regular smokers), more young people start smoking each year, and compared to other European countries, the existing means to fight the tobacco epidemic are reported to be ineffective (Kyrlesi et al. 2007; Lazuras et al. 2009; Pitsavos et al. 2003; Vardavas and Kafatos 2007).

Perhaps, the most worrying are findings showing that the Greeks are likely to strongly oppose the smoke-free policies by claiming that such policies are against free-will and personal freedom and as a consequence, they smoke more in the presence of non-smokers and children (Louka et al. 2006; Vardavas et al. 2006). Therefore, it appears that Greece presents the opportunity for a case study on the absence of effective tobacco control policies in Europe. Anecdotal evidence supports this assertion. In particular, commenting on his experiences in Greece, a US sports reporter remarked that "one noticeable habit that is very obvious is that it seems almost everyone over here smokes cigarettes… not only that, but smoking is permitted in many places that I am not accustomed to" (Burlington Free Press, 2006).

Given the extent of the tobacco epidemic in Greece and the need for tobacco control research, the present study set out to explore, for the first time, attitudes towards tobacco control policies among the Greek adults with different smoking experiences, namely non-smokers, current and former smokers. A second aim was to investigate the effects of nicotine dependence on current smokers' supportiveness of different tobacco control policies after controlling for demographic characteristics. The following hypotheses were formed. Firstly, based on previous studies (Borland et al. 2006; Lam et al. 2005; Schumann et al. 2006), it was expected that non-smokers would be more supportive of tobacco control policies as compared to current smokers. Also, in addition to comparing differences between groups of smokers, the present study explored variations in reported attitudes towards tobacco control policies within groups of (i.e., whether, for instance, current smokers hold more favourable attitudes to some policies but not in others). Secondly, based on the previous research (Lacchetti et al. 2001), it was hypothesised that policy support among current daily smokers would be inversely related to nicotine dependence after controlling for the effects of demographic variables.

Methods

This work is a part of the project 'European Survey on Tobacco Control Attitudes and Knowledge (ESTA)', a population-based, representative survey in five different European countries (Germany, Greece, Poland, Sweden and UK) which was conducted between January and April 2006. The methods of the ESTA project have been described in more detail elsewhere (Thyrian et al. 2008).

Population

A representative household sample was drawn using telephone catalogues, and the target person was identified using the 'last birthday method'. Overall, 875 participants aged between 16 and 59 years were approached and 700 of them agreed to participate (80% response rate). Mean age was 40.2 years (SD 10.9) and 57.6% of the participants were females.

Materials

The measures included demographic characteristics (age and gender), smoking behaviour (lifetime smoking, current smoking, daily consumption of tobacco and time to first cigarette of the day), nicotine dependence [heaviness of smoking index (HSI)] and three scales assessing attitudes

towards smoke-free policies in public places, which were based on the smoking policy index (Laforge et al. 1998).

Lifetime smoking was assessed with the question 'Have you smoked at least 100 cigarettes in your entire life?' and those who reported 'no' were classified as non-smokers. Those who reported 'yes' in this question were classified as lifetime smokers, and also asked whether they had smoked cigarettes during the last 6 months, and provided with the three response options: 'at least one cigarette per day', 'occasionally' and 'no, I have not smoked', corresponding to daily, occasional, and ex-smokers respectively. To further confirm the status of those who reported daily or occasional smoking, we also asked 'And this is the status today?', and categorised those who said 'yes' as current smokers, and those who said 'no' as quitters.

Daily smokers were also asked to indicate how many cigarettes they smoked on average each day as well as the time to first cigarette of the day (4-point scale from 1 = within 5 min to 4 = after 1 h). The data from these two questions were used to generate the HSI score, a short form of Fagerstrom's tolerance questionnaire was used as an objective measure of tobacco dependence (Heatherton et al. 1989, 1991). The HSI score ranges from 0 to 6 and is generated by summing the number of cigarettes smoked daily and the time to first cigarette after waking up. Less than ten cigarettes a day correspond to a score of zero, whereas increasing number of cigarettes smoked a day correspond to a higher score (the highest being 3 points for more than 31 cigarettes smoked daily). Time to first cigarette responses are coded from 0 (later than 1 h) to 3 (within 5 min). Higher HSI scores reflect greater tobacco use dependence (scores <2 indicate low dependence, =2–4 moderate dependence and >4 is heavy dependence).

Support for smoke-free policies in public places was measured with the mean of seven items reflecting attitudes towards the restriction of smoking in various settings (e.g., 'smoking should be banned in public places', 'smoking should be banned in all restaurants and cafes', 'public places that allow smoking should be required to display signs pointing out the health hazards of smoking', 'all in all smoking bans are fair'). Support for taxation policies and policies against the sales of tobacco products to minors were measured with the mean of four (e.g., 'the taxing of tobacco products leads to reduced consumption', 'taxes on cigarettes should be increased to in order to discourage smoking') and eight attitude items (e.g., 'laws against tobacco sales to minors should be enforced', 'adolescents should not be able to buy cigarettes at vending machines', 'people who sell cigarettes to minors should be prosecuted'), respectively. In all measures, responses were coded on a five-point continuous scale from 1 = absolutely to 5 = not at all. Higher mean scores reflected more negative attitudes towards (or less support for) the related smoke-free policies.

Results

Prevalence of tobacco use

The majority (65.1%) of the participants were lifetime ever smokers (i.e., they had smoked more than 100 cigarettes in their entire life). Almost half (49%) of the total sample reported being smokers at present, whereas a smaller group (16% of the total sample) were defined as former smokers. Data analysis showed that there were significant gender differences in classifications of non-smokers, former and current smokers ($\chi^2 = 23.01$, $df = 2$, $p < 0.001$) as well as within the subgroups included in these three categories (i.e., occasional, daily, ex-smokers and quitters, $\chi^2 = 29.79$, $df = 4$, $p < 0.001$). Specifically, the distribution of ever and daily smokers was significantly lower in females, whereas less males compared to females were occasional smokers and quitters. The findings are summarised in Table 1.

Table 1 Prevalence (%) and frequency of smoking by gender

	Males $n = 297$	Females $n = 403$	Total $n = 700$
Non-smokers (smoked <100 cigarettes in their lifetime)	26.6 (79)	40.9 (165)	34.9 (244)
Lifetime ever smokers (smoked >100 cigarettes in their lifetime)	73.4 (218)	59.1 (238)	65.1 (456)
Current smokers	51.2 (152)	47.6 (192)	49.1 (344)
Occasional	7.1 (21)	9.4 (38)	8.4 (59)
Daily	44.1 (131)	38.2 (154)	40.7 (285)
Former smokers	22.1 (66)	11.4 (46)	16 (112)
Quitters	0.3 (1)	1.2 (5)	0.9 (6)
Ex-smokers	21.8 (65)	10.2 (41)	15.1 (106)
Mean age in years	41.4	39.2	

Actual frequencies are shown in parentheses in each column

Table 2 Inter-correlations, mean scores, and standard deviations for the policy support measures used in the study

	1	2	3
1. Smoke-free public places	–	0.46[a]	0.45[a]
2. Taxation of tobacco products		–	0.47[a]
3. Sales to minors			–
Mean	2.18	2.76	2.07
SD	0.92	1.25	0.82
Cronbach's α	0.81	0.77	0.73

[a] $p < 0.001$

Support for tobacco control policies between non-smokers, former and current smokers

Means, standard deviations, inter-correlations and internal consistency scores for the measures of support of tobacco control policies are presented in Table 2. A one-way ANOVA with post hoc comparisons was used to examine differences in attitudes towards tobacco control policies between non-smokers, current and former smokers. The results showed that the three groups differed significantly in their supportiveness of smoke-free policies in public places [F (2, 699) = 54.03, $p < 0.001$, $\eta^2 = 0.13$], taxation of tobacco products [F (2, 699) = 27.48, $p < 0.001$, $\eta = 0.07$] and regulations against the sale of tobacco products to minors [F (2, 699) = 3.72, $p < 0.005$, $\eta^2 = 0.01$]. The effect sizes suggest that the observed differences in support were large for smoke-free policies to public places, moderate for taxation policies, and very small for restricting sales of tobacco products to minors.

Post hoc analyses (Scheffé) revealed that current smokers were significantly less supportive of smoke-free policies in public places and taxation compared to non-smokers and former smokers. The differences between former and non-smokers were not statistically significant. Accordingly, support for policies against the sale of tobacco product to minors differed significantly only between current and non-smokers. Means scores and standard deviations of support measures from each group are presented in Table 3.

Support for tobacco control policies: within group variations

Paired samples t tests were conducted to investigate variations in attitudes towards the different tobacco control policies within groups of non-smokers, current and former smokers. The results showed that non-smokers were significantly more supportive of smoke-free policies in public places as compared to taxation policies [t (244) = −7.94, $p < 0.001$, $\eta^2 = 0.21$] and restrictions of selling tobacco products to minors [t (244) = −2.54, $p = 0.05$, $\eta^2 = 0.02$]. However, non-smokers reported more positive attitudes towards restricting sales of tobacco products to minors, compared to taxation policies [t (244) = −6.39, $p < 0.001$, $\eta^2 = 0.14$]. The effect sizes indicate that the observed variations in reported attitudes towards restricting sales of tobacco products to minors and smoke-free policies in public places were small.

Also, current smokers reported greater support for policies against cigarette sales to minors, as compared to smoke-free policies in public places [t (344) = 6.58, $p < 0.001$, $\eta^2 = 0.11$], and taxation [t (344) = −14.61, $p < 0.001$, $\eta^2 = 0.38$). Interestingly, current smokers supported public smoking restrictions more than they favoured taxation policies [t (344) = −8.69, $p < 0.001$, $\eta^2 = 0.18$]. Finally, supportiveness of policies against the sales of tobacco products to minors and smoke-free policies in public places did not differ significantly among former smokers. Also, former smokers supported taxation policies less than the regulations against the cigarette sales to minors [t (111) = −14.61, $p < 0.001$, $\eta^2 = 0.38$] and smoking restrictions in public places [t (111) = 6.58, $p < 0.001$, $\eta^2 = 0.11$].

Policy support among daily smokers: variations by nicotine dependence, age and gender

Multivariate Analyses of Variance (MANOVA) was used to examine the main and interaction effects of gender and nicotine dependence on policy support among daily smokers, after controlling for the effects of age, which was added as a

Table 3 Differences in policy support between non-smokers, current and former smokers

	Non-smokers		Current smokers		Former smokers	
	$n = 244$		$n = 344$		$n = 112$	
	M	SD	M	SD	M	SD
Smoke-free public places	1.84	0.69	2.52	0.97	1.87	0.80
Taxation of tobacco products	2.37	1.09	3.10	1.27	2.58	1.21
Sales to minors	1.96	0.74	2.17	0.87	1.99	0.79

Range of scores 1–5, with higher scores indicating less support towards tobacco control policies

covariate variable. For the purposes of the analyses and following the instructions of Heatherton et al. (1989), the HSI score was categorized into low (scores from 0 to 2), moderate (scores between 3 and 4) and heavy dependence (scores from 5 to 6). Overall, the distribution of current smokers was 42.8, 39.9 and 17.3% for low, moderate and high dependence, respectively. The findings indicated that age (Wilks' $\lambda = 0.93$, $F = 6.45$, $p < 0.001$, partial $\eta^2 = 0.06$) and nicotine dependence (Wilks' $\lambda = 0.95$, $F = 2.59$, $p < 0.05$, partial $\eta^2 = 0.03$) had significant main effects, gender had a marginally significant effect (Wilks' $\lambda = 0.97$, $F = 2.73$, $p = 0.04$, partial $\eta^2 = 0.03$), and the interaction between gender and nicotine dependence was non-significant ($p > 0.05$). Specifically, females were more positive towards policies restricting the sales of tobacco products to minors [$F(1, 280) = 7.62$, $p = 0.006$, partial $\eta^2 = 0.03$], but no other gender differences in policy support were observed. Also, smokers with higher nicotine dependence were more negative to smoke-free policies in public places ($F = 4.71$, $p < 0.05$, partial $\eta^2 = 0.03$) and taxation ($F = 6.57$, $p < 0.05$, partial $\eta^2 = 0.03$), but there were no significant differences due to nicotine dependence in support for policies restricting the sales of tobacco products to minors.

Discussion

The present study explored attitudes of Greek adult non-smokers, current, and former smokers towards three different tobacco control policies. In line with the first hypothesis and with the previous research (Lam et al. 2005; Schumann et al. 2006; Poland et al. 2000) compared to non-smokers and former smokers, current smokers were generally less supportive of tobacco control policies. Specifically, current smokers were the least supportive of taxation and public smoking restrictions. Former and non-smokers appeared to be equally supportive of all three policies. Also, current smokers were significantly less supportive than non-smokers for policies against the sales of tobacco products to minors, but the effect size was very small to warrant an actual difference. A rather similar pattern of results emerged following analyses within groups of current, former, and non-smokers. Specifically, non-smokers and current smokers favoured policies against the sales of tobacco products to minors more than those they favoured other policies. Former smokers were equally supportive for both smoke-free public places and restrictions against youth tobacco purchase. Similar findings were also reported by Schumann et al. (2006), where different groups of lifetime smokers were equally supportive of policies against cigarette sales to minors.

Furthermore, the previous studies showed that nicotine dependence, measured by the HSI, was inversely related to smokers support for smoke-free policies in public places (Schumann et al. 2006; Lacchetti et al. 2001). The present study extended these findings by investigating the effects of nicotine dependence on daily smokers' support for three different policies. It was found that smokers with higher HSI scores held significantly more negative attitudes towards smoke-free policies in public places and taxation; however, the effect sizes were small. More interestingly, contradicting the second hypothesis of the present study, nicotine dependence did not have a significant effect in support for policies against the sales of tobacco products to minors. This finding is innovative for it advances the existing knowledge on the effects of nicotine dependence on policy support. Specifically, it appears that smokers with higher dependence scores will be less supportive for policies that will affect them directly, such as increases in the taxation of tobacco products, but at the same time endorse policies aiming to protect sensitive population subgroups, such as young people. Put simply, nicotine dependence appears to selectively affect the attitudes towards some tobacco control policies, but not others.

The above findings are informative and may help policy-makers in understanding what do people with different smoking status believe, and how supportive they are, towards different tobacco control policies. Specifically, it appears that tobacco control policies in highly normative contexts, like Greece, should develop gradually by initially tackling issues that would be uniformly accepted by both smokers and non-smokers, such as policies against the sales of tobacco products to minors. It may be argued that once a positive attitude is formed for a given policy, the development of positive attitudes towards other policies may follow and this can be implied by the significant positive correlations between the policy support measures shown in Table 2. This effect is also commonplace in social psychological literature. In particular, research on the foot-in-the-door phenomenon suggests that people are likely to endorse a larger request or comply with a regulation, once they have been induced to accept a smaller preceding and relevant demand (Pascual and Guegen 2005; Rodafinos et al. 2005). Along these lines, the present findings suggest that policies against youth smoking (e.g., prohibiting cigarette sales to minors) may spearhead attempts to bolster positive attitudes to tobacco control policies in both smokers and non-smokers.

Although informative, the present study had some limitations. Specifically, the study's sample may be considered small to represent the whole Greek population, but was adequate to achieve good statistical power. Moreover, variables related to nicotine dependence and policy support, such as intentions to quit smoking and quitting history, could be assessed to produce a more complete model to explain the degree to which current smokers

support antismoking policies. Secondly, the findings could have been extended, if socio-economic participant data were also examined.

Despite these limitations, however, there are several strengths that need to be mentioned. Firstly, this study has been the first attempt to empirically examine support for tobacco control policies in a pro-smoking country, with increasing smoking trends and comparable weak means to fight the tobacco epidemic. Secondly, the measures used to assess policy support were reliable and the correlations reported in Table 2 indicate adequate construct validity, thus suggesting that these measures can be used in related studies in Greece in the future.

To summarise, the present study extended past literature on supportiveness of tobacco control policies by showing that people with different smoking status, may in fact be similarly positioned against the tobacco epidemic when issues like youth smoking are concerned—even in a country where smoking is still widely prevalent and tobacco control measures are comparably weak and ineffective. Furthermore, the role of nicotine dependence seems to affect policy support only for those policies that will have a direct and immediate impact on smokers, such as smoking bans in public places and increased tobacco taxes.

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Conflict of interest statement All the authors declare that there are no conflicts of interest.

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