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People who smoke and formerly smoked do support a smoking ban in open spaces during and after the COVID-19 pandemic in Spain

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ABSTRACT

Background Spain implemented an extensive outdoor smoking ban during the COVID-19 pandemic in 2020. We examined support for this restriction during and beyond the pandemic among people who currently and formerly smoked.

Methods Cross-sectional study. The 2021 ITC EUREST-PLUS Spain Survey used a multistage sampling to obtain a representative sample of people who currently or formerly smoked (n=1006). We estimated prevalence ratios (PRs) to examine associations with ban support during and after the pandemic. Analyses accounted for the complex sampling design and were weighted to ensure representativeness.

Results Most people who currently (79.2%) and formerly smoked (94.6%) supported the outdoor smoking ban when a safe interpersonal distance could not be maintained during the pandemic. Support for a permanent ban remained substantial (61.4% and 87.2%, respectively). Those who currently smoke were more likely to support bans during and after the pandemic if they had smoke-free homes (PR=1.11; PR=1.29, respectively), understood secondhand smoke harms to health (PR=1.40; PR=1.65), had tried to quit (PR=1.14; PR=1.30) and self-reported as healthy (PR=1.40; PR=1.47). Those who formerly smoked were more likely to support bans during the pandemic if they had smoke-free homes (PR=1.08) and did not self-report as healthy (PR=0.95); and after the pandemic if they had quit smoking for ≥6 months (PR=1.23) and used alternative tobacco products (PR=1.17).

Conclusions Most people who currently or formerly smoked in Spain supported the outdoor smoking ban during and after the COVID-19 pandemic. This high acceptance suggests that the pandemic may have created an opportunity to strengthen tobacco control.

WHAT IS ALREADY KNOWN ON THIS TOPIC

- ⇒ Bans on smoking in certain outdoor areas are just beginning to be incorporated into national or regional legislation around the world.
- ⇒ During the COVID-19 pandemic in 2020, Spain implemented a temporary ban on smoking in outdoor areas when an interpersonal distance could not be maintained, due to concerns about SARS-CoV-2 transmission.

WHAT THIS STUDY ADDS

- ⇒ People who currently smoke or formerly smoked do support the outdoor smoking ban during the COVID-19 pandemic.
- ⇒ Support for making the ban permanent is lower, but still substantial, among those who smoke.
- ⇒ Smoke-free homes, knowledge about the harm of passive smoking and quit attempts were factors associated with support among those who smoke.
- ⇒ Similar factors, plus being in the maintenance stage of change, were associated with support among those who have recently quit smoking.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

- ⇒ The strong support among people who currently smoke or formerly smoked shows that the repeal of the ban after the COVID-19 pandemic was a missed opportunity to protect people who do not smoke and undermined efforts to help those who smoke to quit.
- ⇒ The Tobacco Prevention Plan adopted by the Spanish government in April 2024 considers the extension of the smoking ban to various outdoor environments. There is, therefore, an urgent need to build on the current momentum of strong public support to extend current smoke-free legislation to outdoor environments.

INTRODUCTION

Outdoor smoking bans are increasingly being incorporated into national or regional legislation worldwide to protect the public from second-hand smoke (SHS). However, public support for these policies, a key factor in their successful implementation, has shown variable results. A recent meta-analysis found that global support for bans in outdoor hospitality venues averaged around 50% between 2004 and 2022.¹ This sets the stage for examining unique circumstances that might shift public opinion, such as during the COVID-19 pandemic.

By 2020, smoking prevalence in Spain was approximately 22% among adults, representing a significant portion of the population affected by tobacco control policies.² Spain confirmed its first case of COVID-19 on 31 January 2020. In the face of an imminent pandemic, the government restricted citizen movements (14 March 2020) and suspended all non-essential activities (28 March 2020). These measures were lifted on 21 June 2020, initiating a



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'new normalcy'. Subsequently, the Spanish Ministry of Health declared that, starting on 14 August 2020, it would no longer allow the use of combustible tobacco and related products, such as electronic cigarettes (ECs), in open-air spaces where a 1.5-meter interpersonal distance could not be maintained. While this rule applied broadly, its primary and most visible application was on the outdoor terraces of cafeterias, bars and restaurants, which are common settings where people gather in close proximity, often without masks. In the following week, all subnational jurisdictions (17 autonomous regions and two autonomous cities) adopted the ban. This decision extended the existing smoking ban in hospitality venues mandated by Law 42/2010³ to include all outdoor spaces when such interpersonal distance could not be maintained. Previously, the ban only affected indoor spaces and some semi-open terraces.³

The rationale for this extended ban was to reduce the risk of SARS-CoV-2 transmission. The smoke and aerosol from tobacco and related products were considered potential transmission vectors,⁴ given the social norms around eating and drinking in Spain.⁵ In addition to increased COVID-19 infection rates, the severity of illness and mortality have been linked to SHS exposure.^{6–8} Furthermore, face masks were not required when eating and drinking, and hand-to-mouth gestures during smoking or when using related products could lead to contamination and potentially increase infection risks.

This unique, nationwide temporary ban provided an unprecedented opportunity to assess public health policy acceptance during a crisis. While previous research has documented baseline support for outdoor bans,^{1,9} a significant gap exists in understanding how such an emergency measure influences the attitudes of people who currently and formerly smoke—the groups most affected by and often most resistant to such policies.

This study assesses support for banning smoking in hospitality terraces and other open spaces during the COVID-19 pandemic and its potential continuation afterwards among people who currently smoke and recently quit smoking in Spain in 2021.

METHODS

Design, setting and participants

The ITC EUREST-PLUS Spain Survey is a longitudinal study evaluating the European Union's Tobacco Products Directive.¹⁰ Three survey waves were conducted in Spain in 2016, 2018 and 2021.¹¹ A multistage sampling was used at baseline, stratified by level of urbanisation (urban, intermediate, rural), representing all Spanish regions except the Canary Islands, Ceuta and Melilla. Wave 1 consisted of 1001 respondents aged 18 and older who had smoked at least 100 cigarettes in their lifetime and at least once within the past 30 days. During subsequent waves, respondents lost to follow-up were replaced with new respondents, selected from new households screened in the same clusters, using the same methodology as in wave 1. This paper analyses wave 3 data, including 1006 respondents who either smoked or had recently quit. Details about the ITC EUREST-PLUS Spain Survey's methodology are available elsewhere.¹²

Wave 3 included 570 previous respondents (412 recruited in wave 1 and 158 recruited in wave 2)¹¹ along with 436 new respondents. Due to the COVID-19 pandemic, the fieldwork was conducted from 9 June to 5 August 2021, nearly a year after Spain adopted the smoking ban in open spaces when the minimal interpersonal distance could not be maintained, and it coincided with the fifth wave of the pandemic. Interviews were conducted face-to-face and, when that was not possible, by computer-assisted telephone interview.¹¹

The questionnaire included additional measures related to the COVID-19 pandemic.¹³

Outcome variables

The study measured respondents' support for a smoking ban in open spaces, including hospitality terraces, during the COVID-19 pandemic (with the question 'Do you support or oppose the ban on smoking in open spaces when the minimal interpersonal distance cannot be maintained?'), as well as their support for making the ban permanent after the pandemic (with the question 'Would you support or oppose maintaining this ban after the pandemic is over—that is, the ban on smoking in open spaces when the minimal interpersonal distance cannot be maintained?'). The response categories for both variables were combined into 'support' ('strongly support' and 'support') and 'oppose' ('oppose' and 'strongly oppose'). Among participants who currently smoked, we also asked about their non-compliance with smoking bans in open spaces during the pandemic with the question: 'When you are in open spaces where the minimal interpersonal distance cannot be maintained, how often do you smoke anyway? Response options were recategorised as 'no' ('Not at all') or 'yes' (otherwise).

Independent variables

We analysed several factors associated with support for outdoor smoking bans among people who currently and who formerly smoked. These variables were selected based on previous research on predictors of tobacco control policy support^{14,15} and include sociodemographic characteristics, health status, knowledge of smoking health effects, home smoking rules, whitening smoking in indoor work and public places, and cessation-related factors. Sociodemographic characteristics included age (<40, 40–54, ≥55). These categories represent different age groups (younger, middle and older adults) while ensuring adequate statistical power within each stratum, consistent with prior analyses in the ITC Project. Other sociodemographic factors included sex (male, female), and educational level (low: up to lower secondary education, medium: upper secondary to short-cycle tertiary education, high: completed university education). Health-related variables included respondents' COVID-19 history (yes, no), worry about contracting COVID-19 (strongly worried: extremely worried, very worried; less/not worried: somewhat worried, a little worried, not worried at all), and self-reported diagnosed health conditions, which were categorised as respiratory (asthma, chronic bronchitis, chronic obstructive pulmonary disease or emphysema), non-respiratory (depression, anxiety, alcohol problems, chronic pain, diabetes, heart disease, cancers, tuberculosis, severe obesity) or healthy (no diagnosed conditions reported). We also considered the respondents' general health self-assessment (bad: poor and fair; good: good, very good and excellent).

We assessed respondents' knowledge of the health effects of smoking on people who smoke as the sum of 10 binary items (heart disease, impotence, lung cancer, blindness, mouth cancer, throat cancer, stroke, chronic obstructive pulmonary disease or emphysema, bronchitis, tuberculosis) and of SHS on people who do not smoke as the sum of 3 binary items (lung cancer, heart attack, asthma in children). We then categorised knowledge levels as low (0–6 correct items), moderate (7–9 correct items) and high (10 correct items) for smoking effects, and low (0 correct items), moderate (1–2 correct items) and high (3 correct items) for SHS effects. Additionally, we investigated

whether respondents had smoke-free rules at home (complete ban, partial or no ban).

We asked respondents whether they had observed non-compliance with indoor bans at their workplace in the last 30 days and in bars, restaurants and nightclubs/discos in the last 12 months (yes, no).

We also explored the stage of change in smoking cessation (precontemplation, contemplation, preparation, action, maintenance) according to the authors' definitions.¹⁶ The questions used were: 'Are you planning to quit smoking ...?' (<1 month, 1–6 months, >6 months, not planning to quit), 'How long did you stay smoke-free in your most recent quit attempt?' (<1 day, 1–6 days, 1–2 weeks, 3–4 weeks, 1–3 months, 4–6 months, 13–18 months), 'How long ago did your most recent quit attempt start?' (<1 week, 1 week to <1 month, 1–3 months, 4–6 months, 7–12 months, 13–18 months) and smoking status (daily smoker, weekly smoker, monthly smoker, <monthly smoker, quit in last month, quit in the last 1–6 months, quit >6 months ago). We also considered whether they had attempted to quit within the last 18 months (yes, no). Finally, we investigated the current use of heated tobacco products (HTPs) or ECs at least once a month (daily; less than daily, but at least once a week; less than weekly, but at least once a month; less than monthly; not at all; and recategorised as yes—response options 1–3—, and no—response options 4–5—). Use of any HTPs or ECs was categorised as yes.

The survey questionnaire in English and Spanish is available on the ITC Project website.¹³ 'Refused' and 'don't know' responses to all variables were excluded from analyses (0.0%–6.0% of responses). Online supplemental table S1 shows missing values by variable.

Analysis

We conducted a bivariate analysis to estimate the prevalence and 95% CIs of respondents reporting smoking outdoors within a minimal distance and to assess their support for the exceptional smoking ban during and after the pandemic.

We employed multivariable Poisson regression with robust variance to estimate factors associated with support for the ban. Associations were studied using prevalence ratios (PRs) with their 95% CIs. We constructed two models. Model A examined the independent effect of each covariate, adjusting for age, sex and education level. Subsequently, only variables associated with supporting the ban ($p < 0.05$) were retained and included in model B if they remained statistically significant. Bootstrap replicate weights were performed to account for the complex sampling design. Stata v.14 was used for all analyses.

RESULTS

Our sample comprised 867 respondents who were currently smoking (84.9%) and 139 who formerly smoked (15.1%) at the time of the survey. After adjusting for sociodemographic variables, people who formerly smoked were more likely to support the exceptional smoking ban outdoors during (PR=1.16, 95% CI 1.09 to 1.25) and after the pandemic (PR=1.35, 95% CI 1.23 to 1.49) as compared with those who currently smoke.

Support for the outdoor smoking ban during the pandemic among people who currently smoke

Approximately 19% (95% CI 14.2% to 24.5%) of people who currently smoke admitted smoking in violation of the prescribed minimal distance in open spaces during the pandemic (table 1). Overall, 79.2% (95% CI 75.7% to 82.7%) supported the ban

during the pandemic and 61.4% (95% CI 56.8% to 66.1%) backed its continuation after the pandemic.

Table 1 shows the proportion of people who currently smoke supporting a smoking ban in open spaces during the pandemic by demographics and other variables. After adjustment for sex, age and educational level (model A, table 2), the factors positively associated with ban support during the pandemic were having smoke-free homes (PR: 1.14; 95% CI 1.05 to 1.25), being past the pre-contemplation stage of smoking cessation (PR: 1.15; 95% CI 1.07 to 1.23), having attempted to quit smoking in the past 18 months (PR: 1.13; 95% CI 1.05 to 1.22), having diseases other than respiratory (non-respiratory vs respiratory PR: 1.51; 95% CI 1.14 to 2.01), being healthy vs having respiratory diseases (PR: 1.42; 95% CI 1.06 to 1.91) and having at least moderate knowledge of the SHS effects on people who do not smoke (PR: 1.39; 95% CI 1.17 to 1.66).

Associations remained significant after adjusting for additional factors (model B, table 2), except for having passed the precontemplation stage of smoking cessation. Having witnessed the breaching of the smoke-free legislation at work or in leisure facilities, or breaching it themselves, having had or fearing getting COVID-19, bad self-rated health, HTP/EC use, or the knowledge of the smoking effects on people who smoke were not associated with supporting the outdoor smoking ban during the pandemic.

Support for the outdoor smoking ban after the pandemic among people who currently smoke

Among people who smoke, 61.4% supported maintaining the ban after the pandemic (table 1). After adjusting for sex, age and educational level (model A, table 2), support for the ban after the pandemic was positively associated with the same variables as for support during the pandemic, plus having witnessed the violation of the smoke-free legislation in restaurants. Further adjustment for all covariates confirmed the observed associations (model B, table 2). Overall, the above factors were generally stronger predictors of support for the post-pandemic ban.

Support for the outdoor smoking ban during the pandemic among people who formerly smoked

Almost 95% of people who formerly smoked supported the outdoor smoking ban during the pandemic (table 1). Among these people and after adjusting for sex, age and educational level (model A, table 3), we found that those who had voluntarily banned smoking at home were more likely to support the smoking ban during the pandemic (PR: 1.10; 95% CI 1.01 to 1.19).

Support for the outdoor smoking ban was lower among people who formerly smoked self-reporting as healthy (reporting no diseases; PR: 0.96; 95% CI 0.93 to 0.99) compared with those who self-reported respiratory diseases, and those who did not have a COVID-19 history (PR: 0.94; 95% CI 0.89 to 0.99). When introducing all these variables into the model along with the sociodemographic variables, all associations remained statistically significant, except for the association with COVID-19 history (model B, table 3).

Support for the outdoor smoking ban after the pandemic among people who formerly smoked

Support for a permanent open-space smoking ban among those who formerly smoked remains high at 87.2% (table 1). After adjusting for sex, age and educational level (model A, table 3), support for the post-pandemic ban was significantly associated

Continued

Table 1 Support for a smoking ban in open spaces during and after the COVID-19 pandemic according to smoking status, demographics and other potentially influencing variables

	Overall	People who currently smoke		% supporting the ban		People who formerly smoked	
		n (%)	% (95% CI)	% smoking within minimal distance		n (%)	% (95% CI)
				During the pandemic	After the pandemic		
	N (%)	n (%)	% (95% CI)	% (95% CI)	% (95% CI)	n (%)	% (95% CI)
All	1006 (100)	867 (84.9)	19.3 (14.2 to 24.5)	79.2 (75.7 to 82.7)	61.4 (56.8 to 66.1)	139 (15.1)	94.6 (90.5 to 98.8)
Sex							
Males	542 (50.6)	467 (50.7)	20.8 (15.1 to 26.5)	77.8 (73.7 to 82.0)	59.3 (53.4 to 65.1)	75 (50.4)	93.7 (87.5 to 99.9)
Females	464 (49.4)	400 (49.3)	17.8 (11.7 to 23.8)	80.6 (75.8 to 85.4)	63.7 (58.2 to 69.1)	64 (49.6)	95.6 (91.8 to 99.3)
Age							
<40	340 (33.5)	311 (36.2)	17.0 (11.8 to 22.2)	75.4 (69.0 to 81.8)	54.5 (47.4 to 61.6)	29 (18.4)	96.5 (91.6 to 100)
40–54	360 (30.6)	318 (31.5)	19.2 (13.3 to 25.1)	77.7 (73.0 to 82.4)	60.1 (53.9 to 66.4)	42 (25.6)	96.8 (93.1 to 100)
≥55	306 (35.9)	238 (32.3)	22.0 (14.1 to 29.9)	84.9 (79.7 to 90.0)	70.5 (63.6 to 77.4)	68 (56.0)	93.0 (86.1 to 99.9)
Educational level							
Low	506 (51.8)	431 (51.6)	20.5 (14.8 to 26.3)	77.8 (72.1 to 83.4)	61.3 (54.5 to 68.1)	75 (52.8)	95.3 (91.1 to 99.4)
Moderate	391 (37.7)	338 (37.9)	16.5 (10.8 to 22.2)	80.6 (75.1 to 86.1)	59.2 (53.3 to 65.1)	53 (36.5)	92.1 (83.9 to 100)
High	109 (10.6)	98 (10.5)	23.5 (12.8 to 34.2)	81.4 (73.5 to 89.3)	70.2 (60.6 to 79.8)	11 (10.7)	100
Witnessing smoking inside a pub, bar, restaurant, nightclub or disco							
Yes	80 (8.5)	70 (8.9)	32.2 (20.7 to 43.6)	67.7 (54.7 to 80.7)	55.0 (41.4 to 68.7)	10 (6.3)	80.1 (62.5 to 97.7)
Smoked inside a pub, bar, restaurant, nightclub or disco							
Yes	8 (1.0)	8 (1.2)	28.3 (0.0 to 71.0)*	33.5 (0.0 to 72.4)*	56.4 (26.0 to 86.9)	–	–
Witnessing smoking in indoor areas where they work							
Yes	30 (4.9)	25 (4.8)	16.2 (1.9 to 30.6)*	67.3 (49.6 to 85.0)	55.0 (35.9 to 74.1)	5 (5.5)	87.5 (64.5 to 100)
Witnessing smoking inside a pub/bar, restaurant, nightclub/disco or at work							
Yes	37 (4.0)	32 (4.2)	19.9 (0.3 to 39.5)*	60.2 (41.7 to 78.7)	57.0 (39.8 to 74.3)	5 (2.9)	87.5 (64.5 to 100)
Smoking rule at home							
Complete ban	311 (31.5)	230 (26.4)	20.4 (11.8 to 29.0)	87.6 (81.7 to 93.4)	76.8 (69.2 to 84.4)	81 (60.5)	98.1 (95.5 to 100)
Have had COVID-19							
Yes	55 (5.2)	42 (4.8)	21.7 (5.1 to 38.3)*	75.2 (59.5 to 91.0)	61.9 (44.8 to 79.1)	13 (7.7)	100
Worried about getting COVID-19							
Strongly	197 (20.4)	160 (19.3)	23.0 (12.3 to 33.6)	82.8 (74.8 to 90.8)	60.6 (50.4 to 70.8)	37 (26.6)	93.1 (86.3 to 99.9)
Stage of change							
Maintenance	117 (13.4)	–	–	–	–	117 (86.4)	94.5 (89.8 to 99.3)
Action	22 (2.1)	–	–	–	–	22 (13.6)	95.2 (89.1 to 100)
Preparation	16 (1.7)	16 (2.1)	19.2 (2.6 to 35.9)	87.3 (73.7 to 100)	81.4 (65.4 to 97.4)	–	–
Contemplation	83 (9.1)	83 (10.7)	25.5 (14.3 to 36.8)	90.6 (85.1 to 96.2)	84.3 (77.3 to 91.3)	–	–
Precontemplation	748 (73.7)	748 (87.2)	18.9 (13.9 to 24.0)	77.8 (73.9 to 81.6)	57.6 (52.8 to 62.4)	–	–
Attempted to quit smoking in the last 18 months							
Yes	132 (15.3)	132 (15.3)	21.8 (14.0 to 29.5)	88.1 (83.1 to 93.2)	76.9 (69.8 to 83.9)	–	–
Self-reported health status							
Bad	164 (17.8)	138 (17.4)	25.4 (15.8 to 34.9)	85.4 (79.7 to 91.0)	71.5 (63.4 to 79.6)	26 (19.7)	84.9 (68.0 to 100)

Table 1 Continued

	Overall	People who currently smoke			People who formerly smoked		
		n (%)	% smoking within minimal distance		% supporting the ban		After the pandemic
			% (95%CI)	% (95%CI)	% (95%CI)	% (95%CI)	
N (%)						n (%)	
Self-reported disease†							
Respiratory	44 (4.8)	33 (4.0)	30.0 (11.3 to 48.8)*	56.3 (39.7 to 72.9)	41.1 (26.9 to 55.2)	11 (9.3)	59.9 (22.2 to 97.7)*
Non-respiratory	146 (14.9)	128 (15.4)	22.3 (13.8 to 30.8)	87.2 (81.6 to 92.9)	71.9 (62.4 to 81.4)	18 (12.4)	76.8 (52.6 to 100)
Healthy	816 (80.3)	706 (80.6)	18.2 (13.4 to 23.0)	78.8 (74.8 to 82.9)	60.5 (55.4 to 65.6)	110 (78.3)	91.3 (86.8 to 95.7)
Current use of HTPs or ECs							
Yes	38 (3.7)	35 (4.0)	14.9 (1.9 to 27.9)*	81.5 (68.8 to 94.1)	66.7 (51.0 to 82.3)	3 (1.9)	100
Knowledge of the health effects of smoking on people who smoke‡							
Low	265 (26.0)	226 (25.6)	14.7 (9.2 to 20.2)	76.4 (69.9 to 82.9)	58.3 (49.2 to 67.4)	39 (28.4)	90.3 (82.1 to 98.5)
Medium	321 (32.2)	269 (31.3)	30.4 (20.9 to 39.8)	81.7 (76.1 to 87.3)	66.3 (58.8 to 73.8)	52 (37.3)	83.1 (69.0 to 97.3)
High	417 (41.8)	369 (43.1)	17.4 (11.7 to 23.1)	80.6 (75.1 to 86.0)	61.6 (55.0 to 68.3)	48 (34.3)	85.6 (74.7 to 96.6)
Knowledge of the health effects of smoking on people who do not smoke§							
Low	190 (18.9)	172 (20.2)	14.4 (7.7 to 21.0)	60.4 (50.5 to 70.3)	39.5 (28.9 to 50.1)	18 (11.7)	82.9 (68.8 to 97.0)
Medium	279 (28.0)	229 (26.1)	15.9 (10 to 21.9)	81.8 (73.4 to 90.1)	64.6 (54.3 to 74.9)	50 (38.6)	91.8 (85.0 to 98.5)
High	537 (53.1)	466 (53.7)	22.8 (15.8 to 29.7)	84.7 (80.5 to 88.8)	67.4 (61.7 to 73.0)	71 (49.7)	84.2 (74.7 to 93.7)
ITC EUREST-PLUS Spain Survey, 2021 (n=1006).							
*Relative SE >30% (high sampling variability); interpret with caution.							
†Respiratory diseases: asthma, chronic bronchitis, chronic obstructive pulmonary disease, emphysema; non-respiratory diseases: depression, anxiety, alcohol problems, chronic pain, diabetes, heart disease, lung cancer, other cancers, tuberculosis, severe obesity.							
‡Number of health effects of smoking on people who smoke includes the following: heart disease, impotence, lung cancer, blindness, mouth cancer, throat cancer, stroke, chronic obstructive pulmonary disease or emphysema, bronchitis and tuberculosis. Low knowledge: 0–6 items; medium knowledge: 7–9 items; high knowledge: 10 items.							
§Number of health effects on people who do not smoke includes the following: lung cancer, heart attack, asthma in children. Low knowledge: 0 items; medium knowledge: 1–2 items; high knowledge: 3 items.							
ECs, electronic cigarettes; HTPs, heated tobacco products; SHS, secondhand smoke.							

Table 2 Factors associated with support for banning smoking in open spaces when minimal interpersonal distance cannot be maintained during and after the COVID-19 pandemic in Spain among people who currently smoke

	Supporting the ban during the pandemic		Supporting the ban after the pandemic	
	Model A	Model B	Model A	Model B
	PR (95% CI)	PR (95% CI)	PR (95% CI)	PR (95% CI)
Compliance with smoke-free spaces legislation				
Witnessing smoking inside a ...				
Pub or bar: no vs yes	1.25 (0.92 to 1.68)		1.06 (0.81 to 1.39)	
Restaurant: no vs yes	0.92 (0.74 to 1.16)		0.69 (0.54 to 0.88)*	0.75 (0.62 to 0.90)*
Nightclub or disco: no vs yes	1.04 (0.72 to 1.50)		0.97 (0.55 to 1.71)	
Pub/bar, restaurant, nightclub/disco: no vs yes	1.13 (0.93 to 1.38)		1.04 (0.82 to 1.31)	
Smoked inside a ...				
Pub or bar: no vs yes	3.94 (0.75 to 20.76)		1.80 (0.83 to 3.87)	
Restaurant: no vs yes	—			
Nightclub or disco: no vs yes	1.24 (0.25 to 6.19)		0.53 (0.27 to 1.03)	
Witnessing smoking in indoor areas ...				
Where they work: no vs yes	1.16 (0.89 to 1.52)		1.07 (0.74 to 1.55)	
In a pub/bar, restaurant, nightclub/disco or at work: no vs yes	1.28 (0.93 to 1.77)		1.01 (0.73 to 1.40)	
Smoking rule at home				
Complete ban vs partial or no ban	1.14 (1.05 to 1.25)*	1.11 (1.02 to 1.20)*	1.38 (1.22 to 1.56)*	1.29 (1.15 to 1.45)*
COVID-19				
Have had COVID-19: no vs yes	1.03 (0.83 to 1.28)		0.93 (0.68 to 1.28)	
Worried about getting COVID-19: no vs yes	0.96 (0.86 to 1.06)		1.05 (0.88 to 1.25)	
Cessation				
Stage of change: action, preparation or contemplation vs precontemplation	1.15 (1.07 to 1.23)*		1.43 (1.29 to 1.58)*	1.23 (1.10 to 1.37)*
Attempted to quit smoking in the last 18 months: yes vs no	1.13 (1.05 to 1.22)*	1.14 (1.06 to 1.23)*	1.29 (1.14 to 1.47)*	1.30 (1.13 to 1.49)*
Health				
Self-reported health status: bad vs good	1.06 (0.97 to 1.16)		1.13 (0.96 to 1.32)	
Self-reported diseases				
Non-respiratory vs respiratory diseases†	1.51 (1.14 to 2.01)*	1.48 (1.11 to 1.96)*	1.68 (1.16 to 2.43)*	1.57 (1.09 to 2.27)*
Healthy vs respiratory diseases†	1.42 (1.06 to 1.91)*	1.40 (1.04 to 1.89)*	1.53 (1.06 to 2.22)*	1.47 (1.01 to 2.16)*
Use of other tobacco/nicotine products				
Current use of HTPs or ECs: yes vs no	1.04 (0.90 to 1.19)		1.10 (0.87 to 1.39)	
Knowledge of the health effects of smoking				
On people who smoke‡				
Moderate vs low	1.07 (0.97 to 1.19)		1.15 (0.97 to 1.36)	
High vs low	1.05 (0.94 to 1.17)		1.04 (0.86 to 1.26)	
On people who do not smoke§				
Moderate or high vs low	1.39 (1.17 to 1.66)*	1.40 (1.15 to 1.62)*	1.70 (1.29 to 2.24)*	1.65 (1.34 to 2.05)*

ITC EUREST-PLUS Spain Survey, 2021 (n=867).

Model A: PRs adjusted for sex, age and educational level. Model B: PRs adjusted for sex, age, educational level and the significant variables in model A.

*Statistically significant at p<0.05.

†Respiratory diseases: asthma, chronic bronchitis, chronic obstructive pulmonary disease, emphysema; non-respiratory diseases: depression, anxiety, alcohol problems, chronic pain, diabetes, heart disease, lung cancer, other cancers, tuberculosis, severe obesity.

‡Number of health effects of smoking on people who smoke includes the following: heart disease, impotence, lung cancer, blindness, mouth cancer, throat cancer, stroke, chronic obstructive pulmonary disease or emphysema, bronchitis and tuberculosis. Low knowledge: 0–6 items; medium knowledge: 7–9 items; high knowledge: 10 items.

§Number of health effects on people who do not smoke includes the following: lung cancer, heart attack, asthma in children. Low knowledge: 0 items; medium knowledge: 1–2 items; high knowledge: 3 items.

ECs, electronic cigarettes; HTPs, heated tobacco products; PR, prevalence ratio.

with being in the maintenance stage of smoking cessation compared with being in the action stage (PR: 1.57; 95% CI 1.08 to 2.29), and currently using HTPs/ECs (PR: 1.17; 95% CI 1.04 to 1.31). These associations remain statistically significant when included alongside sociodemographic variables in the regression model (model B, [table 3](#)).

DISCUSSION

People who currently smoke strongly supported an outdoor smoking ban during the COVID-19 pandemic when a safe

interpersonal distance could not be maintained. Although their support for making the ban permanent was lower, it remained substantial. In contrast, people who formerly smoked expressed near-unanimous support for both temporary and permanent bans.

Our study suggests higher support for an outdoor smoking ban than in other countries. A recent meta-analysis found average public support for bans in outdoor hospitality venues between 2004 and 2022 to be around 50% globally (95% CI 43% to 56%).¹ Notably, support was demonstrably higher for

Table 3 Factors associated with support for banning smoking in open spaces when minimal interpersonal distance cannot be maintained during and after the COVID-19 pandemic in Spain among people who formerly smoked

	Supporting the ban during the pandemic		Supporting the ban after the pandemic	
	Model A	Model B	Model A	Model B
	PR (95% CI)	PR (95% CI)	PR (95% CI)	PR (95% CI)
Compliance with smoke-free spaces legislation				
Witnessing smoking inside a ...				
Pub or bar: no vs yes	1.12 (0.91 to 1.38)		1.56 (0.91 to 2.68)	
Restaurant: no vs yes	1.62 (0.81 to 3.24)		2.15 (0.76 to 6.14)	
Nightclub or disco: no vs yes	Insufficient observations		0.97 (0.55 to 1.71)	
Pub/bar, restaurant, nightclub/disco: no vs yes	1.17 (0.91 to 1.52)		1.36 (0.91 to 2.02)	
Smoked inside a ...				
Pub or bar: no vs yes	1.00		1.00	
Restaurant: no vs yes	1.00		1.00	
Nightclub or disco: no vs yes	Insufficient observations		1.00	
Witnessing smoking in indoor areas ...				
Where they work: no vs yes	1.07 (0.83 to 1.39)		1.19 (0.76 to 1.85)	
In a pub/bar, restaurant, nightclub/disco or at work: no vs yes	1.07 (0.82 to 1.40)		1.04 (0.68 to 1.57)	
Smoking rule at home				
Complete ban vs partial or no ban	1.10 (1.01 to 1.19)*	1.08 (1.01 to 1.17)*	1.16 (0.98 to 1.37)	
COVID-19				
Have had COVID-19: no vs yes	0.94 (0.89 to 0.99)*		1.01 (0.84 to 1.21)	
Worried about getting COVID-19: no vs yes	1.02 (0.95 to 1.10)		1.15 (0.94 to 1.41)	
Cessation				
Stage of change: maintenance vs action	1.01 (0.93 to 1.09)		1.57 (1.08 to 2.29)*	1.23 (1.10 to 1.37)*
Health				
Self-reported health status: bad vs good	0.88 (0.72 to 1.07)		0.90 (0.71 to 1.13)	
Self-reported diseases				
Non-respiratory vs respiratory diseases†	0.76 (0.58 to 1.01)	0.77 (0.58 to 1.01)	1.31 (0.66 to 2.58)	
Healthy vs respiratory diseases†	0.96 (0.93 to 0.99)*	0.95 (0.92 to 0.99)*	1.53 (0.82 to 2.87)	
Use of other tobacco/nicotine products				
Current use of HTPs or ECs: yes vs no	1.04 (1.00 to 1.08)		1.17 (1.04 to 1.31)*	1.17 (1.04 to 1.31)*
Knowledge of the health effects of smoking				
On people who smoke‡				
Moderate vs low	1.04 (0.96 to 1.12)		0.91 (0.75 to 1.11)	
High vs low	0.98 (0.92 to 1.05)		0.94 (0.81 to 1.09)	
On people who do not smoke§				
Moderate or high vs low	1.00 (0.90 to 1.09)		1.00 (0.86 to 1.28)	

ITC EUREST-PLUS Spain Survey, 2021 (n=139).

Model A: PRs adjusted for sex, age and educational level. Model B: PRs adjusted for sex, age, educational level and the significant variables in model A.

*Statistically significant at p<0.05.

†Respiratory diseases: asthma, chronic bronchitis, chronic obstructive pulmonary disease, emphysema; non-respiratory diseases: depression, anxiety, alcohol problems, chronic pain, diabetes, heart disease, lung cancer, other cancers, tuberculosis, severe obesity.

‡Number of health effects of smoking on people who smoke includes the following: heart disease, impotence, lung cancer, blindness, mouth cancer, throat cancer, stroke, chronic obstructive pulmonary disease or emphysema, bronchitis and tuberculosis. Low knowledge: 0–6 items; medium knowledge: 7–9 items; high knowledge: 10 items.

§Number of health effects on people who do not smoke include the following: lung cancer, heart attack, asthma in children. Low knowledge: 0 items; medium knowledge: 1–2 items; high knowledge: 3 items.

ECs, electronic cigarettes; HTPs, heated tobacco products; PR, prevalence ratio.

outdoor non-hospitality venues, averaging 69% (95% CI 64% to 73%). While our study focused on information from people who currently or formerly smoked in 2021, the meta-analysis included a broader population encompassing people who had never smoked over a longer timeframe. Interestingly, despite previous research suggesting an upward trend in support for such policies, the meta-analysis did not find such a temporal trend. The meta-analysis also highlights a significant difference in attitudes between people who smoke and those who have never smoked. The latter ones were found to be 3.5 (95% CI 2.7 to 4.4) and 4.3 times (95% CI 3.4 to 5.5) more likely than people who currently smoke to support outdoor smoking bans in hospitality

and non-hospitality settings, respectively. It is worth noting that the meta-analysis included studies conducted primarily before the COVID-19 pandemic. Considering these findings, particularly the potential plateau in overall support and the difference in attitudes between people who smoked and those who never smoked, our study's estimated level of support for an outdoor smoking ban is likely higher than that previously reported for other countries, which could be due to the pandemic.

Although some jurisdictions adopted outdoor smoking bans prior to the pandemic, no nation, to our knowledge, implemented a nationwide outdoor smoking ban during the pandemic. The closest example comes from the Eastern Mediterranean Region,

where 15 countries enacted temporary bans on waterpipe use in indoor and outdoor public spaces during the pandemic.¹⁷

Four factors appear to be associated with increased support for outdoor smoking bans among people who smoke: having complete smoke-free home rules, having greater understanding of SHS's health effects on people who do not smoke, attempting to quit smoking and absence of respiratory diseases. These factors potentially represent three distinct categories influencing support for the ban and should be explored in further studies.

First, understanding SHS health risks for people who do not smoke and implementing voluntary smoke-free home rules might reflect a heightened health consciousness and a shift towards smoke-free social norms, potentially accelerated by the pandemic. These factors suggest increased awareness of smoking's broader societal impact. Second, people who smoke and are trying to quit provide further evidence of heightened health consciousness. Quitting attempts may signify a recognition of smoking's long-term health risks. Third, the study suggests a difference in how people who smoke with and without respiratory problems perceive the ban. Those reporting good health or non-respiratory illnesses may be more receptive to information about smoking's long-term health risks. This motivates them to support preventative measures. Conversely, people who smoke with existing respiratory issues might prioritise managing immediate symptoms, perceiving the ban as inconvenient, with minimal immediate benefit. Additionally, they may feel helpless or resigned regarding smoking's impact on their health, reducing their support for a ban seen as ineffectual in their current situation. This resignation could also explain previous findings from our ITC EUREST-PLUS Spain Survey, indicating that participants with self-reported respiratory disease reported wearing a face mask all the time in public less frequently (73.1%) than those with non-respiratory disease (84.3%) or with no such diseases (83.8%).¹⁸

Factors associated with support for the outdoor smoking ban varied depending on whether it was for the temporary pandemic measure or for making the ban permanent. Among people who formerly smoked, those who had implemented complete smoke-free home rules and reported health problems showed stronger support for a temporary ban during the pandemic. However, for the permanent post-pandemic ban, support is more pronounced among those in the 'maintenance' stage of smoking cessation compared with the 'action' phase. Additionally, current HTP/EC users also express stronger support for the permanent ban.

Furthermore, these findings provide compelling empirical evidence to counter the long-standing arguments of the tobacco industry, which frequently asserts that smoke-free policies are unpopular and infringe on the rights of people who smoke. Our study demonstrates that, on the contrary, a substantial majority of people who smoke and nearly all who formerly smoked in Spain supported these restrictions during the pandemic. This challenges the industry-promoted narrative that such public health measures lack support from the very populations they regulate and strengthens the position of policymakers aiming to enact evidence-based public health legislation.¹⁹

Our study offers valuable insights into public attitudes towards smoking bans, but its findings should be interpreted cautiously. First, reliance on self-reported data for health status, smoking behaviours, opinions about the ban and compliance with smoke-free policies raises potential information biases, including social desirability bias. It is conceivable that participants might have under-reported smoking habits or overstated their health status to project a more favourable image. To strengthen future research, incorporating objective measures of tobacco use could

provide a more accurate representation of smoking behaviours and validate self-reports.

Second, due to the cross-sectional nature of our analysis, we identified associations between variables but cannot establish causality. Longitudinal studies tracking attitudes towards smoke-free policies over time could provide valuable insights. Such research could help determine whether temporary measures, like the pandemic restrictions, have lasting impacts on public opinion and smoking behaviour. Third, the order of the 'support' and 'oppose' response options for the outcome questions was not randomised. This may have introduced a response order bias, although given that there are just two questions, the magnitude of such an effect is likely minimal.

Finally, the timing of our data collection relative to the pandemic restriction (almost 1 year after the ban adoption and at the beginning of the fifth pandemic wave in Spain) could influence participants' perceptions of the continuation of the smoking ban beyond the immediate crisis. It is possible that acute concerns about the pandemic might have swayed their opinions, making it difficult to project those same attitudes into a post-pandemic landscape. Future research could address this with comparative studies, including data points during and after similar restrictions. This broader perspective would allow for a clearer, more nuanced understanding of how public support for smoking bans evolves in response to changing social contexts.

Our study revealed strong support for outdoor smoking bans among people who currently or formerly smoked, a group traditionally less enthusiastic about such restrictions than people who have never smoked. Evidence has shown that compliance with outdoor smoke-free policies increases when people who smoke support them.²⁰ However, regional governments withdrew the temporary outdoor ban implemented during the pandemic,^{21 22} which not only squanders a valuable opportunity to protect people who do not smoke but also undermines efforts to help people who smoke seek to quit. The pandemic may have influenced support for such an exceptional measure. When asked about support for further total outdoor smoking bans that may be included in future legislation, support was slightly lower, particularly in restaurants, bars and pubs.⁹ This highlights the importance of raising awareness of the health consequences of active and passive smoking.

In 2024, the Spanish government approved a tobacco prevention plan that considers extending the smoking ban to various outdoor environments, including those currently exempted in the hospitality sector.²³ Therefore, there is an urgent need to develop the plan and translate it into legislation. Leveraging the current momentum of high public support and policymaker engagement is crucial. Moreover, outdoor smoking bans are a valuable tool in the tobacco endgame strategy.²⁴ By reducing social acceptance, protecting public health and supporting quit attempts, they pave the way for a future with minimal or no tobacco use.

As with many tobacco control measures, an outdoor smoking ban might seem impractical until enacted, potentially leading to a significant public health benefit.²⁵ To paraphrase the quote often attributed to George Bernard Shaw and later echoed by Robert Kennedy, "Some observe the world as it is and ask, 'Why?'. But together, let us dare to envision possibilities yet to exist and boldly ask, 'Why not?'".

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