Original investigation

Smoking-Related Stigma: A Public Health Tool or a Damaging Force?

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Abstract

Background: Tobacco control policies and other denormalization strategies may reduce tobacco use by stigmatizing smoking. This raises an important question: Does perceived smoking-related stigma contribute to a smoker's decision to quit? The aim of this study was to evaluate if perceived smoking-related stigma was associated with smoking cessation outcomes among smokers in Mexico and Uruguay.

Methods: We analyzed prospective data from a panel of adult smokers who participated in the 2008–2012 administrations of the International Tobacco Control Policy Evaluation Surveys in Mexico and Uruguay. We defined two analytic samples of participants: the quit behavior sample ($n = 3896$ Mexico; $n = 1525$ Uruguay) and the relapse sample ($n = 596$ Mexico). Generalized estimating equations were used to evaluate if different aspects of perceived stigma (ie, discomfort, marginalization, and negative stereotype) at baseline were associated with smoking cessation outcomes at follow-up.

Results: We found that perceived smoking-related stigma was associated with a higher likelihood of making a quit attempt in Uruguay but with a lower likelihood of successful quitting in Mexico.

Conclusions: This study suggests that perceived smoking-related stigma may be associated with more quit attempts, but less successful quitting among smokers. It is possible that once stigma is internalized by smokers, it may function as a damaging force. Future studies should evaluate the influence of internalized stigma on smoking behavior.

Implications: Although perceived smoking-related stigma may prompt smokers to quit smoking, smoking stigma may also serve as a damaging force for some individuals, making quitting more difficult. This study found that perceived smoking-related stigma was associated with a higher likelihood of making a quit attempt in Uruguay but with a lower likelihood of successful quitting in Mexico.

Introduction

In recent years, the implementation of tobacco control policies (eg, smoke-free policies and pictorial health warning labels) has decreased the social desirability of smoking through social denormalization strategies.¹ It is possible that tobacco control policies that aim to make smoking socially unacceptable may also result in the stigmatization of smokers. Smoking-related stigma has been conceptualized by Stuber et al.² as the labeling, negative stereotypes, social distancing, emotional reactions, and status loss or discrimination that result when a group who lacks power deviates from the norm. For instance, studies suggest that smokers are subjected to labeling and negative stereotypes²⁻⁶ and that smokers perceive that nonsmokers have labeled them as lepers,⁵ weak-willed,^{2,3} stupid,^{2,3} uncivilized,⁴ and unclean.³⁻⁵ Studies have also found that smokers perceive a sense of separation and segregation from nonsmokers.^{2-5,7} For example, a study among Scottish smokers found that once smoke-free policies were enacted, smokers felt segregated by the physical separation between smokers and nonsmokers.⁵ Likewise, a study in Canada suggested that nonsmokers preferred to be around nonsmokers compared to smokers.⁶ Studies that have evaluated the emotional response that results from smoking-related stigma have found that smokers expressed feelings of shame,^{5,8} being blamed,⁵ guilt,³ disapproval,^{3,5} and discomfort when smoking in public places.³⁻⁵ Moreover, studies conducted among smokers also show that stigmatized smokers are likely to feel status loss and discrimination.^{2,3,5,7} For example, a study in Canada found that smokers felt discriminated against by nonsmokers.³ Thus, research suggests smokers experience smoking-related stigma, although the consequences of those experiences for smoking behaviors are not always clear.

Some researchers suggest that if the stigmatization of smokers reduces smoking, the burden of disease is then morally acceptable.⁹ However, other researchers have expressed concern that smoking stigmatization may be unethical due to potential negative consequences for the person.^{3,8} For example, a literature review on stigma and smoking found that smoking-related stigma may result in guilt, loss of self-esteem, self-induced social isolation, increased resistance to smoking cessation, and relapse.¹⁰ Smoking-related stigma can produce a type of pejorative attitude where smokers feel that giving up smoking is too difficult.⁴ Therefore, the tendency to stigmatize smokers may produce either active resistance or a sense of helplessness for a smoker.⁴ Furthermore, it is possible that stigmatized smokers may socially withdraw from nonsmokers and embed themselves in environments where smoking is socially acceptable, again reinforcing tobacco consumption.^{2,4} Despite evidence for negative consequences of smoking-related stigma on smokers, many researchers believe that the stigmatization of smokers may contribute to an increase in smoking cessation outcomes. In support of this notion, a qualitative study conducted in Canada found that smoking-related stigma may encourage ex-smokers to remain quit to avoid stigmatization.³ Furthermore, a study of US adults found that experiencing smoking-related stigma was associated with more quit attempts.¹¹

Given the scant evidence on smoking-related stigma and smoking behaviors, as well as the lack of such studies outside of the United States and other high-income countries, the aim of this study was to evaluate if smoking-related stigma is associated with smoking cessation among smokers in Mexico and Uruguay. These two countries were the first in Latin America to ratify the World Health Organization's Framework Convention on Tobacco Control, which has formulated a number of tobacco control policies that aim to reduce cigarette consumption and social desirability of tobacco. Both Mexico and

Uruguay have introduced smoke-free laws and pictorial health warning labels as part of their tobacco control policies. However, Uruguay introduced smoke-free policies before Mexico and has adopted stricter policies regarding health warning labels.¹² Studies suggest that tobacco control policies may reduce tobacco consumption by making this a stigmatized habit.^{1,13} Therefore, it is important to evaluate smoking-related stigma in settings with different tobacco control regulations. Furthermore, although there was a decrease in the smoking prevalence in both countries between 2009 and 2012, the prevalence of smoking in Uruguay was consistently higher at both timepoints.¹² Differences in smoking patterns may also influence stigma formation. We hypothesize that smoking-related stigma at baseline will result in a decrease in quit attempts, less successful quitting, and more relapse among Mexican and Uruguayan smokers at follow-up.

Methods

Population

We analyzed data from the Mexican and Uruguayan survey administrations of the International Tobacco Control Policy Evaluation Project, a population-based, prospective longitudinal cohort study of adult smokers. Census tracts were selected from seven Mexican cities and five cities in Uruguay, with probability proportional to the number of households. Data collection in both countries began in 2006 and used a stratified, multistage sampling scheme with face-to-face interviews. A detailed description of the methodology can be found elsewhere.^{14,15} Eligible participants were aged 18 years or older, had smoked at least once during the previous week, and had smoked at least 100 cigarettes in their lifetime. Data used from the Mexican International Tobacco Control Policy Evaluation Survey came from Wave 3 (conducted from November to December 2008), Wave 4 (conducted from January to February 2010), Wave 5 (conducted from April to May 2011), and Wave 6 (conducted from October to December 2012). Data from the Uruguayan International Tobacco Control Policy Evaluation Survey came from Wave 2 (conducted from September 2008 to February 2009), Wave 3 (conducted from October 2010 to January 2011), and Wave 4 (conducted from September to December 2012).

We defined two analytic samples of participants: the quit behavior sample and the relapse sample. The quit behavior sample consisted of observations from Wave 2 to Wave 6 in Mexico and Wave 2 to Wave 4 in Uruguay who were smoking at time_(t) and followed up at time_(t+1) ($N_{\text{Mexico}} = 4108$ observations; $N_{\text{Uruguay}} = 1825$ observations). The relapse sample consisted of Wave 3 to Wave 6 observations in Mexico who had quit at time_(t) and were followed up at time_(t+1) ($N_{\text{Mexico}} = 641$ observations). We did not construct an analytic sample for relapse in Uruguay, as the number of observations who met the criteria for such analyses was very small ($n = 79$ observations). To evaluate smoking behavior at time_(t+1) as a function of smoking-related stigma at time_(t), we lagged the smoking-related stigma variables. The quit behavior sample was further subsetted based on participants who answered questions for the quit attempt and successful quitting outcomes.

In Mexico, 20%, 17%, and 35% of observations were lost to follow-up between Waves 3 to 4, Waves 4 to 5, and Waves 5 to 6, respectively. In Uruguay, 30% and 24% of observations were lost to follow-up between Waves 2 to 3 and Waves 3 to 4, respectively. After excluding participants who had missing values for the outcome (smoking cessation measures), exposure (smoking-related stigma), and covariates, the final sample size for quit attempts was 3839 and 1525 observations in Mexico and Uruguay, respectively. The final

sample size for successful quitting was 1478 observations in Mexico and 804 observations in Uruguay. Finally, the final sample size for relapse in Mexico was 594 observations ([Appendix](#)).

Smoking Cessation Behavior

We investigated three dependent variables related to smoking cessation: quit attempts, successful quitting, and smoking relapse. A quit attempt was defined as a smoker in the present wave who answered “yes” to the question, “In the past year, have you tried to quit smoking?” A smoker at the present wave was considered to have successfully quit if he or she had made a quit attempt since the previous wave, and had quit for at least 1 month in the present wave. A person was considered to have relapsed if he or she was a smoker in the present wave, but had quit smoking for at least 30 days at the previous wave.

Smoking-Related Stigma Measures

We used three questions to measure smoking-related stigma that fit Stuber et al.² conceptualization of perceived stigma: emotional reactions, negative stereotype of smokers, and status loss. We measured respondents’ emotional reactions by asking participants how strongly they agreed that “There are fewer and fewer places where you feel comfortable smoking” (feeling uncomfortable). Negative stereotype of smokers was measured by asking participants how strongly they agreed that “Any negative impact that smoking causes is the smokers’ fault.” To measure status loss, we asked respondents how strongly they agreed that “People who smoke are more and more marginalized” (perception that smokers are marginalized). Responses to these questions included: “Strongly disagree,” “Disagree,” “Neither agree nor disagree,” “Agree,” and “Strongly agree.” We dichotomized the responses into “stigmatized” (agreed or strongly agreed) and “not stigmatized” (other responses). These three questions were asked to participants in both Mexico and Uruguay.

Covariates

Several individual-level sociodemographic variables were included as covariates in our models, including age, sex, education, and income. Age was treated as a continuous variable and sex was dichotomized. Education was categorized as primary education or less, middle school or vocational school or high school or incomplete university, and university and/or postgraduate in both countries. In Mexico and Uruguay, we collapsed income categories to divide the data into approximate quartiles. Participants who responded “Don’t know” to this question were grouped into a fifth category. The smoking cessation models (ie, quit attempts and successful quitting) were also adjusted for nicotine dependence. Nicotine dependence in Uruguay was assessed using the Heaviness of Smoking Index (HSI), which has been shown to be positively associated with nicotine dependence.¹⁶ The HSI was estimated by summing two categorized measures: number of cigarettes per day (CPD) and time to first cigarette.¹⁶ In Mexico, the HSI is not a good measure of nicotine dependence as most Mexican smokers are categorized at very low levels due to the low-intensity smoking pattern in this country.¹⁷ Therefore, for the Mexican participants, we used a measure of CPD in lieu of HSI that was categorized as follows: 1 = non-daily, 2 = less than or equal to 5 CPD, and 3 = more than 5 CPD. HSI and CPD were measured one wave prior to the wave corresponding to the dependent variable. In our final models, we also adjusted for two types of social norms: close social network norms and societal norms, as social norms may confound the relationship between smoking-related stigma and smoking behavior. Close social network norms were measured

by asking residents how strongly they agreed (on a five-point scale) that: “People who are important to you believe that you should not smoke.” Societal norms were measured by asking respondents how strongly they agreed (on a five-point scale) that: “The Mexican/Uruguayan society disapproves of smoking.” We categorized these questions into three-level variables (1 = strongly agree, 2 = agree, and 3 = neutral or disagree).

Statistical Analysis

We calculated weighted descriptive statistics, by survey year, for all variables of interest in Mexico and Uruguay. Generalized estimating equations with log-binomial models and robust standard errors were used to determine the relationship between smoking-related stigma (ie, negative stereotype of smokers, feeling uncomfortable, and perception that smokers are marginalized) at baseline and cessation behaviors at follow-up, to account for the nested structure of the data.¹⁴ We ran three sets of models for each of the outcomes studied (quit attempts, successful quitting, and relapse). The first set of models examined the crude association between each smoking-related stigma variable at baseline and smoking and cessation behaviors at follow-up. In the second set of models, we evaluated these relationships after adjusting for individual-level covariates: age, sex, education, income, and nicotine dependence. Finally, in the third set of models we also adjusted for social norms (ie, close social network norms and societal norms).

All models were weighted to account for the sampling design and rescaled to the sample size at the city level to keep the observations from the largest cities from overrepresenting those in smaller cities. Generalized estimating equation models were run in SAS 9.4.

Results

Table 1 presents the sample characteristics in Mexico and Uruguay for each analytic sample, summed across waves. The mean age of participants ranged between 43 and 45 in both countries. More male than female smokers participated in Mexico, whereas the opposite was true in Uruguay. In Mexico, 10%–13% of participants had a college education; in Uruguay, 18% of participants had a college education. In Mexico, 38% of participants had tried to quit smoking in the past year, although 47% of the Uruguayan respondents had tried to quit smoking in the past year. Among those who had made a quit attempt, 33% and 15% had successfully quit in Mexico and Uruguay, respectively. In the relapse sample, 26% of the Mexican respondents who had quit smoking at the previous wave had relapsed by the following wave. Between 58% and 67% of participants in Mexico and Uruguay felt uncomfortable about smoking, and 83% to 86% of respondents in Mexico and more than 90% of respondents in Uruguay perceived a negative stereotype of smokers. However, less than half of the respondents in both countries felt that smokers were being marginalized.

Table 2 presents results for the association between smoking-related stigma (ie, feeling uncomfortable, negative stereotype, and marginalization of smokers) and quit attempts at follow-up. Smokers were more likely to have made a quit attempt if they perceived a negative stereotype of smokers in Mexico, although results were not statistically significant in the adjusted models (**Table 2**; Model 3: relative risk [RR] = 1.30, 95% confidence interval [CI] = 0.88% to 1.92%). In Uruguay, smokers who felt marginalized at baseline were more likely to have made a quit attempt by follow-up (**Table 2**; Model 3: RR = 1.41, 95% CI = 1.05% to 1.09%).

Table 3 shows results for the relationship between smoking-related stigma and successful quitting. In Mexico, smokers who

Table 1. Selected Characteristics of Study Sample, 2008–2012 International Tobacco Control Policy Evaluation (ITC) Mexico, Uruguay Survey

Variables	Mexico		Uruguay
	Quit behavior N = 4108	Relapse sample N = 641	Quit behavior N = 1825
Age, mean (SD)	42.7 (15.0)	45.4 (15.7)	43.2 (13.9)
Sex (%)			
Male	61.9	57.9	46.6
Female	38.1	42.1	53.38
Quartiles of income (%)			
1	24.5	25.2	18.16
2	31.4	28.5	24.33
3	21.8	22.7	16.39
4	15.4	17.3	36.33
Do not know	6.9	6.4	4.79
Education (%)			
No school or primary	31.5	30.9	22.75
Middle school	32.0	28.9	31.41
High school, incomplete university	26.1	27.5	27.87
University graduate	10.5	12.8	17.97
Feeling uncomfortable (%)			
Yes	59.0	58.6	66.62
Negative stereotype (%)			
Yes	83.2	86.1	93.18
Marginalization (%)			
Yes	47.5	49.5	43.34
Societal norms (%)			
Strongly agree	13.4	20.0	15.41
Agree	44.1	40.4	44.59
Disagree or neutral	42.5	39.6	40.00
Close social network norm (%)			
Strongly agree	29.5	36.9	34.95
Agree	52.6	46.8	52.00
Disagree or neutral	17.9	16.3	13.05
Quit attempt (%) ^a			
Yes	38.2		46.82
Successful quitting (%) ^b			
Yes	33.3		14.57
Relapse (%)			
Yes		25.8	

SD = standard deviation.

^aMexico: *n* = 3884; Uruguay: *n* = 1517.^bMexico: *n* = 1484; Uruguay: *n* = 836.

felt uncomfortable about their smoking were less likely to successfully quit smoking at follow-up (Table 3; Model 3: RR = 0.69, 95% CI = 0.52% to 0.93%). Likewise, in Mexico, respondents who perceived that smokers were marginalized were less likely to successfully quit smoking compared to those who did not perceive that smokers were marginalized (Table 3; Model 3: RR = 0.66, 95% CI = 0.50% to 0.89%). Results for the three stigma measures and successful quitting were in the same direction, but not statistically significant in Uruguay.

Table 4 presents results for the association between smoking-related stigma and relapse in Mexico. There was no relationship between any of the three stigma measures and relapse.

Discussion

We used data from population-based, longitudinal surveys of adult smokers in Mexico and Uruguay to evaluate the relationship between smoking-related stigma at baseline and cessation behaviors

at follow-up. Perceived smoking-related stigma was associated with a higher likelihood of making a quit attempt in Uruguay but with a lower likelihood of successful quitting in Mexico.

We found that respondents in Uruguay who felt marginalized were more likely to have made a quit attempt by follow-up. It is possible that to avoid stigmatization and withdrawal from society, smokers may try to quit smoking.^{3,11} These results are consistent with a study performed among smokers in the United States, which found that smoking-related stigma was associated with making a quit attempt in the past year.¹¹

In this study, we also found that Mexican respondents who felt uncomfortable about their smoking or who thought smokers were marginalized were less likely to successfully quit smoking at follow-up compared to smokers who did not feel uncomfortable about their smoking or did not think that smokers were marginalized. It is possible that, over time, the perceived smoking stigma (ie, “smokers are marginalized”) that smokers may encounter will be

Table 2. Adjusted Risk Ratios of the Association Between Smoking-Related Stigma and Risk of Quit Attempts Within the Last Year, 2008–2012 International Tobacco Control Policy Evaluation (ITC) Mexico, Uruguay Survey

Variables	Adjusted risk ratios (95% CI) Quit attempts					
	Mexico (<i>n</i> = 3839)			Uruguay (<i>n</i> = 1525)		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Feeling uncomfortable						
Yes	1.15 [0.96% to 1.39%]	1.07 [0.79% to 1.44%]	1.06 [0.78% to 1.45%]	1.16 [0.86% to 1.58%]	1.28 [0.93% to 1.76%]	1.20 [0.87% to 1.65%]
No	1	1	1	1	1	1
Negative stereotype						
Yes	1.32 [1.04% to 1.69%]	1.31 [0.89% to 1.91%]	1.30 [0.88% to 1.92%]	0.81 [0.43% to 1.53%]	0.88 [0.48% to 1.62%]	0.84 [0.47% to 1.49%]
No	1	1	1	1	1	1
Marginalization						
Yes	1.13 [0.92% to 1.39%]	1.05 [0.78% to 1.4%]	1.03 [0.77% to 1.38%]	1.42 [1.05% to 1.9%]	1.56 [1.16% to 2.1%]	1.41 [1.05% to 1.9%]
No	1	1	1	1	1	1

CI = confidence interval.

Model 1: crude model; Model 2: adjusted for education, income, sex, survey year, age, and nicotine dependence at the previous wave; Model 3: Model 2 + social norms.

Table 3. Adjusted Risk Ratios of the Association Between Smoking-Related Stigma and Successful Quitting, 2008–2012 International Tobacco Control Policy Evaluation (ITC) Mexico, Uruguay Survey

Variables	Mexico (<i>n</i> = 1478)			Uruguay (<i>n</i> = 804)		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Adjusted risk ratios (95% CI) Successful quitting						
Feeling uncomfortable						
Yes	0.69 [0.51% to 0.93%]	0.70 [0.52% to 0.94%]	0.69 [0.52% to 0.93%]	0.67 [0.17% to 1.09%]	0.74 [0.29% to 1.24%]	0.71 [0.25% to 1.19%]
No	1	1	1	1	1	1
Negative stereotype						
Yes	0.95 [0.65% to 1.4%]	0.98 [0.67% to 1.43%]	0.95 [0.65% to 1.39%]	0.43 [0.16% to 1.06%]	0.52 [0.25% to 1.18%]	0.53 [0.28% to 1.22%]
No	1	1	1	1	1	1
Marginalization						
Yes	0.67 [0.5% to 0.9%]	0.67 [0.5% to 0.89%]	0.66 [0.5% to 0.89%]	0.88 [0.56% to 1.77%]	0.96 [0.86% to 2.43%]	0.94 [0.77% to 2.21%]
No	1	1	1	1	1	1

CI = confidence interval.

Model 1: crude model; Model 2: adjusted for education, income, sex, survey year, age, and nicotine dependence at the previous wave; Model 3: Model 2 + social norms.

Table 4. Adjusted Risk Ratios of the Association Between Smoking-Related Stigma and Relapse, 2008–2012 International Tobacco Control Policy Evaluation (ITC) Mexico

Variables	Adjusted risk ratios (95% CI) Relapse		
	Mexico (<i>n</i> = 594)		
	Model 1	Model 2	Model 3
Feeling uncomfortable			
Yes	0.68 [0.42% to 1.09%]	0.70 [0.43% to 1.12%]	0.70 [0.43% to 1.12%]
No	1	1	1
Negative stereotype			
Yes	0.72 [0.35% to 1.49%]	0.87 [0.44% to 1.72%]	0.82 [0.43% to 1.58%]
No	1	1	1
Marginalization			
Yes	0.85 [0.53% to 1.35%]	0.89 [0.55% to 1.44%]	0.91 [0.57% to 1.44%]
No	1	1	1

CI = confidence interval.

Model 1: crude model; Model 2: adjusted for education, income, sex, survey year, and age; Model 3: Model 2 + social norms.

internalized (ie, “I am marginalized”). Once smoking-related stigma is internalized by smokers, it may function as a damaging force. For example, Evans-Polce et al.¹⁰ suggest that internalized stigma (self-stigma) may result in a loss of self-esteem and self-efficacy regarding smoking. Studies of mental illness support the idea that internalized stigma may result in reduced self-efficacy.^{18–20} Self-efficacy has been found to be an important predictor of smoking cessation,^{21,22} and reduced self-efficacy can create a sense of powerlessness in people’s ability to quit smoking.^{3,4} Also, individuals who experience internalized stigma may constrict their social networks, leading to withdrawal and isolation from their social environment.²⁰ Stigmatized smokers may be encouraged to socially withdraw from the non-smoking community and to frequent environments where smoking is socially acceptable.⁴ This may reduce the likelihood of successful quitting. It is also possible that stigmatized smokers who keep their smoking a secret will not benefit from smoking cessation programs that may help them remain quit long term.^{2,23}

Differences in results in the association between smoking-related stigma and cessation outcomes (ie, quit attempts and successful quitting) between Mexico and Uruguay may have occurred for a number of reasons. For instance, the prevalence and intensity of smoking among Uruguayan smokers was consistently higher than that of Mexican smokers, across the survey years examined in this study.¹² Thus, it is possible that high-intensity smokers who experience stigma may have reduced self-efficacy that may hinder their ability to quit smoking. Discrepancies in results may also be due to differences in the cultural context. A recent study found that socioeconomic status was differentially associated with smoking-related stigma among smokers in Mexico and Uruguay, such that higher income and education were associated with a stronger negative stereotype of smokers in Mexico, whereas lower income and education were associated with a stronger negative stereotype of smokers in Uruguay.¹²

In this study, we did not find a statistically significant relationship between smoking-related stigma variables and relapse. One prior study on stigma and relapse, a qualitative study among Canadians, suggests that smoking-related stigma may discourage relapse among ex-smokers who want to avoid stigmatization.³ Although we did not find the same pattern, our results should be interpreted with caution as the sample size used to run this analysis was low (*n* = 596).

Future prospective studies should evaluate the association between smoking-related stigma and relapse using a larger sample size.

Strengths and Limitations

To the best of our knowledge, this is the first study to evaluate the influence of smoking-related stigma on smoking cessation using longitudinal data. It is also the first to look at these relationships outside of the United States and other high-income countries. However, there are important limitations that need to be acknowledged. For instance, although we analyzed three components of smoking-related stigma (ie, emotional reaction, negative stereotype, and status loss), it is likely that we did not capture the whole experience of smoking-related stigma, as we looked at perceived stigma only, and did not investigate internalized stigma.¹⁰ There is a need for further research that focuses on developing a set of consistent and reliable measures for smoking-related stigma, such as the *Internalized Stigma of Smoking Inventory* proposed by Brown-Johnson et al.¹¹ in 2015. Internalized measures of smoking-related stigma may affect smoking outcomes more strongly than perceived stigma measures. Another limitation is that selection bias could result from loss to follow-up in the study because all of our models depended on data from two consecutive waves. However, there were no statistically significant differences between the sociodemographic covariates (age, sex, education, income, and smoking intensity) or exposure variables (smoking-related stigma) for our study sample when compared to participants who were lost to follow-up, with a few exceptions: age (among participants lost to follow-up from Wave 4 to Wave 5; Mexico) and income (among participants lost to follow-up between Wave 5 and Wave 6; Mexico).

Conclusions

We found evidence to suggest that perceived smoking-related stigma may have positive as well as negative consequences for smokers. In this study, we found that although smoking-related stigma was associated with more quit attempts among Uruguayan smokers, it was also associated with less successful quitting among Mexican smokers. These results raise important concerns about the value and ethics of denormalization strategies that seek to make smoking socially

undesirable, as the stigmatization of smokers may be one of the many factors that drive the social unacceptability of smoking.

Supplementary material

Supplementary data are available at *Nicotine and Tobacco Research* online.

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Declaration of Interests

None declared.

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