



Special report

Evaluation of Uruguay's antismoking campaign: progress and challenges after ten years*

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Suggested citation (Original article)

Triunfo P, Harris J, Balsa A. Evaluación de la campaña antitabaco en Uruguay: balance de diez años y desafíos. *Rev Panam Salud Publica*. 2016;40(4):256–62.

ABSTRACT

In 2005, shortly after ratifying the Framework Convention on Tobacco Control (FCTC), Uruguay began an ambitious tobacco control campaign that brought the country to the global forefront in the fight against smoking. The wide range of measures implemented in a relatively short period and the rigorousness with which policies were implemented and enforced have few precedents, even in the most developed countries. This paper presents a synthesis and update of several papers by the authors that evaluate different aspects of the campaign ten years following ratification of the FCTC. In particular, these research studies highlight the campaign's aggregate impact on the drop in prevalence in adult and youth populations, and on decisions by pregnant women to quit smoking (1, 2), as well as the relative impact of tax policies in relation to non-price tobacco control measures. The analyses are based on observational studies (at the population or individual level) that use external (Argentina and Chile) and internal (nonsmokers) control groups. Pending challenges in the design of antismoking policies are also discussed.

Key words

Smoking cessation; tobacco control campaigns; Uruguay.

In 2005, Uruguay embarked on an ambitious national tobacco control program. This program implemented a series of measures that had been agreed upon in the Framework Convention on Tobacco Control (FCTC) and can be categorized in four main areas: smoke-free environments, advertising, packaging, and pricing (2).

The smoke-free environment initiative began in 2005 when separate areas for smokers were established in private bars, restaurants, and other leisure settings, and was followed by a decree that banned smoking in public areas (offices, state-owned companies, and schools). In March 2006, the ban was extended to all enclosed public places and all public or private workspaces, and in June 2008, it was expanded to include taxis, buses, airplanes, and other public transportation.

The establishment of smoke-free areas was followed by restrictions on tobacco advertising. In May 2005, the advertising of cigarettes on television was prohibited during children's viewing hours, as was the advertising, promotion, and sponsorship of cigarettes by tobacco companies

at sporting events. These restrictions were subsequently ratified by the Tobacco Control Act (Law No. 18,256) of March 2008, which prohibited all forms of advertising, promotion, sponsorship, and displays of tobacco products, except in points of sale. A total ban was enforced through the enactment Law No. 19,244 in September 2014, when advertising restrictions were expanded to include points of sale.

With regard to brands and packaging, in May 2005 all references to "light," "ultra-light," "smooth," "low-tar," and other descriptions that could mislead the public into thinking that the consumption of these cigarettes caused less harm were prohibited. Cigarette manufacturers were required to include a rotating series of pictures covering 50% of the

* Official English translation provided by the Pan American Health Organization. In the case of discrepancy between the two versions the Spanish original shall prevail.

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front and 50% of the back of every pack of cigarettes. In October 2008, the single product rule was established, which prohibits the sale of different versions of the same brand, such as "Silver" or "Blue," and in 2009, the size of warnings was increased to 80% of the front and back

sides. Figure 1 shows a timeline that summarizes the principal antismoking regulations implemented at the national level between 2006 and 2015, with the exception of tax increases. Examples of the rotating pictures in effect over the last ten years appear in Figure 2.

Free smoking cessation programs were first offered in 2003. That year, the National Resource Fund (FNR), a non-state-owned entity in charge of funding highly specialized medical procedures and high-cost drugs for all users of the National Integrated Health System started to offer

FIGURA 1. Timeline of principal tobacco control measures, not including pricing

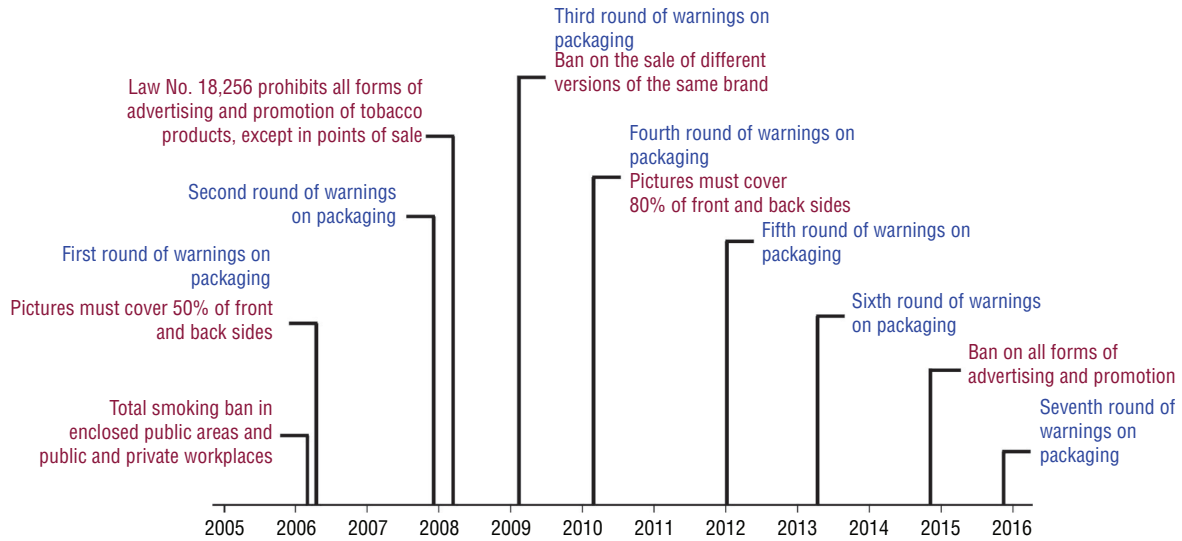
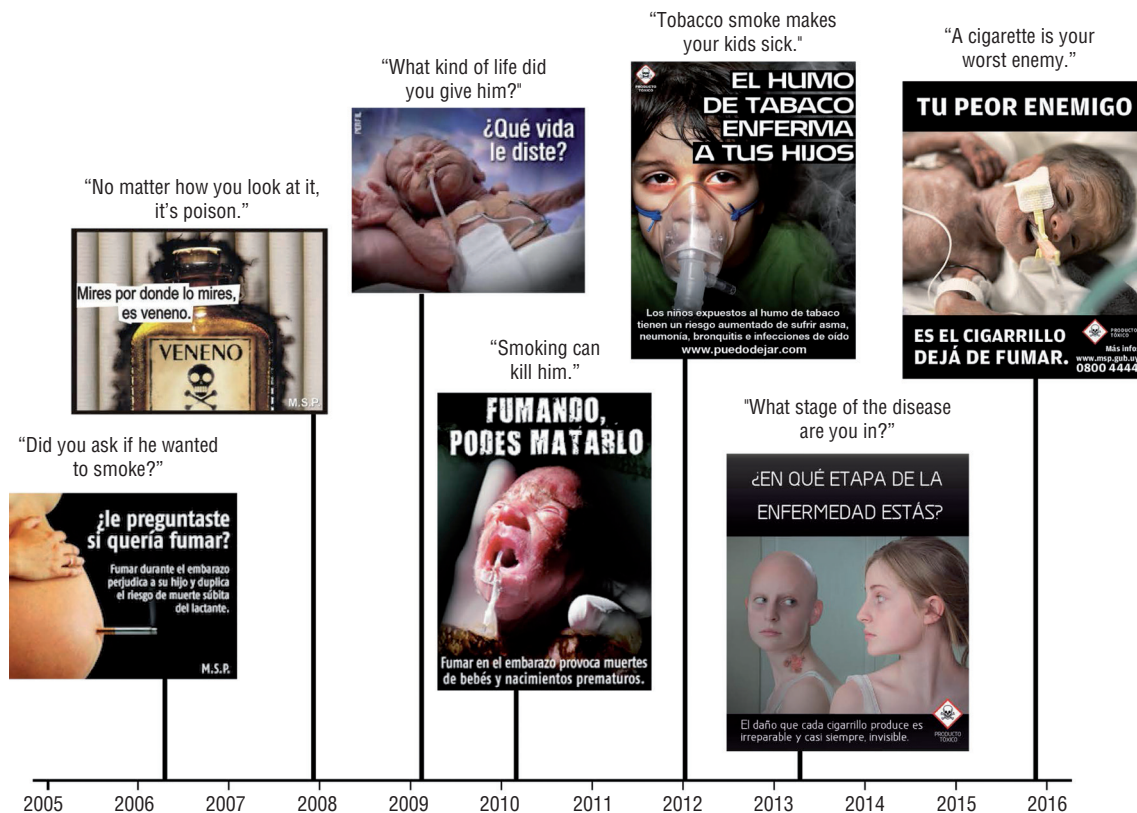


FIGURA 2. Timeline of the seven rounds of rotating pictures



smoking cessation services, initially to smokers who had undergone cardiac bypass procedures. In 2005, the FNR extended its services to the general population through contractual agreements with health providers and other interested agencies. These agreements included the FNR's commitment to train health professionals in the diagnosis and treatment of nicotine dependence and provide free nicotine and Bupropion patches to health providers. In return, the providers would offer a smoking cessation program with low or no patient copayments (3).

Finally, in addition to the aforementioned policy interventions, the Uruguayan government raised indirect taxes on tobacco products on several occasions. In 2007, a value-added tax (VAT) was levied on tobacco products, and in 2009 and 2010 the specific internal excise tax (IMESI) was raised. During that period, tobacco manufacturers responded to tax increases by moderating their prices. Since 2010, real prices fell as a result of a policy that kept the estimated value and rate of IMESI constant, and kept annual inflation at approximately 8%.

GENERAL POPULATION

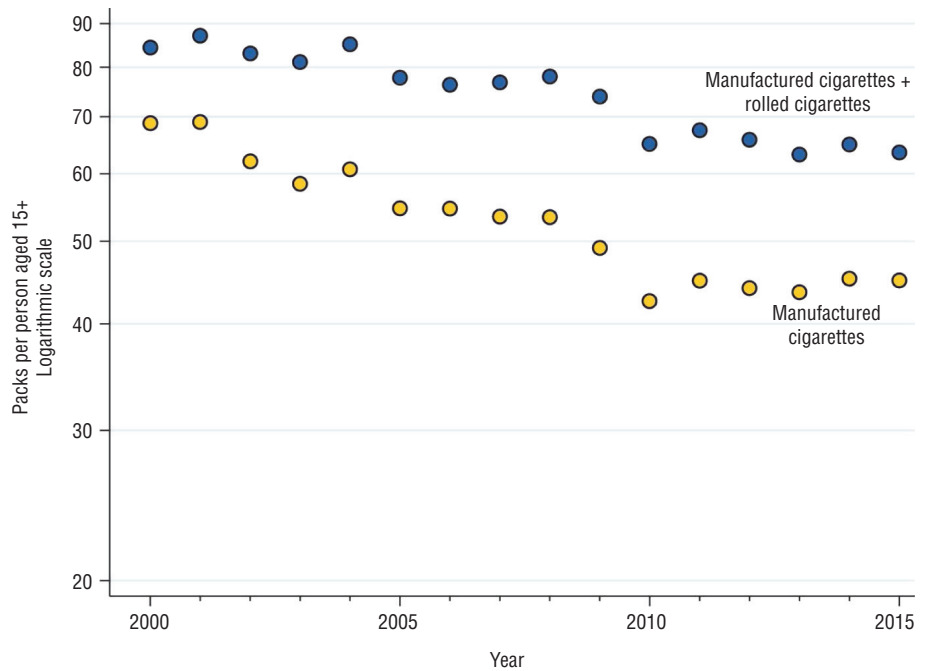
Two criteria were used to assess tobacco consumption trends in the general population: apparent per-capita consumption and prevalence of current consumption of smoked tobacco.

The Abascal et al. study (2) analyzed trends using Argentina as a control group, because, by 2011, the country had not implemented any national antismoking measures or ratified the FCTC. In addition, Argentina shares a border with Uruguay and has similar cultural, economic, and demographic features.

The study results show that between 2005 and 2011, apparent per-capita consumption of cigarettes in Uruguay, measured as the ratio of the number of cigarettes taxed by the Uruguayan Internal Revenue Service (domestic or imported) to the population aged 15 years or more, decreased by 4.3% per year (95% confidence interval [CI]: 2.4–6.2), whereas in Argentina it increased by 0.6% per year (95% CI: -1.2–2.5; $P = 0.002$ for difference in trends).

In Figure 3, the analysis of apparent consumption is expanded to include 2015. As described in Abascal et al. (2), a

FIGURA 3. Trends in apparent per capita consumption of cigarettes (taxed packages) in Uruguay, 2000–2015.



clear decrease in per-capita consumption of legal cigarettes is observed over the period 2005–2010. However, apparent consumption stagnates starting in 2011. This stagnation is even more pronounced in the consumption of manufactured cigarettes than in the consumption of rolled cigarettes, which dropped slightly between 2011 and 2015.

The problem with this indicator is that it does not consider changes in consumption due to contraband. A more accurate indicator is the prevalence of current tobacco consumption, which was obtained through household surveys. Abascal et al. (2) demonstrate that between 2005 and 2011, the prevalence of current tobacco consumption in Uruguay fell 3.3% per year (95% CI: 2.4–4.1), compared to a 1.7% decrease in Argentina (95% IC: 0.8–2.6; $P = 0.02$ for difference in trends).

In Figure 4, the analysis of prevalence of cigarette consumption trends is expanded to include 2014 for the population aged 15 to 64, and includes data collected by the National Drug Board (JND) in 2006, 2011, and 2014, the National Statistics Institute (INE) in 2001, 2006, 2011, and 2014, and GATS (General Agreement on Trade in Services) in 2009. The graph illustrates the heterogeneity of available data sources, as well as the questions used to determine

the respondent's smoking status. When analyzing trends between 2011 and 2014 (the period when the same question and design sample were used in the INE Continuous Household Survey), it was observed that the consumption prevalence continued its downward trend. With respect to the question "Do you currently use any type of smoked tobacco?", 25.3% answered yes in 2014, compared to 28.6% in 2011. This represents a drop of 3.6 percentage points or 11.7% over 3 years ($P < 0.001$). When the INE data is accessed by quintile of per capita household income, significant declines in prevalence can be seen in all quintiles, although in proportional terms, the decline in the period 2011–2014 is less for the poorest quintile.

The findings observed in Figures 3 and 4 illustrate trends that are not entirely consistent. Although apparent cigarette consumption (taxed packs) has stagnated in the last five years, smoking prevalence (estimated on the basis of surveys) continues to decline. The best explanation of the discrepancy between the two trends is the decrease in contraband. There is anecdotal evidence that the Brazilian government has significantly increased antismoking controls along the border with Paraguay (principal route for contraband to enter Uruguay).

Youth

In Abascal et al. (2), the first step was to analyze smoking prevalence trends among adolescents within the past month, using Argentina as the control group. The study used data from a series of crosscutting national surveys on drug use among 13- to 17-year old adolescents, which were conducted at schools in the grade levels corresponding to that age group (4).

The prevalence of smoked tobacco consumption within the past month was based on the question "Have you smoked cigarettes in the last 30 days?"

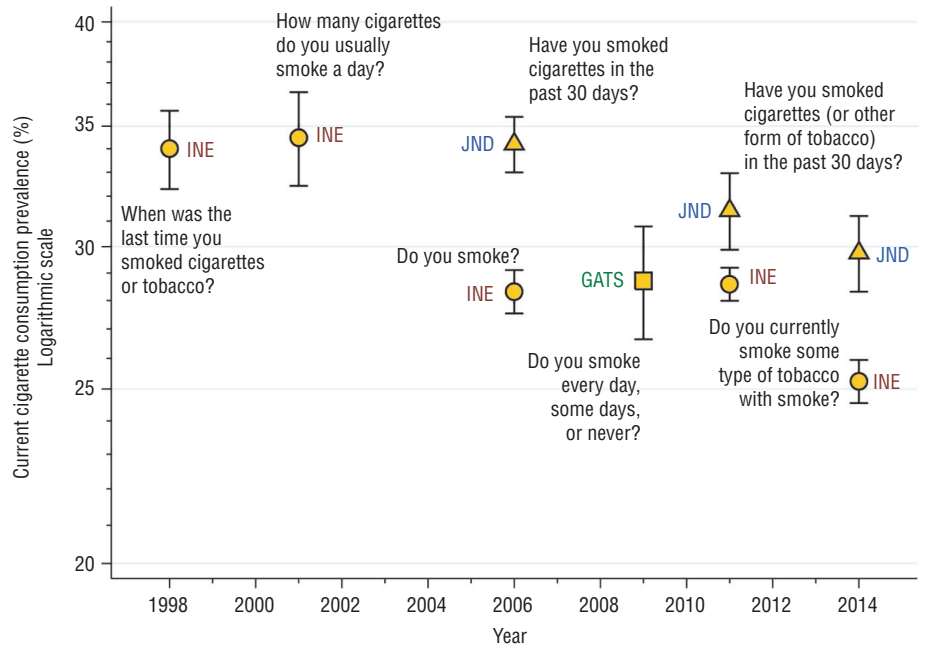
The results show that between 2003 and 2009, the 30-day prevalence of tobacco consumption among Uruguayan students decreased approximately 8.0% per year (4.5-11.6), compared to a reduction of 2.5% (0.5-4.5) per year among Argentine students from 2001 to 2009 (P = 0.02 for difference in trends).

To expand the analysis, the 2011 and 2014 surveys for Uruguay and Argentina were added, using Chile as another control group (5-7). As stated earlier, Argentina only started to implement national tobacco control measures in 2011, with the passage of the Tobacco Control Act. Although earlier measures were implemented to regulate tobacco consumption in Chile (Law No. 19,419 of 1997 and Law No. 20,105 of 2006), there was little enforcement, control, and compliance with this legislation (8, 9). Tougher tobacco control measures were to be introduced in Chile in 2013, through Law No. 20,660.

Figure 5 shows that while cigarette consumption decreased in the three countries, especially after 2005, the decline for Uruguay was significantly greater. In Argentina, current cigarette consumption prevalence fell from 22.1% in 2005 to 15.1% in 2014, with an annual decrease of approximately 4.0% (95% CI: 2.1-5.9). For Chile, the current cigarette consumption prevalence among young people decreased from 42.0% in 2005 to 27.4% in 2013, with an annual decrease of 5.7% (95% CI: 4.0-7.4). In contrast, the current cigarette consumption prevalence in Uruguay dropped from 25.3% in 2005 to 9.5% in 2014, with an annual decrease of 11.8% (95% CI: 8.7-15).

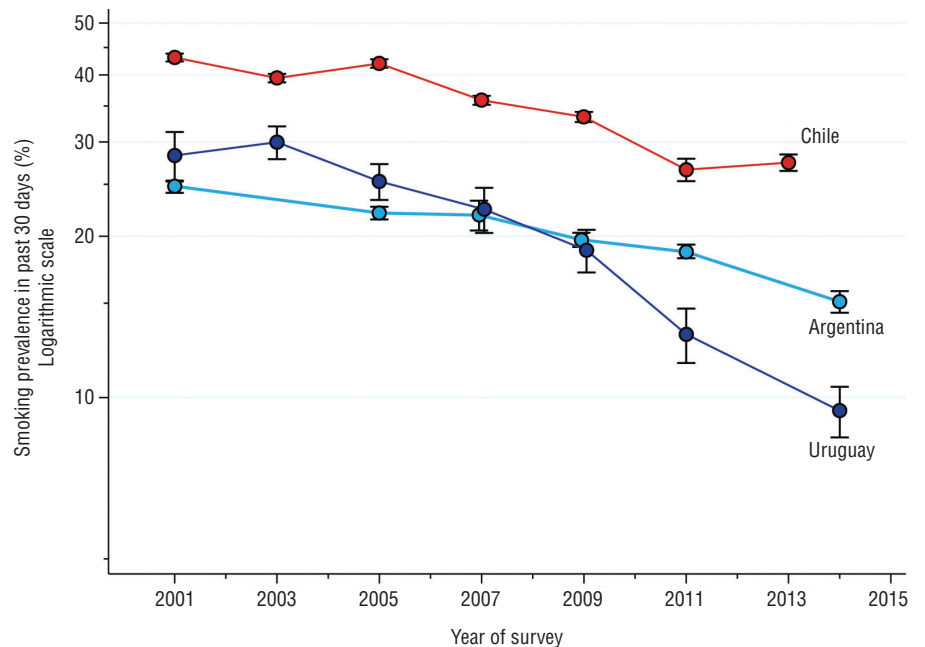
The rate of decline accelerated in Uruguay starting in 2011, when most of the tobacco control measures had been introduced. Figure 5 compares the current cigarette consumption prevalence trends

FIGURA 4. Trends in prevalence of current cigarette consumption among the population aged 15 to 64 in Uruguay, 1998–2014.



JND = National Drug Board. Places with >10,000 inhabitants.
 INE = National Statistics Institute. Places with >5,000 inhabitants.
 GATS = Places with >5,000 inhabitants.

FIGURA 5. Trends in prevalence of current cigarette consumption among secondary school students in Argentina, Chile, and Uruguay, 2001–2014.



with changes in the real price of packs of cigarettes in each country, showing that the major drop in consumption among young people in Uruguay, starting in 2011, had nothing to do with changes in prices.

Pregnant women

Pregnant women comprise a risk group of special interest, due to the widely demonstrated consequences of smoking, not just for the woman but

for the newborn. Using Uruguay's registry of all births between 2007 and 2013, Harris et al. (1) studied the impact of three types of tobacco control policies: interventions at the supplier level aimed at treating nicotine dependence, increases in cigarette taxes, and regulation of cigarette packaging and marketing.

The source of microdata on the smoking habits of pregnant women was the Perinatal Information System (SIP), a compulsory national registry developed and supervised by the Latin American Center for Perinatology of the Pan American Health Organization (10). SIP currently has almost universal coverage of births, as can be seen by comparing its records with the certificates of live birth, which are mandatory in Uruguay.

Before 2007, the smoking habits of pregnant women were recorded only at the beginning of prenatal care, which prevented the observation of any behavioral changes during pregnancy. Under a new system set up in 2007, a woman's smoking habit started to be recorded in each trimester.

Under this new system, data were obtained for more than 250,000 births between 2007 and 2013, with approximately 30,000 female smokers.

Between 2007 and 2013, the proportion of pregnant smokers who quit smoking when they reached the third trimester increased significantly, from 15.4 to 42.7% (Figure 7).

Harris et al. (1) estimated models on smoking cessation during individual pregnancies at the supplier and national level. The identification strategy basically relied on two aspects of Uruguay's comprehensive antismoking campaign: one, the different measures that had entered into force and in some cases ceased to be in effect at different times starting in 2005; and two, certain policies were implemented, particularly those aimed at improving the treatment of nicotine dependence in various health facilities that provide prenatal care at different times.

The analysis suggests that taxes, as well as measures other than those related to prices, contributed to the increase in smoking cessation rates. The non-price-related policies were the ones that had the greatest impact. Although interventions at the supplier level, such as cessation programs offered by health facilities, had a significant effect, they still

FIGURA 6. Changes in the real price of cigarette packs in United States dollars in Argentina, Chile, and Uruguay, 2001–2015.

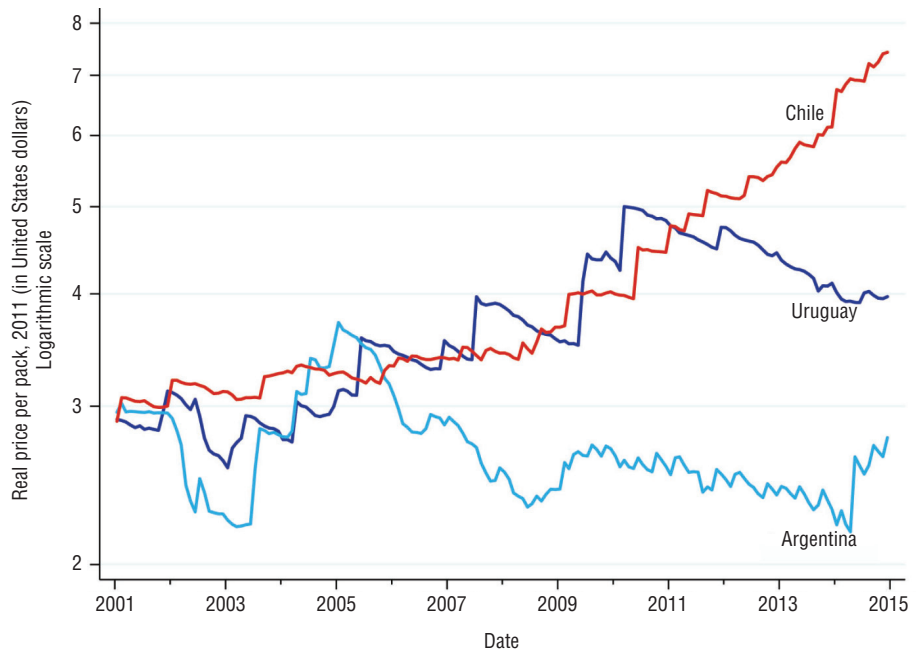
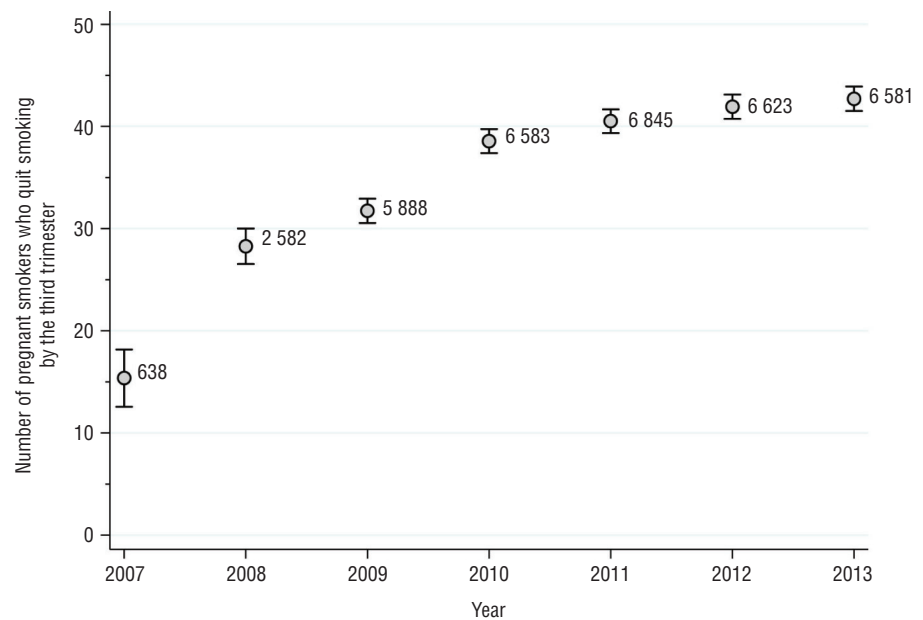


FIGURA 7. Changes in average smoking cessation rate among pregnant smokers in Uruguay, 2007–2013.



had low coverage, i.e., 25% of all such facilities.

In addition, various transitions between quitting, relapsing, and quitting again were analyzed for women with at least two pregnancies. It was found that among women who had quit smoking in a previous pregnancy, 51.2% remained nonsmokers, while 48.8% relapsed in a

subsequent pregnancy. However, within the relapsed group, the probability of quitting again was 41%. Finally, the impact of smoking cessation during pregnancy on perinatal health was analyzed, as measured by birthweight, which found that quitting smoking in the third trimester was associated with a 188 gram increase in birthweight. Tobacco control

measures had no effect on the birthweight of newborns of female nonsmokers.

Conclusions and challenges

The works summarized in this article demonstrated that Uruguay's antismoking campaign significantly reduced the current cigarette consumption prevalence in the general population, as well as tobacco consumption in two key groups: young people and pregnant women. The campaign also succeeded in improving the health of the population, as illustrated by the increased birthweight of children born to mothers who stopped smoking during pregnancy. Other investigators have shown evidence of improved cardiovascular and respiratory health (11, 12).

Despite the success achieved, certain challenges remain: one-fourth of the general population aged 15 to 64 continues to smoke. More than half of women who smoke continue to do so after learning they are pregnant. Of those that quit, nearly 50% start up again in their next pregnancy.

In terms of the impact of specific anti-smoking policies, it was observed that taxes alone do not explain the sharp decline in the prevalence of tobacco consumption among adolescents or smoking cessation among pregnant women. In the case of pregnant women (1), it was found that policies unrelated to pricing explain a higher percentage of the variation in the rate of cessation during pregnancy than taxes. Although taxation played a role in reducing consumption, its impact would have likely been greater if its value in real terms after 2010 had remained constant. Unfortunately, the scope of the analyses was not broad enough to distinguish between the differential impacts of each of the non-tax policy measures. The relative effectiveness of antismoking measures other than pricing suggests several paths toward more intensive tobacco control, including the introduction of further packaging restrictions, the extension of cessation programs, and the implementation of antismoking campaigns at the national level.

Although cessation programs have been very effective in the health centers that signed agreements with the FNR (1),

their coverage has been relatively low. In this regard, it would appear advisable to create stronger incentives to promote greater use of these programs, such as the requirement not to charge copayment. In order to formulate effective policies aimed at reducing the initial use of tobacco, there must be a more in-depth analysis of the forces behind the impressive decline in current cigarette consumption prevalence among young people in recent years, especially if the consumption of all three principal psychoactive substances is taken into account (alcohol, marijuana, and tobacco), as well as the potential synergies of specific policies on such substances. The challenge is even greater in view of the legalization of marijuana in Uruguay in 2014 (13).

Conflict of interest: None declared by the authors.

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Manuscript received on 24 December 2015.
Revised version accepted for publication on 31 March 2016.

RESUMEN

Evaluación de la campaña antitabaco en Uruguay: balance de diez años y desafíos

En el año 2005, poco tiempo después de ratificar el Convenio Marco para el Control del Tabaco (CMCT), Uruguay comenzó una ambiciosa campaña de control de tabaco que ubicó a este país a la vanguardia mundial de la lucha antitabaco. La gran diversidad de medidas implementadas en un lapso relativamente corto y la rigurosidad con que se aplicaron y observaron las políticas tienen escasos precedentes, incluso en los países más desarrollados. En este trabajo, se presenta una síntesis y actualización de varios trabajos de los autores en los que se evalúan algunos aspectos de la campaña a diez años de la ratificación del CMCT. En particular, estas investigaciones resaltan el impacto agregado que tuvo la campaña en la caída de la prevalencia en la población adulta, en los jóvenes y en las decisiones de abandono del consumo de tabaco en las embarazadas (1, 2), así como el impacto relativo de las políticas impositivas en relación a medidas de control de tabaco distintas de los precios. Los análisis se basan en estudios observacionales (a nivel de la población o el individuo) que utilizan grupos de control externos (Argentina y Chile) e internos (población no fumadora). Se plantean, también, los desafíos pendientes en el diseño de políticas antitabaco.

Palabras clave

Cese del tabaquismo; campañas para el control del tabaquismo; Uruguay.