

FEATURED ARTICLES

THE ROLE OF THE TOBACCO CONTROL PROGRAM AND ITS COLLABORATORS IN THE EFFORTS TO TRANSFORM PUERTO RICO IN A SMOKE-FREE ISLAND

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Abstract

Over the last 20 years, it has been shown that the adoption of more restrictive public policies regarding tobacco use has had a major impact in preventing and controlling tobacco use and their derivatives. The objective of this study was to establish how the efforts made by the Puerto Rico Tobacco Control Program (PRTCP) and its collaborators contributed in the transformation of the island into a smoke-free jurisdiction. To evaluate the role of the PRTCP and its collaborators, data of the following sources were analyzed: Microjuris, Puerto Rico Behavioral Risk Factor Surveillance System (PRBRFSS), Puerto Rico Youth Substance Abuse Survey (PRYSAS), and the Puerto Rico Department of Revenue (PRDR). The results of this report demonstrate that reducing tobacco use is a public health concern that implies the development of multiple strategies in collaboration with multiple sectors of the population. This has been the key strategy of the PRTCP to meet its goals despite its budgetary constraints.

Keywords: tobacco, smoking, Tobacco Control Program, tobacco policies, smoke free countries

Resumen

En los últimos 20 años, se ha demostrado que la adopción de políticas más restrictivas sobre el uso de tabaco ha tenido un impacto importante en la prevención y control de este vicio y sus derivados. El objetivo de este estudio fue establecer cómo los esfuerzos realizados por el Programa de Control del Tabaco de Puerto Rico y sus colaboradores han contribuido a la transformación de la isla en una jurisdicción libre de humo. Para evaluar estos esfuerzos, datos de las siguientes fuentes fueron analizados: Microjuris, Puerto Rico Behavioral Risk Factor Surveillance System, Consulta Juvenil y el Departamento de Hacienda. Los resultados de este informe demuestran que la reducción del consumo de tabaco es un problema de salud pública que implica el desarrollo de múltiples estrategias, en colaboración con múltiples sectores de la población. Esta ha sido la estrategia clave del Programa de Control del Tabaco y sus colaboradores para cumplir con sus metas a pesar de sus limitaciones presupuestarias.

Palabras claves: tabaco, fumar, Programa de Control del Tabaco, leyes sobre tabaco, países libres de humo

INTRODUCTION

Cigarette smoking is the single cause of preventable disease and death in United States. It is also responsible for more than 400,000 deaths annually (1). Irrefutable scientific evidence in the past 50 years shows that tobacco use or exposure to tobacco smoke damages the human body with deadly consequences (2). Although for 2011 the tobacco use prevalence remains lower in Puerto Rico (14.8%) than in the United States (21.1%) (3), seven of the twelve leading causes of death in the Island are associated with smoking (heart disease, malignant tumors, Alzheimer, cerebrovascular disease, chronic pulmonary disease, nephritis, and hypertension) (4). In relation to the exposure to second hand smoke (SHS), it is worth mentioning that it is associated with a variety of chronic diseases including cancer, cardiovascular disease, asthma, and obstructive pulmonary disease (5). The SHS protection is among the six most important and effective tobacco control public policy outlined by the World Health Organization (WHO). It is joined by taxes and prices, health warnings, cessation programs, banning on advertising and sponsorships, as well as, careful surveillance of tobacco epidemic and prevention policies (6).



Over the past 20 years, the adoption of new strategies and more restrictive public policies to prevent and control tobacco use has had a major impact on people's health. Undoubtedly, public policies have an enormous influence on people's behavior and lifestyles. Scientific research has shown that public policies that prohibit smoking in hospitality venues such as restaurants and bars are associated with rapid reductions in self-reported respiratory and sensory symptoms among nonsmoking hospitality workers (7).

Currently, Puerto Rico is one of the jurisdictions with the most restrictive and comprehensive public policy in tobacco use, as well as, protection of SHS exposure in the entire United States (8). During the past twenty-one years, there have been many efforts to reduce tobacco consumption in Puerto Rico. Therefore, it is important to determine how the efforts made by the Puerto Rico Tobacco Control Program (PRTCP) and its collaborators contributed in the transformation of Puerto Rico into a smoke-free island, and with that purpose, the authors reviewed the laws and initiatives carried out before and

after the program foundation. This report describes the results of that analysis and what has been the impact on the tobacco use prevalence and the exposure to second hand smoke.

METHODS

To analyze the role of the PRTCP and its collaborators in the efforts to transform Puerto Rico in a smoke-free island, data from the following sources were analyzed: Microjuris 2011, Puerto Rico Behavioral Risk Factor Surveillance System (PRBRFSS) 2011, Puerto Rico Youth Substance Abuse Survey (PRYSAS) 1997 to 2007, and the Puerto Rico Department of Revenue (PRDR) 2011. Microjuris is an electronic legal research tool that offers a complete and updated range of digital content such as laws, regulations and case law that allows the user to consult the legal spectrum of his or her public policy strategic plan. The BRFSS is a telephone survey of non-institutionalized adults conducted annually in all 50 states, the District of Columbia, Guam, Puerto Rico, and the US Virgin Islands. In Puerto Rico, this survey began since 1996 and is part of the Puerto Rico Department of Health. The PRYSAS is a biennially survey conducted since 1990 by the Puerto Rico Substance Abuse and Mental Health Services Administration. This survey consists of a self-administered questionnaire aimed at a representative sample of elementary, middle, and high level students in Puerto Rico's public and private schools. Its purpose is to determine the percentage of students enrolled in 5th to 12th grade who engage in high-risk behaviors such as tobacco, alcohol and drug use, and premature sexual activity, among others. The PRDR is the public agency responsible for administering the public policy related to tax matters, financial and management of public funds. This agency is responsible for collecting the excise tax on cigarettes and grant cigarette's sale permits.

RESULTS

The first step to transform Puerto Rico into a smoke-free island began in the early 90's. Table 1 contains a description of the tobacco control regulations adopted in Puerto Rico before the foundation of the PRTCP. In 1991, the first public policy adopted was the Executive Order 1991-

082. In 1993, three Acts were passed: Act No. 40, Act No. 62, and Act No. 128. In 1996 and 1997, Act No. 133 and Act No. 111 were approved. Finally, in 1998, Act No. 204 was approved.

Table 1. Tobacco control actions performed in Puerto Rico before the implantation of PRTCP

Action	Year	Description
Executive Order 1991-082	1991	Banned smoking in public agencies and corporations, as well as, in public transportation owned by any government entity.
Act No. 40	1993	Regulates the practice of smoking in public and private places.
Act No. 62	1993	Regulates the advertising and promotion of tobacco products.
Act No. 128	1993	Establishes the penalties to any person who sell, donate, or distribute tobacco products to people under 18 years of age.
Act No. 133	1996	Protect children when they participate in activities aimed at them in certain establishments.
Act No. 111	1997	Restrict the location of cigarettes vending machines to places where entry is restricted to persons under 18 years.
Act No. 204	1998	Banned the employment of people under 18 years old to sale or promote alcohol beverages and tobacco products.

Despite all the aforementioned efforts, Puerto Rico did not become a smoke-free island. For this reason, since the foundation of the PRTCP in 1999, the main goal of the program was to prevent the initiation of tobacco use, promote smoking cessation, and collaborate in the transformation of the Island into a smoke free country. Table 2 contains a description of the tobacco control actions performed in Puerto Rico after the implantation of PRTCP.

Table 2. Tobacco control actions performed in Puerto Rico after the implantation of PRTCP

Action	Year	Description
Act No. 6	2000	Banned the sale of candy cigarettes in or near schools.
Act No. 63	2002	Increased the cigarette excise tax from ¢0.83 to \$1.23.
Tobacco Control Summit (TCS)	2002	Every year the TCS brings together experts in the tobacco control field to discuss tobacco prevention matters with health professionals and the community.
Coalition for a Tobacco Free Puerto Rico (CTFPR)	2002	The CTFPR was incorporated. The CTFPR is composed by more than 40 agencies or organizations interested in tobacco control.
Puerto Rico Quitline (PRQ)	2004	Since its implantation, the PRQ has served more than 7,000 smokers across the Island and the quit rate for 2010 was 26%.
Act No. 66 (which amended Act No. 40 of 1993)	2006	This ban is considered the strongest law in the country, which covers workplaces, restaurants, and casinos. Also, the Act banned smoking in cars with children under 13 years old.
Act No. 21	2008	Required health insurance to cover cessation services including NRT.
Act No. 35	2008	Creation of the Tobacco Control Special Fund. The fines collected by Act No. 40, as amended, feed this fund.
Diabetes Telephone Coaching (DTC)	2008	This service provides an alternative way of managing the condition for all diabetic smokers registered in the PRQ.
Act No. 7	2009	Increased the cigarette excise tax from \$1.23 to \$2.23.
Annual PRQ media campaign	2010	This campaign promoted the PRQ services. Previously, the PRQ media campaign covered only three months in a year.
LGBTB tobacco use prevalence	2010	Considering the high prevalence of tobacco use in the LGBTB community in the United States, and the need to determine this prevalence in the Island, the PRTCP, in collaboration with the PRBRFSS, included questions about sexual identity in the 2011 survey. The same questions were included in the PRQ.
Act No. 59	2011	Inclusion of the E-Cigarette in the smoking prohibition of Act No. 40, as amended.



Through mobilizing different sectors of the population such as health professionals, academics, policymakers and the general community, the first achievement in tobacco control, with the collaboration of the PRTCP, was the approval of Act No. 6 in 2000. In 2002, the approval of Act No. 63 to increase the cigarette excise tax was another accomplishment. During this year, the PRTCP launched the first Tobacco Control Summit (TCS) and the Coalition for a Tobacco Free Puerto Rico (CTFPR) was incorporated. In 2004, the PRTCP implemented the Puerto Rico Quitline (PRQ). After multiple efforts made by the PRTCP and its collaborators in different areas of tobacco control such as prevention, education and smoking cessation, Act No. 66 (which amended Act No. 40 of 1993) was approved in 2006. With the implementation of this Act in 2007, Puerto Rico finally became a smoke-free island. Despite this achievement, the PRTCP and its collaborators have continued their mission to reduce tobacco use prevalence, achieving in 2008 the approval of Act No. 21 and Act No. 35. In addition, in 2008 the PRQ included, as part of their services, the Diabetes Telephone Coaching. In regard to legislation, Act No. 7, which was approved in 2009, increased the cigarette excise tax once again. In November 2010, combining funds of the PRTCP core proposal and the American Recovery and Reinvestment Act funds (ARRA), the program established a first annual media campaign to promote the PRQ services. Also, in 2010, considering the high prevalence of tobacco use in the LGBTT community in the United States, the PRTCP, in collaboration with the PRBRFSS, included questions about sexual identity in the 2011 survey. The same questions were included in the PRQ. Finally, in 2011, the last achievement of the PRTCP and its collaborators was the approval of the Act No. 59.

A review of different data sources showed that the efforts made by the PRTCP and its collaborators have contributed significantly in reducing tobacco use and the exposure to the SHS on the Island. The PRBRFSS data demonstrated that Puerto Rico has remained among the lowest prevalence of tobacco use among the 50 states and territories of the United States (14.8% vs. 21.1%). At the same time, according to the PRYSAS data (2005-2007), there has been a consistent decrease in the percent of

students who report using tobacco products in the past month from 1997 to 2007. The last month's tobacco use decreased in: 9th grade from 22.5% (1997) to 5.6% (2007); 10th grade from 25.4% (1997) to 8.3% (2007); 11th grade from 21.8% (1997) to 10.3% (2007); 12th grade from 24.4% (1997) to 11.7% (2007).

Researchers Marín and Díaz demonstrated the impact of the implementation of Act No. 66 in the reduction of the risk of SHS exposure and the reduction in cigarette packs' monthly sales. In the first research, Marín and Díaz evaluated the effect of the implementation of Act No. 66 in restaurants, pubs and discos in the metropolitan area of San Juan (9). The researchers took samples of particulate concentration level in the air before and after the implementation of the Act (scientific literature showed that smoking is one of the main sources of indoor levels of PM_{2.5}). The research results showed that, after the implementation of Act No. 66, restaurants experienced a reduction of 83.6% ($p = 0.013$) in average PM_{2.5} levels of 0.169 to 0.028 mg/m³ and in pubs and discos there was a reduction of 95.6% ($p = 0.004$) of 0.626 to 0.028 mg/m³. With these results, the researchers concluded that the implementation of Act No. 66 has been successful in reducing the risk of SHS exposure to the population who live and work in the metropolitan area of San Juan. In the second research, Marín and Díaz evaluated the association of the implementation of Act No. 66 and the monthly per capita sales of cigarettes packs in Puerto Rico (10). The evaluation period was from January 1989 until February 2010. The data sources used were the PRDR, the Puerto Rico Planning Board, and the Puerto Rico Department of Labor. After analyzing the data and controlling confounding variables (time trend, monthly seasonal effects, price of cigarettes, exports per capita, and the employment rate), the researchers concluded that the implementation of Act No. 66 was associated with a significant average reduction in the monthly sales of cigarette packs. The reduction was 16.1% [CI_{95%}: 6.9%, 24.5%] from March 2007 to February 2010. This represents a reduction of 5 packs of cigarettes capita per year, which implies a total annual reduction of 19 million cigarette packs using the year 2006 as reference.

DISCUSSION

Restricting smoking in workplaces and public places by regulations, as well as, tobacco advertising and youth access to tobacco products are part of a



comprehensive, evidence-based approach to promote tobacco control (11). Some of the changes in tobacco use shown in this report can be attributed to the multiple tobacco control policies implemented (12). It is worth noting that the legislation adopted in Puerto Rico takes into consideration international efforts to regulate tobacco use and promote prevention. Specifically, the smoking restrictions included in Act No. 66 comply with those promoted under the Framework Convention on Tobacco Control (FCTC) (FCTC's Article 8). The FCTC entered into force in February 2005 and is the world's first global public health treaty. It is also the first treaty negotiated under the auspices of the WHO. Currently, 174 member states have ratified it. United States has not ratified the treaty and, since it is not a party to the FCTC, Puerto Rico is not a member. Nevertheless, the health policy promoted by the PRTCP and its collaborators has not ignored the FCTC's provisions. In fact, the PRTCP has aimed much of its efforts to strengthen public awareness of tobacco control issues in accordance with FCTC's Article 12.

In May 2009, the Morbidity and Mortality Weekly Report (MMWR) reported the largest cigarette excise tax in history (13). The combined federal and average state tax for cigarettes was raised to \$2.21 per pack. Unfortunately, Puerto Rico is not included under the federal excise tax. Therefore, in 2009, Puerto Rico approved the Act No. 7 to increase the excise tax from \$1.23 to \$2.23 to keep pace with the rest of the country. Once again, the PRTCP and its collaborators have made a strategic move to continue to support tobacco prevention initiatives in Puerto Rico. Despite of this achievement, the PRBRFSS 2009 data showed that 90.9% of Puerto Ricans agreed to continue raising taxes on cigarettes.

Tobacco use among youth minors continues to be a problem worldwide. Estimates indicate that in the United States, every day, approximately 6,000 youth under 18 years old smoked for the first time and more than 3,000 became regular smokers (14,

15). Restrict youth access to tobacco products includes different strategies such as businesses' managers and owners education campaigns, signage, required ID checks, bans on self-service displays, the elimination of vending machines, and other strategies designed to make it more difficult for youth to obtain tobacco products (14). The analyzed data of the PRYSAS demonstrated that the combination of these strategies to control tobacco access to young people really works. Consistent decreases in the percent of students who reported using tobacco products in the past month in Puerto Rico have occurred for each group from 9th to 12th grade from 1997 to 2007.

The findings of this report are subject to at least three limitations. First, the PRBRFSS is a self-report survey that only includes non-institutionalized adults with home telephones. This may cause an underestimation of the tobacco use prevalence on the Island. Second, the PRYSAS data is updated up to 2007, which does not led us confirm if the tobacco use diminution trend in adolescents is still happening. Finally, the results of the Marín and Díaz research demonstrated the effectiveness of the implementation of Act No. 66 only in the San Juan metropolitan area. Additional research is needed to verify the effectiveness of the implementation of this Act Island wide.

CONCLUSIONS

Since the eighties, the decrease of the smoking prevalence in the United States has been associated to different tobacco control interventions such as price increases, comprehensive statewide smoke-free air law, and socio-cultural support of tobacco-free regulations (16). These achievements have been supported by comprehensive state tobacco control programs and the implementation of evidence-based interventions (16, 17). Comprehensive tobacco control programs are the most effective means to reduce tobacco use (12). However, comprehensive tobacco control programs require the coordinated efforts of both statewide and local coalitions to advocate for policies, combat the tobacco industry, and influence social norms (18).

Currently, on the Island, the PRTCP is the lead entity for the statewide management of tobacco use prevention and cessation. The findings of this research

demonstrated that the efforts made by the PRTCP and its collaborators have contributed to reducing the use of tobacco and the exposure to secondhand smoke. However, many people are not aware that the success of the program was predicated on a mere \$239,040 budget from the CDC to serve a population of almost four million residents. Although Puerto Rico received Master Settlement Agreement dollars, the PRTCP did not receive anything of these funds, and from the Tobacco Control Special Fund created in 2009, the PRTCP has not yet receive these funds. Nevertheless, with limited funding and a population greater than almost half of the States in the United States, the PRTCP contributed monumentally in the transformation of Puerto Rico into a smoke-free island. Finally, the results of this research demonstrated that reducing tobacco use is a public health concern that implies the development of multiple strategies in collaboration with multiple sectors of the population. This has been the key of the PRTCP to meet its goals despite its budgetary constraints.

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