

# Strategies for Tobacco Product Marketing and Sales around Five Brazilian Public Schools

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*Estratégias de Exposição e Venda de Produtos de Tabaco no entorno de Cinco Escolas Públicas Brasileiras*

*Estrategias de Exposición y Venta de Productos de Tabaco en los alrededores de Cinco Escuelas Públicas Brasileñas*

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## ABSTRACT

**Introduction:** The World Health Organization has warned that chronic noncommunicable diseases, including those associated with smoking, are “transmitted” through corporate commercial practices. In this context, the tobacco industry employs advertising and sales strategies designed to attract new consumers, particularly children and adolescents. **Objective:** To map the density of tobacco product availability around five public elementary schools and to describe the advertising, display, and sales strategies adopted by the tobacco industry and retailers. **Method:** A descriptive observational survey was conducted at points of sale located within a 300-meter radius of the schools. Researchers acted as non-participant observers and photographed the establishments without interfering with their routine operations. All locations were georeferenced to enable analysis of tobacco supply density. **Results:** Of the 170 points of sale visited, 48.2% sold tobacco products, with the highest proportion observed in newsstands (35.4%). Among establishments selling tobacco, 87% sold single cigarettes and 39% displayed price lists to consumers. Qualitative analysis further revealed irregularities in the application of health warnings, the sale of illegal products (including electronic cigarettes and contraband cigarettes), the use of price lists as a form of advertising, and the placement of cigarettes alongside candies, sweets, and children’s items. **Conclusion:** The findings suggest either limited awareness of health regulations among retailers or non-compliance with such regulations, as well as possible shortcomings in enforcement. Tobacco products were found to be widely available around schools, and retail practices that increase their accessibility and appeal to minors were identified. These findings point to the need for stricter regulation, stronger health surveillance, and targeted educational initiatives.

**Key words:** Tobacco Products; Tobacco-Derived Products Publicity; Tobacco Use Disorder; Students; Geographic Mapping.

## RESUMO

**Introdução:** A Organização Mundial da Saúde alerta que doenças crônicas não transmissíveis, como as causadas pelo tabagismo, são “transmitidas” por práticas comerciais de corporações. A indústria do tabaco busca atrair novos consumidores, utilizando estratégias de publicidade e venda voltadas a crianças e adolescentes. **Objetivo:** Mapear a densidade da oferta de produtos de tabaco no entorno de cinco escolas públicas de ensino fundamental e descrever estratégias de publicidade, exposição e venda, empregadas pela indústria do tabaco e pelo varejo. **Método:** Realizou-se um levantamento descritivo observacional em pontos de venda localizados em um raio de 300 metros das escolas. Os pesquisadores atuaram como observadores, registrando fotografias, sem interferir no funcionamento dos estabelecimentos. Os locais foram georreferenciados para análise da densidade de oferta. **Resultados:** Dos 170 pontos de venda visitados, 48,2% comercializavam produtos de tabaco, com maior incidência em bancas de jornal (35,4%). Destes, 87% vendiam cigarros por unidade e 39% apresentavam tabelas de preços expostas ao consumidor. A análise qualitativa identificou ainda: irregularidades na aplicação das advertências sanitárias; oferta de produtos ilegais (cigarros eletrônicos e contrabandeados); uso de tabelas de preços como publicidade; e exposição de cigarros junto a balas, doces e itens infantis. **Conclusão:** As evidências sugerem desconhecimento ou descumprimento das normas sanitárias por varejistas e possível fragilidade da fiscalização. Conclui-se que há ampla oferta de tabaco no entorno das escolas e práticas que aumentam a acessibilidade e atratividade para menores, indicando necessidade de regulação mais rígida, fortalecimento da vigilância sanitária e ações educativas.

**Palavras-chave:** Produtos do Tabaco; Publicidade de Produtos Derivados do Tabaco; Tabagismo; Estudantes; Mapeamento Geográfico.

## RESUMEN

**Introducción:** La Organización Mundial de la Salud advierte que las enfermedades crónicas no transmisibles, como las causadas por el tabaquismo, “se transmiten” por las prácticas comerciales corporativas. La industria tabacalera busca atraer nuevos consumidores mediante estrategias publicitarias y de venta dirigidas a niños y adolescentes. **Objetivo:** Mapear la densidad de oferta de productos de tabaco en los alrededores de cinco escuelas primarias públicas y describir las estrategias de publicidad, exhibición y venta empleadas por la industria tabacalera y los minoristas. **Método:** Se realizó una encuesta observacional descriptiva en puntos de venta ubicados en un radio de 300 metros de las escuelas. Los investigadores actuaron como observadores, tomando fotografías sin interferir con el funcionamiento de los establecimientos. Los locales se georreferenciaron para el análisis de la densidad de oferta. **Resultados:** De los 170 puntos de venta visitados, el 48,2% vendía productos de tabaco, con la mayor incidencia en quioscos (35,4%). De estos, el 87% vendía cigarrillos por unidad y el 39% tenía listas de precios expuestas a los consumidores. El análisis cualitativo también identificó irregularidades en la aplicación de las advertencias sanitarias; oferta de productos ilegales (cigarrillos electrónicos y de contrabando); uso de listas de precios como publicidad; y la exhibición de cigarrillos junto con caramelos, golosinas y artículos infantiles. **Conclusión:** La evidencia sugiere una falta de conocimiento o incumplimiento de las regulaciones sanitarias por parte de los minoristas, así como posibles deficiencias en su fiscalización. Se concluye que existe una amplia disponibilidad de tabaco en las inmediaciones de las escuelas y prácticas que aumentan la accesibilidad y el atractivo para los menores, lo que indica la necesidad de una regulación más estricta, un mayor control sanitario e iniciativas educativas.

**Palabras clave:** Productos de Tabaco; Publicidad de Productos Derivados del Tabaco; Tabaquismo; Estudiantes; Mapeo Geográfico.

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## INTRODUCTION

Like infectious diseases, chronic non-communicable diseases can also be “transmitted,” according to the World Health Organization (WHO) — not by biological vectors, but through the corporate commercial practices of multinational companies, which employ multiple strategies to encourage experimentation with and consumption of their products, as well as to hinder regulations that restrict their business interests<sup>1</sup>. The tobacco industry seeks to attract new consumers in younger age groups, who replenish its market, given the high lethality associated with smoking. In Brazil, one study estimated that 174,000 smokers die each year from smoking-related diseases<sup>2</sup>.

To reverse the global tobacco epidemic and contain its serious associated health burdens, 183 countries, including Brazil, have ratified the Framework Convention on Tobacco Control – an international public health treaty – which, among its obligations, article 13 establishes measures to prohibit or restrict the advertising, promotion, and sponsorship of tobacco products<sup>3</sup>.

In a national regulatory environment that restricts the advertising and promotion of these products in the main media channels, the tobacco industry has invested in alternatives that generate interest and facilitate experimentation by children and adolescents, such as colorful flavoring additive components, and attractive packaging elements displayed at points of sale (POS)<sup>4</sup>. A study with 11 thousand public school students verified that, among those exposed to cigarette packs in POS, 18.9% were susceptible to smoking, while, among the non-exposed students, this proportion was 6% lower<sup>5</sup>.

Additionally, a 2019 analysis of the National School Health Survey (PeNSE) showed that seven out of ten minors who smoked were able to buy cigarettes in formal commercial establishments, indicating non-compliance with the prohibition of sales to individuals under 18 years old<sup>6</sup>. According to PeNSE data, the proportion of adolescents who smoke cigarettes increased from 6.6% in 2015 to 6.8% in 2019, and 22.6% of respondents had tried a cigarette at least once<sup>7</sup>.

Despite this data, no study has mapped out the availability of tobacco products to Brazilian students, nor conducted a descriptive analysis on how these products are presented to potential consumers, as in the experiences reported in the international literature<sup>8,9</sup>. The objective of the present study was, therefore, to map the density of tobacco product availability around five public elementary schools, one from each Region of the country, and to describe the advertising, display, and sales strategies adopted by the tobacco industry and retailers.

## METHOD

A descriptive observational study was conducted at tobacco product points of sales (POS), including cigarettes, cigars, and other tobacco products, in which the investigators acted as observers of the phenomenon and made photographic records without interfering with the natural operations of the establishments or with sales outcomes<sup>10</sup>.

A purposive sample consisting of one public school in a capital city from each of the country's five regions was selected. These capitals were chosen based on the highest prevalence of smokers among young people aged 13 to 17 years: Belo Horizonte/Minas Gerais, Curitiba/Paraná, Goiânia/Goiás, João Pessoa/Paraíba, and Palmas/Tocantins<sup>11</sup>. This definition sought to increase sampling efficiency, considering that a greater number of individuals interested in the product and the sales environment would increase the likelihood of relevant field observations.

The criteria for selecting public schools in these cities were: 1) having elementary school students (grades 6 through 9), on the understanding that young people in this age group have sufficient autonomy to enter and leave the school premises on their own; 2) operating during daytime hours, considering the potential interaction between local businesses and students; and 3) being located in the city center. The sample consisted of POS located within a 300-meter radius of each school. This distance took into account the commuting patterns of students using public transportation, as well as an estimated fieldwork period of up to two days. Every street within this radius was previously identified using Google Earth to guide the researchers' fieldwork. The location of POS was not previously identified using the tool, since images and addresses available on the platform might have been outdated.

The field work was conducted between March and August 2023, and the researchers were accompanied by municipal sanitary surveillance agents in their visits to the identified POS. There were no interviews or authorization requests made to the establishments' owners or workers.

Data collection took place in three steps: 1) identification of the establishment's address during the visit for subsequent georeferencing; 2) photographic recording, using a mobile phone, of sales practices, advertising, and the display of tobacco products, price lists, health warnings, and similar elements; 3) completion of a questionnaire by the researcher, including data on the type of establishment, tobacco products sold, and the observed promotion and advertising strategies, such as the presence of health warnings on displays, the presence of price lists, types of advertising to consumers (ex., smoking

prohibited, sale prohibited to people under 18 years-old), and the sale of single cigarettes. Since the current legislation does not define which places are authorized to sell cigarettes, this study visited all the identified POS in the defined radius, including tobacco shops, convenience stores at gas stations, supermarkets, restaurants, bars, bakeries, and newsstands.

The information on the filled questionnaire and the photos were stored and organized in an online database shared by the research team. For the qualitative analysis of images, a deductive codification system was developed based on the literature review. The analytical categories were reviewed and validated by consensus among the researchers.

Considering that this study does not qualify as an experiment in human beings, there was no need for approval by a Research Ethics Committee, according to Resolution N. 510/2016<sup>12</sup> of the National Health Council.

## RESULTS

A total of 170 points of sale were visited across the five cities included in the study. Of these, 48.2% sold tobacco products, distributed by city as follows: Belo Horizonte – 29.2%; Curitiba – 26.8%; Goiânia – 19.5%; João Pessoa – 17.0%; and Palmas – 7.3%. Table 1 presents this proportion by establishment type, according to the classification defined by researchers.

The highest frequencies were observed in newsstands (particularly in Belo Horizonte and Curitiba), snack bars/cafés/bakeries, and liquor stores. The lower frequencies were found in restaurants (which do not usually sell these products and generally do not display them), tobacco shops, and convenience stores at gas stations.

With the identified addresses of tobacco product POS, we generated georeferenced maps using the school as starting point and marked the establishments with different colors (Supplementary Material). Figure 1 shows, as an example, the map with the density of establishments that sell tobacco products in Belo Horizonte. Equivalent maps were produced for each city.

In addition to this quantitative evaluation and georeferencing, a qualitative analysis of the products marketing and sales strategies was organized in thematic categories.

### CHARACTERISTICS OF DISPLAYS AND APPLICATION OF SANITARY WARNINGS

All the visited establishments were analyzed regarding type, location, size, and presence or absence of sanitary

**Table 1.** Types of establishments that sold tobacco products in five Brazilian capitals, 2023

Establishment type	Amount (N)	Proportion (%)
Newsstand	29	35.4
Snack bar, café, or bakery	14	17.1
Liquor store	10	12.2
Mini-mart or groceries store	8	9.7
Bar or pub	6	7.3
Others (kiosks, variety stores)	5	6.1
Restaurant, pizzeria, steakhouse	5	6.1
Tobacco shop	4	4.9
Convenience store at a gas station	1	1.2
<b>Total</b>	<b>82</b>	<b>100.0</b>

warnings on tobacco products packaging displays.

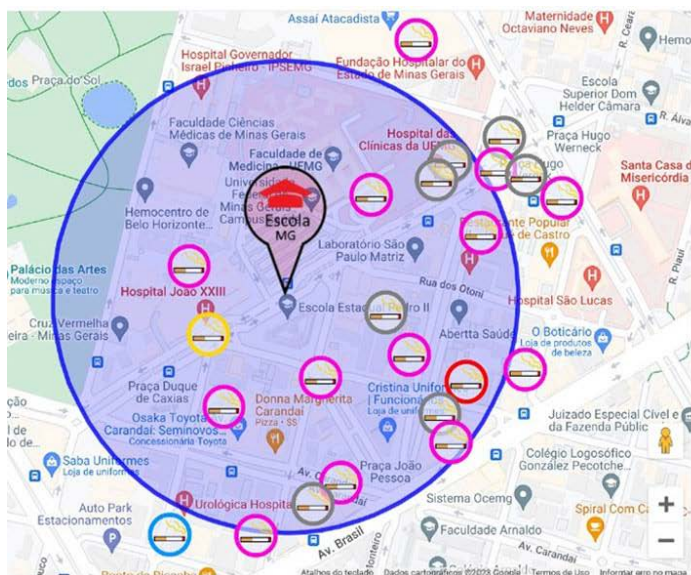
Figure 2 presents, as an example, a cigarette display in a convenience store. Several irregularities can be observed, such as the placement of multiple health warnings in the same area, which reduces the visibility of its phrases and illustrative images; diverse products covering the sanitary warnings; and small colorful posters with information on the prices of different cigarette brands, with no warnings. In many cases, these displays are located near or above the POS cashiers, where every consumer inevitably goes, and are usually located near the exit of the establishment.

The study also identified small product displays located on the main counters of bars and bakeries or placed on service tables, as well as the use of oversized fake cigarette packs displayed around the establishment or suspended from the ceiling (commonly referred to as mock-ups).

### PRICE LISTS

Among the establishments that sold cigarettes, 39% exhibited price lists to consumers. The researchers observed considerable variation in the type, size, and placement of these lists; in some cases, several posters with cigarette brand prices were fixed in a single POS. These seem to be used as a form of publicity and to lure customers, since they use attractive colors and gain visibility by occupying different spaces: attached to the walls, inside displays, or hanging from the ceiling. Many price lists highlight





**Subtitle**  
State School Pedro II - MG

Total	Type of point of sale	Circle	Percent
1	Convenience store at a gas station	Red	4%
1	Restaurant, pizzeria, steakhouse, etc	Green	4%
1	Bar	Blue	4%
7	Snack bar, coffee shop or bakery	Grey	29%
13	Newsstand: classic (with the sale of newspapers and magazines) or with the predominant sale of tobacco products	Pink	54%
1	Other types of stores (example: department).	Yellow	4%

**Total of points of sale = 24**

**Figure 1.** Georeferenced map of the tobacco products POS in Belo Horizonte/MG  
**Source:** Image elaborated by the authors using data from Google Earth.



**Figure 2.** Display at a convenience store in Belo Horizonte/MG  
**Source:** Research collection.

Surprisingly, in some cases, single cigarettes were the only method of purchase available in some POS, advertised, for example, in a poster with the saying “No cigarette packages sold, only single cigarettes. Please, do not insist!”.

The findings reveal the wide economic accessibility of single cigarettes, usually sold for around 0.50-2.00 Reais, while the price of a 20-cigarette pack is R\$ 6.50, as determined by the SRF<sup>14</sup>.

Furthermore, the study identified the sale of single cigarettes alongside sweets (such as candies, chewing gum, and similar items) (Figure 3), products that are notably targeted at children and adolescents. This practice violates a regulation issued by the Brazilian Health Regulatory Agency (Anvisa).

information of just one specific cigarette brand, with fonts and graphic elements referring to the brand.

In Figure 2, nine price lists can be seen distributed around the display in the surveyed establishment, suggesting that this is an attention-grabbing device intended to attract consumers and highlight specific brands. Price lists rarely include health warnings, since there is no legal requirement to do so in this case.

**SALE OF SINGLE CIGARETTES (UNITS)**

Of the 82 establishments that sold tobacco products, 71 (87%) were observed to sell single cigarettes, that is, outside their original packaging (Figure 3). Despite being very recurring, this is an illegal practice, forbidden by the Brazilian Federal Revenue Secretariat (SRF)<sup>13</sup>.

**ILLEGAL PRODUCTS**

The study also identified the presence of illegal products sold in the visited locations, such as electronic smoking devices (popularly known as electronic cigarettes) and apparently counterfeit or contraband cigarette packs. The latter were identified by the absence of the tax stamp required by the SRF and the health warnings required by Anvisa, or by the presence of trademarks not registered on the Agency’s website.

**SIGNAGE ABOUT THE PROHIBITION OF SALE TO MINORS**

Only 13.4% of the cigarette-selling POS displayed posters or stickers informing consumers of the prohibition on selling tobacco products to individuals under 18 years of age; these materials had been provided by cigarette





**Figure 3.** Sale of cigarette units in newsstands in Curitiba/PR  
**Source:** Research collection.



manufacturers (Figure 4). Even so, this material appeared to be insufficient to prevent children and adolescents from accessing these products.

Conversely, the researchers did not find educational materials targeted at the population or guidance to store owners provided by the municipal sanitary surveillance or consumer protection organs, not even with logos of the local municipal office.

## DISCUSSION

The exposure and publicity of tobacco products in POS fulfill some roles: exert an important influence on smoking initiation<sup>15</sup>; serve as a “psychological trigger” to impulsive shopping behaviors<sup>16,17</sup>; and further “normalize” smoking among adolescents, reducing the perception of risk<sup>18</sup>. These consequences are even more critical when the POS are concentrated around schools, as corroborated by international analyses<sup>8,9</sup>. The direct relationship between stores near schools and the prevalence of youth smoking has already been demonstrated<sup>19,20</sup>, and the various promotional strategies directed at this audience contribute significantly to this association<sup>21</sup>.

The 2023 School Census reported the existence of 178.5 thousand active schools in Brazil<sup>22</sup>. The present study identified, on average, 16 establishments selling tobacco products within a 300-meter radius of each researched school. This density around schools, with a highlight to newsstands, snack bars, and bakeries, shows the high accessibility of these products in places that are part of students’ daily lives.

Moreover, the results reveal an even more unsettling scenario, constituted by consolidated industry and retail practices targeted at attracting and sparking the curiosity of children and adolescents. Although historically the industry claims that its marketing actions and their products are



**Figure 4.** Signage provided by the tobacco industry in a newsstand in Belo Horizonte/MG  
**Source:** Research collection.

targeted at adults, capable of making choices aware of the risks, the qualitative analysis of the research’s photographic images reinforces the use of visual resources and placement targeted at the young public: massive use of varied colors in the packages display, placement of packages near items that interest children (sweets and candies), and sale of units at accessible prices. Further studies could assess to what extent are these strategies guided by the manufacturers’ commercial representatives to Brazilian retailers, including the provision of guidance and ready promotional material (which seems to be the case of displays and price lists), or which of these initiatives are heralded by the retailers themselves to increase their sales (for instance, the sale, storing, and displaying of single cigarettes). Analyses of internal corporate documents suggest that, internationally, tobacco companies provide financial incentives to retailers in three main areas: attachment of publicity and signage in the point of sale; provision of displays; and promotional prices to consumers<sup>23</sup>.



The study also demonstrated a series of practices of flagrant disrespect to the current legislation, whether it be federal laws that address the theme or Anvisa regulations. A total of 87% of the surveyed tobacco-selling establishments sold single cigarettes. This type of sale represents an economically advantageous option to the consumer, especially young people with limited financial resources and the low-income population, who represent the majority of smokers in Brazil<sup>24</sup>. Furthermore, this practice removes consumers' contact with the health warnings printed on cigarette packs, a practice that violates Anvisa's regulations and the educational role of the messages.

This sale of single cigarettes is directly associated with the illegal sale of tobacco products to minors. According to the Brazilian Statute of the Child and Adolescent, it is illegal to sell, provide, administer, or deliver products that cause physical or psychic dependence to children and adolescents. This prohibition was reinforced by Law N. 10,702/2003, which specifically mentions tobacco products. Despite this legislation, a study based on PeNSE data showed that approximately nine out of ten adolescent smokers were successful in at least one attempt to purchase cigarettes without being asked about their age<sup>6</sup>. The signage concerning this prohibition, provided by manufacturers, appears to have a merely decorative function or to serve as a form of corporate social responsibility, without reflecting any actual change in the retailers' behavior regarding age verification, which apparently does not include requesting proof of age.

With regard to the health warnings displayed on cigarette displays, Anvisa Resolution RDC No. 840/2023<sup>25</sup> stipulates that the set of graphic warnings, including both text and images, must occupy at least 20% of each side of displays visible to the public. However, this regulation does not specify how many displays and warning panels are permitted in each establishment, thereby allowing the industry to divide displays into several smaller sections and, in doing so, present smaller warning areas, reduce the visibility of the messages, and enhance product marketing. The lack of definition on the number of displays and their placement influences how the products are presented to consumers. Dominating the visibility of POS is a method used by tobacco companies to show their market leadership to clients. The brand with more display space is usually perceived by consumers as the most popular. Display spaces at the eye level of clients, in aisles or on the counter, are the most sought after by brands<sup>26</sup>.

It is worth mentioning the presence of price lists as disguised advertisements. The lack of regulation on the layout of price lists leaves space for manufacturers to use bold colors, graphic elements, and visual strategies

to call attention to their brands. Such findings reaffirm the need for proper regulation on the content, layout, and number of price lists allowed at each POS. In New Zealand, for instance, the government determines that the price of tobacco products cannot be freely displayed. The information on which products are available, and their respective prices, may be provided to a person of legal age upon request<sup>27</sup>.

Lastly, the presence of electronic smoking devices and contraband cigarette packs in formal businesses near schools demonstrates important fragilities in sales control. These products can become a dangerous entryway to new consumers, since electronic cigarettes are often presented as "modern" or "less harmful" to health alternatives, and contrabands are sold at prices under the minimum required by the SRF. Official government data showed that the participation of illegal cigarettes in the total consumption of cigarettes in the country was 37.2% in 2019, with a downward trend from 2017 onwards<sup>28</sup>. Most illegal cigarettes come from Paraguay and enter the country without the payment of due taxes and the sanitary labeling required by national legislation.

Moreover, this study underscores the imperative need to review and reinforce the implementation of measures to strengthen the surveillance of tobacco products in POS. The gap between advanced legislation and its practical implementation demonstrates the limited effectiveness of enforcement actions, which fall to municipal health surveillance agencies<sup>29</sup> that often have insufficient resources or face territorial challenges. It also points to the urgent investment in training agents to correctly identify illegalities and include the verification of compliance with tobacco control regulations in their work routines.

It is important to note that, because this study used a purposive sample of Brazilian cities and public schools, one of its limitations is the impossibility of statistically generalizing the results to the entire country. On the other hand, the findings may contribute to understanding this phenomenon in other similar national contexts, in terms of analytical generalization<sup>30</sup>. The size of the purposive sample, limited to five cities, was determined by the study budget and also represents a limitation.

## CONCLUSION

This study showed that POS with tobacco products are widely present around public schools and employ commercial practices that favor accessibility and attractiveness, especially for underage people. Although smoking restrictive measures have been implemented historically, the data urges us to advance in the regulation of strategies, effectively protecting the health of the

population. The findings highlight the need for a multi-sectoral effort involving regulation, surveillance, and retail-sector awareness to ensure less accessible, harmful environments in the daily lives of Brazilian students.

The results of this study are consistent with the PeNSE data mentioned above, which indicate an increase in the overall proportion of adolescent smokers, especially among girls and those aged 16 to 17 years. The considerable density and accessibility of cigarettes in particular, as well as the irregularities identified, may help explain this change in smoking behavior.

The photographs obtained suggest that retailers are either unaware of the current regulations, insufficiently informed about them, or openly disregarding them. In addition, it is possible that the local health surveillance agencies responsible for enforcement are not fully trained in the specific details of these regulations.

Although Brazilian tobacco control legislation is widely considered advanced in comparison with that of other countries, further regulation is still needed, such as prohibiting the use of multiple displays and defining the characteristics of price lists. Additionally, the government and the National Congress could further strengthen legal restrictions to protect children and adolescents from experimentation, in accordance with the obligations and guidelines outlined in Article 13 of the Framework Convention on Tobacco Control. Such measures could include, for example, the definition of minimum-distance zones between tobacco-selling POS and schools, as well as licensing requirements restricting tobacco sales to certain types of establishments, such as tobacco shops whose revenue is primarily derived from these products. The qualitative results from industry and retail sale strategies, and the quantitative analysis of accessibility to students, may provide a scientific basis for these propositions.

The engagement of multi-sectoral actors, including consumer protection agencies, the Military and Federal Police, and the Public Prosecutor's Office, could strengthen supervision of formal commercial activity and the sale of illegal products. Additionally, there could be investments in technological instruments that favor the work of sanitary surveillance agents, such as a mobile app that facilitates the recognition of products authorized for sale, based on the Anvisa and Federal Revenue databases.

Finally, both the population and retailers need to be informed of the applicable rules through effective communication and signage. Strong surveillance and advanced legislation completely prohibiting advertising in points of sale, including cigarette displays and standardization of price lists, could potentially decrease marketing and exposure to tobacco, consequently reducing smoking.

The data obtained can guide further advances in legislation and direct new educational campaigns to the population about the current rules for selling tobacco products, especially on the National Anti-Smoking Day – August 29.

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## CONTRIBUTIONS

Felipe Lacerda Mendes and Cristina de Abreu Perez have substantially contributed to the study design and planning; data acquisition, analysis, and interpretation; and wording. Letícia Casado and Erica Cavalcanti Rangel have substantially contributed to the study design, acquisition, analysis, and interpretation of the data, wording, and critical review. All the authors approved the final version for publication.

## DECLARATION OF CONFLICT OF INTERESTS

The author Letícia Casado declares a potential conflict of interests due to her being the executive-editor of INCA's *Revista Brasileira de Cancerologia*. The other authors do not have any conflict of interests.

## DATA AVAILABILITY STATEMENT

All the contents associated with the article are included in the manuscript.

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