

Law compliance, why do we need it? Comparative data from the *Brazilian National Survey of School Health (PeNSE)* on adolescents' access to cigarettes

Lei, para que te quero? Dados comparativos da *Pesquisa Nacional de Saúde do Escolar (PeNSE)* sobre acesso a cigarros por adolescentes

Ley ¿para qué te necesito? Datos comparativos del *Encuesta Nacional de Salud del Escolar (PeNSE)* sobre el acceso a cigarrillos por los adolescentes

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doi: 10.1590/0102-311XEN145722

Abstract

In recent decades, Brazil has made significant progress in fighting the tobacco epidemic. However, recent national data suggest a probable stagnation in the reduction of smoking initiation among youth and adolescents. The objective of this study was to evaluate the evolution over time of compliance with the law that prohibits the sale of cigarettes to minors in Brazil. To this end, data from the Brazilian National Survey of School Health conducted in 2015 and 2019 were used. Percentages were estimated for “sequential” indicators created by combining answers to the questions “Did anyone refuse to sell you cigarettes?” and “How did you obtain your cigarettes?” There was a decrease between 2015 and 2019 in the percentage of smokers aged 13 to 17 who tried to buy cigarettes in the 30 days prior to the survey (72.3% vs. 66.4%; p -value ≤ 0.05). However, regardless of the survey year, approximately 9 out of 10 adolescent smokers were successful in an attempt to buy cigarettes. Of those, approximately 7 out of 10 used direct purchase as the main method of obtaining cigarettes, with purchases at licensed commercial establishments (vs. street vendors) increasing between 2015 and 2019 (81.1% vs. 89.6%; p -value ≤ 0.05). In 2019, 70% of teenagers who bought cigarettes at licensed commercial establishments purchased single cigarettes. Non-compliance with laws aimed at preventing smoking initiation is a huge obstacle to reducing the proportion of smokers. Increased implementation of legislative measures and oversight of cigarettes sales, combined with educational and awareness actions with retailers, is key to protecting new generations from the harmful effects of tobacco use.

Smoking Prevention; Legislation; Adolescent Behavior; Tobacco-Derived Products Commerce

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Introduction

In the last two decades, Brazil has implemented several legislative, economic and educational measures aimed at tobacco control ¹. The synergy of those measures has resulted in a reduction in the number of adult smokers in Brazil (e.g., 18.2% in 2008 vs. 12.6% in 2019) ².

Monitoring compliance with anti-tobacco legislation through nationwide surveys also makes it possible to assess its impact on reducing social acceptance of smoking behavior in Brazilian society. A good example is the considerable increase, between 2008 and 2019, of the number of Brazilians (smokers and/or non-smokers) protected against secondhand smoke in enclosed workplaces, followed also by increased protection in places where no such legal restriction exists, such as at home ³.

The effective implementation of price and tax policy, restriction on advertising and promotion, ban on the sale of single cigarettes, regulation of retail points of sale and unrestricted prohibition of the sale of tobacco products to minors under the age of 18 in force in Brazil ¹ are essential to preventing access to such products, especially by children and adolescents, since it is during this period of life that smoking initiation mostly occurs ⁴.

However, recent data on the current number of smokers among Brazilian adolescents from the *Brazilian National Survey of School Health* (PeNSE) has revealed that this percentage did not decrease between 2015 and 2019, standing at 6.6% and 6.8%, respectively ⁵. Therefore, the objective of this study was to evaluate, for this same period, the evolution of compliance/noncompliance with the law that prohibits the sale of cigarettes to minors under the age of 18 in Brazil.

Methods

Microdata from the PeNSE for 2015 (sample 2) and 2019 were used. PeNSE included students attending 6th to 9th grade of elementary education and 10th to 12th grade of secondary education in public and private schools in all Brazilian regions. Details of the sampling plan can be found in other publications ⁵.

For the analyses presented here, the sample included only adolescents between the ages of 13 and 17 who had smoked cigarettes in the 30 days prior to the survey, accounting for a population of 863,469 adolescents in 2015 and 804,369 in 2019.

The analyses are based on three independent questions of the surveys: (1) "In the last 30 days, did anyone refuse to sell you cigarettes because of your age?", with the answer options (a) "I did not try to buy cigarettes in the last 30 days", (b) "Yes, someone refused to sell me cigarettes because of my age" and (c) "No, my age did not prevent me from buying cigarettes"; (2) "In the last 30 days, how did you mostly obtain cigarettes?", with the answer options (a) "I bought them at a store, bar, bakery or newsstand", (b) "I bought them from a street vendor", (c) "I gave someone money to buy them for me", (d) "I asked someone for cigarettes", (e) "I got them at home on the sly", (f) "An older person gave them to me", and (g) "I got them by other means"; (3) "In the last 30 days, did you buy single cigarettes, outside the packet?", with the answer options (a) "Yes" and (b) "No". The third question only appears in the 2019 edition of PeNSE.

Five "sequential" indicators were created to help understand compliance/non-compliance with the ban on selling cigarettes to youngsters in Brazil:

- (A) "Purchase attempt": the numerator includes both individuals who were prevented from buying and those who managed to buy cigarettes in an attempt [answer options (b) or (c) of question (1), or answer options (a) or (b) of question (2)], and the denominator is adolescent smokers;
- (B) "Successful purchase attempt": the numerator is adolescents who were able to buy cigarettes in an attempt [answer option (c) of question (1), or answer options (a) or (b) of question (2)], and the denominator is individuals who tried to buy cigarettes;
- (C) "Frequent buyer": the numerator is adolescents who mostly obtained their cigarettes through direct purchase [answer options (a) or (b) of question (2)], and the denominator includes those who managed to buy cigarettes in an attempt;
- (D) "Frequent buyer in licensed commercial establishments": the numerator is adolescents who mostly bought their own cigarettes in licensed commercial establishments [answer option (a) of question

(2)], and the denominator is adolescents who mostly bought their own cigarettes;
 (E) "Single purchase at licensed commercial establishments": the numerator is only adolescents who bought single cigarettes [answer option (a) of question (3)], and the denominator includes those who mostly bought cigarettes in licensed commercial establishments.

The percentages of the five indicators were estimated per survey year. The chi-square test was used to compare the percentages. The total percentage of Brazilian adolescent smokers who mostly bought their cigarettes in licensed commercial establishments was also estimated by multiplying indicators A, B, C and D.

The analyses were performed in Stata 15.0 (<https://www.stata.com>), using the svy command to account for the complex sample design of the surveys.

PeNSE was approved by the Brazilian National Research Ethics Committee of the Brazilian Ministry of Health (2015: CAAE 1.006.487; 2019: CAAE 3.249.268).

Results

Table 1 shows that there was a statistically significant decrease between 2015 and 2019 in the proportion of underage smokers who tried to buy cigarettes in the 30 days prior to the survey (72.3% vs. 66.4%). It is noticed, however, that about 9 out of 10 adolescent smokers who tried to buy cigarettes were successful in an attempt, regardless of the year of analysis. Of those, approximately 7 out of 10 used direct purchase as the main method of obtaining cigarettes, with purchases at licensed commercial establishments (vs. street vendors) increasing between 2015 and 2019 (81.1% vs. 89.6%, p -value ≤ 0.05). In 2019, around 70% of adolescents who mostly bought their own cigarettes in licensed commercial establishments bought single cigarettes. In total, for both years surveyed, approximately 4 out of 10 Brazilian smokers aged 13 to 17 years mostly obtained their own cigarettes through direct purchase in licensed commercial establishments in the previous 30 days.

Table 1

Proportion of access to cigarette purchasing by smokers aged 13 to 17 years, in the last 30 days, according to selected "sequential" indicators. *Brazilian National Survey of School Health 2015 and 2019, Brazil.*

	Survey year	
	2015	2019
Purchase attempt (A)	72.3 *	66.4
Successful purchase attempt (B)	86.1	87.1
"Frequent" buyer (C)	69.5	73.5
"Frequent" buyer in licensed commercial establishments (D)	81.1 *	89.6
Single purchase at licensed commercial establishments (E)	-	70.6 **
Adolescent smokers who "often" bought their cigarettes in licensed commercial establishments (A*B*C*D)	35.1	38.1

Note: (A) the denominator is adolescent smokers; (B) the denominator is individuals who tried to buy cigarettes; (C) the denominator includes those who managed to buy cigarettes in an attempt; (D) the denominator is those who mostly (i.e., "frequent buyer") bought their own cigarettes; (E) the denominator is those who mostly bought cigarettes in licensed commercial establishments.

* p -value ≤ 0.05 ;

** Information collected only in 2019.

Discussion

The findings point to an alarming observation: there has been no change over time in non-compliance with the law¹ that should prevent approximately 40% of the nearly one million Brazilian adolescent smokers from frequently buying their own cigarettes in licensed commercial establishments (about 45% if we consider the contribution of illegal sales by street vendors).

Comparing the evolution of such non-compliance over time suggests that it may be the result of the strengthening and/or weakening of other measures aimed at preventing smoking initiation. For example, the drop in the number of adolescents who tried to buy their own cigarettes may reflect the entry into force in 2018/2019 of the fourth group of health warnings for tobacco products, displaying more forcefully in terms of size and color, both on cigarette packets and at points of sale, the warning forbidding sales to minors¹. On the other hand, the strong attraction on adolescents exerted by the enduring sale in the Brazilian market of cigarettes with aromas and flavors, on display near candy and chocolate in commercial establishments, reflects the interference of the tobacco industry in delaying or obstructing *Brazilian National Tobacco-Control Policy* (PNCT)^{4,6}. In this sense, the lack of increase tax rates and minimum prices of tobacco products since 2016, combined with the strong presence of cheap cigarettes smuggled into Brazilian market⁶, undermine the main action to reduce initiation⁷. These combined factors mean that the majority of young smokers still try (and manage) to buy cigarettes and explain to some extent why the prevalence of smoking among adolescents does not fall⁵.

The percentage of adolescent smokers who are able to buy cigarettes without being prevented is absurdly outrageous and stable over time (around 90%). Furthermore, not only does Brazil have the second cheapest cigarette in the Americas^{4,7}, but the high rate of “twofold illegality”^{1,8}, i.e., the sale of single cigarettes (vs. the exclusive sale of 20-cigarette packets) to minors in licensed commercial establishments, indicates that even if Brazil were to increase the price of cigarettes again, non-compliance with specific actions/laws would continue undermining PNCT as a whole.

As Brazil is a huge country, there are thousands of potential places for cigarettes to be sold to minors. Therefore, besides legislative measures and the enormous challenge of oversight of cigarettes sales, it is key to implement education and awareness initiatives in society, in particular among retailers⁹, on the importance of protecting the new generations from the harmful effects of tobacco use. Examples of the successful combination of mobilizing society and enforcing legislation have already been achieved in Brazil and in other countries, for example, with the smoke-free law^{3,9}. It is also important to understand the different mechanisms that young people use to circumvent the law that prohibits the sale of cigarettes to minors under the age of 18 (e.g., buying in smaller establishments and always in the same place) in order to make it more effective¹⁰.

The increase in the proportion of adolescents who bought their own cigarettes in licensed commercial establishments in 2019 (compared to 2015) may reflect the inclusion of additional answer options in the item on direct purchase (including bar, bakery and newsstand in 2019)⁵. However, it can be noted that the percentage of “I got them by other means” answer actually increased between 2015 and 2019 (12.6% vs. 14.9%)⁵, suggesting that the proportion of non-compliance with the law may be higher if we consider the expansion of online sales⁴.

Although we have no way of separating purchases by type of cigarette, including to allow for possible misinformation related to the inclusion of e-cigarettes in the answers provided for conventional cigarettes, what matters for the conclusions of this article is that the sale of all types of cigarettes is prohibited to minors and is therefore always a breach of legislation. In addition, the proportion of non-compliance with the law prohibiting the sale of tobacco products to minors in Brazil may be underestimated considering that the purchase of other accessories and/or products was not included, which PeNSE showed to be related to current cigarette use (e.g., water pipes)⁵.

Conclusion

Non-compliance with laws aimed at preventing smoking initiation and encouraging smoking cessation among Brazilian adolescents is a huge obstacle to reducing the proportion of smokers in Brazil. Education actions and oversight of cigarette sales, in addition to legislative measures, need to be strengthened, given the stagnation, not to say worsening, of the indicators of minors' access to cigarettes presented in this study.

Contributors

A. S. Szklo contributed to data analysis and interpretation, wrote the paper, critically reviewed the intellectual content of the article and approved the final version. N. Bertoni contributed to data interpretation, wrote the paper, critically reviewed the intellectual content of the article and approved the final version.

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Resumo

Nas últimas décadas, o Brasil obteve importantes avanços no combate à epidemia de tabaco. No entanto, dados recentes nacionais apontam para uma provável estagnação na queda da iniciação ao tabagismo entre jovens e adolescentes. O objetivo deste estudo foi avaliar a evolução no tempo do cumprimento da lei que proíbe a venda de cigarros para menores de idade no Brasil. Para tal, utilizaram-se os dados da Pesquisa Nacional de Saúde do Escolar das edições de 2015 e 2019. Foram estimadas proporções para indicadores “sequenciais” criados da combinação das respostas às perguntas “alguém se recusou a lhe vender cigarros?” e “como conseguiu seus próprios cigarros?”. Houve uma queda, entre 2015 e 2019, na proporção de fumantes entre 13 e 17 anos que tentaram comprar cigarros nos 30 dias anteriores à pesquisa (72,3% vs. 66,4%; valor de $p \leq 0,05$). Contudo, independentemente do ano da pesquisa, cerca de 9 em cada 10 adolescentes fumantes tiveram sucesso em alguma tentativa de compra de cigarros. Desses, aproximadamente 7 em cada 10 utilizaram a compra ativa como a principal modalidade de acesso ao cigarro, sendo que a respectiva compra em estabelecimentos comerciais autorizados (vs. com ambulantes) aumentou entre 2015 e 2019 (81,1% vs. 89,6%; valor de $p \leq 0,05$). Em 2019, 70% dos adolescentes que compraram cigarros em estabelecimentos comerciais autorizados realizaram a compra avulsa. O descumprimento de leis voltadas à prevenção da iniciação ao fumo é um enorme obstáculo para a redução da proporção de fumantes. O fortalecimento das ações legislativas e de fiscalização, aliado a ações educativas e de sensibilização junto aos varejistas, é fundamental para proteger as novas gerações quanto aos efeitos nocivos do uso do tabaco.

Prevenção do Hábito de Fumar; Legislação; Comportamento do Adolescente; Comercialização de Produtos Derivados do Tabaco

Resumen

En las últimas décadas, Brasil ha logrado importantes avances en el combate a la epidemia del tabaquismo. Pero, recientes datos nacionales apuntan a un probable estancamiento en la recucción de la iniciación tabáquica entre jóvenes y adolescentes. El objetivo de este estudio fue evaluar la evolución en el tiempo de cumplimiento de la ley que prohíbe la venta de cigarrillos a menores en Brasil. Para ello, se utilizaron datos de la Encuesta Nacional de Salud del Escolar de 2015 y 2019. Se estimaron proporciones para los indicadores “secuenciales” creados desde una combinación de las respuestas a las preguntas “alguien se negó a venderte cigarrillos” y “cómo conseguiste cigarrillos”. Hubo una disminución entre 2015 y 2019 en la proporción de fumadores de entre 13 y 17 años que intentaron comprar cigarrillos en los treinta días antes de la encuesta (72,3% vs. 66,4%; valor de $p \leq 0,05$). Sin embargo, independientemente del año de la encuesta, alrededor de 9 de cada 10 adolescentes fumadores tuvieron éxito en algún intento de comprar cigarrillos. De estos, aproximadamente 7 de cada 10 utilizaron la compra activa como el principal método de acceso a cigarrillos, y la respectiva compra en establecimientos comerciales autorizados (vs. con vendedores ambulantes) aumentó entre 2015 y 2019 (81,1% vs. 89,6%; valor de $p \leq 0,05$). En 2019, el 70% de los adolescentes que compraron cigarrillos en establecimientos comerciales autorizados los compraron sueltos. El incumplimiento de la ley destinada a prevenir la iniciación al tabaquismo es un gran obstáculo para reducir la proporción de fumadores. El fortalecimiento de las acciones legislativas y de fiscalización, sumado a acciones educativas y de sensibilización con los comerciantes, es fundamental para proteger a las nuevas generaciones de los efectos nocivos del consumo de tabaco.

Prevención del Hábito de Fumar; Legislación; Conducta del Adolescente; Comercialización de Productos Derivados del Tabaco

Submitted on 04/Aug/2022

Final version resubmitted on 06/Dec/2022

Approved on 12/Jan/2023