



Student Smoking Behaviour and Cigarette Advertisements Around School and Home: A study in Tebing Tinggi City

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<p>Track Record Article</p> <p>Accepted: 11 August 2024 Revised: 30 September 2024 Published: 30 December 2024</p> <p>How to cite: Syam, A. M., Zali, M., Siregar, P. A., Apriliani, Siregar, S. F., Adinda, D., Ihsan, A., & Amalia, N. (2024). Student Smoking Behaviour and Cigarette Advertisements Around School and Home: A study in Tebing Tinggi City. <i>Contagion: Scientific Periodical Journal of Public Health and Coastal</i>, 6(2), 1487–1499.</p>	<p style="text-align: center;">Abstract</p> <p><i>Indonesia is the second-largest cigarette market in the world, with an increased smoking rate among young people aged 10–18 years. The latest data show that smoking is increasingly common in youth. Tobacco control will reduce public demand for tobacco products, especially if the supply of tobacco can be limited. This study, conducted in Tebing Tinggi City, North Sumatra Province, aimed to collect data on the density of cigarette sellers around schools and their impact on students' smoking behavior. The research involved 1914 students from 10 schools, examining factors such as smoking laws, age at first smoking, daily cigarette consumption, location, and advertisements. The study used a cross-sectional design, GPS coordinates, QGIS 3.0 analysis, and in-depth interviews with a Tebing Tinggi City Health Office representative. The findings will be analyzed using the JASP computer program. The study shows that 8.2% of adolescents in Tebing Tinggi City have never smoked, with mixed views on the smoking law. The majority do not smoke, with varying smoking rates and exposure to cigarette advertisements. The study also found a high density of cigarette sellers in junior and senior high schools, indicating a lack of awareness about smoking. Most adolescents in Tebing Tinggi City do not smoke, with mixed views on the smoking law. They are exposed to cigarette advertisements in school and home environments, with vendors providing easy access. Increased awareness and effective law enforcement are needed to control cigarette advertising and sales.</i></p> <p>Keyword: School, Retailers, Cigarette, Smoking, Students</p>
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INTRODUCTION

Indonesia has not signed the Tobacco Control Convention (FCTC), which prohibits advertising, promotion, and sponsorship of tobacco products that falsely promote their health effects (IAKMI, 2020); (WHO, 2020). Despite the assumption that outdoor advertising contributes to ASEAN's high number of young smokers, Indonesia lacks a policy for outdoor cigarette advertising (Yunarman et al., 2021). This policy will impact Indonesia's high consumption of cigarettes (Hari Widowati, 2019). Cigarette consumption in Indonesia has increased rapidly, exceeding population growth rates (Sari, 2017). In 2018, Indonesia became the second-largest cigarette market globally, with 316.1 billion cigarettes sold. Daily cigarette

consumption has increased, with the lowest in Yogyakarta Province and the highest in Riau Province (Kementerian Kesehatan RI, 2018).

Young smokers pose a significant health risk as their habit becomes ingrained at a younger age. The Global Youth Tobacco Survey data shows that the percentage of students aged 13 to 15 years in Indonesia has increased significantly, with male and female student smokers increasing from 33.9% to 38.3% (WHO, 2020). Cigarette smoke exposes 6 out of 10 students aged 13-15 at home, while 7 out of 10 students aged 13-15 are exposed to cigarette smoke in public places. North Sumatra Province, with a population aged >10 years, has the highest smoking behavior habits in Indonesia. The number of daily smokers decreased from 24.2% in 2013 to 22.38% in 2018. However, young people aged 10-14 years still have high smoking rates, with 14.78% of smokers aged 15-19 years. Riskesdas 2018 reported that Tebing Tinggi has one of the highest youth smoking rates in the region, with 9.44% of individuals aged 10-14 years and 44.84% of those aged 15-19 years identified as smokers.

The Tebing Tinggi City Government has realized that smoking behaviour is a problem that must be prevented immediately. The Tebing Tinggi City Government issued a mayor's Smoking Free Area (SFA) regulation to prevent increased smoking. However, the number of smokers in Tebing Tinggi City remains high, especially young smokers. The high number of smokers, especially young smokers in Tebing Tinggi City, can occur because students aged 5–18 can still quickly access information about cigarette advertisements containing invitations to smoke in cigarette shops around their school. The number of cigarette advertisements in cigarette shops located around schools will potentially trigger students to follow cigarette advertisements in cigarette shops, and cigarette companies will make creative outdoor cigarette advertisements to increase adolescents' interest in smoking behaviour (Chido-Amajuoyi et al., 2017).

Cigarette selling in the school environment is a factor that influences smoking behaviour, where the closer the distance between cigarette sellers and schools, the more excellent the opportunity for students to smoke (P. A. Siregar, 2020) (Marashi-Pour et al., 2015). A total of 2.4 million cigarette sales points in Indonesia are everywhere, such as wholesalers and small shops that sell cigarettes.

Tobacco control will generally focus on reducing the demand for tobacco products, mainly if the supply can be limited (Ribisl et al., 2017); (Polanska & Kaleta, 2021). Cigarette sellers are an essential part of the tobacco industry, especially in terms of marketing cigarette products. Cigarette sellers are an essential part of marketing to smokers in terms of product,

place, price and promotion of the cigarette products they sell (Marsh, 2021). Regulations on cigarette vending will have a significant impact on reducing smokers' access to cigarettes and the lack of environmental support for smoking behaviour, which could lead to a rapid reduction in smoking (Astuti, 2019); (Bar-Zeev, 2023).

The density of cigarette sellers causes the prevalence of smoking to increase. Children under the age of 14 are found smoking in areas adjacent to cigarette sellers; this prohibits cigarette-selling policies in areas around schools because it can encourage adolescents to smoke more easily (Politon, 2021). The existence and density of cigarette sellers are due to the high availability of cigarettes and the ease of buying them. With the perception that smoking is common and data is accepted by cigarette sellers around the environment or schools, the purchasing power of cigarettes is higher in the school environment (Safitri, 2022). Perceptual exposure to cigarette advertising has an impact on smoking behaviour (FADHILA et al., 2022).

The density of cigarette sellers in educational facilities has a significant relationship with smoking behaviour among educators, with a distance of 100 m close to cigarette sellers in the school environment showing adolescents are likely to smoke (Adisasminto et al., 2020). The number of cigarette sellers around the education sector, such as in the school facility environment, makes it easier for adolescents to buy cigarettes. We found an average density of 1.1 cigarette sellers at a distance of 100 m adjacent to schools, and many cigarette sellers display cigarette advertisements in their shops (Sebayang, 2022).

The pervasive exposure of students to cigarette advertisements around schools and homes presents a critical challenge in addressing smoking behaviour among adolescents. From an Islamic perspective, smoking is viewed as *madharat* (harmful) and contrary to the principles of preserving life (*hifz al-nafs*). The Quran emphasizes the importance of avoiding self-destructive behaviors, as stated in *Surah Al-Baqarah* (2:195), "*And do not throw yourselves into destruction with your own hands.*" This guidance underscores the need to create environments, particularly around schools and homes, where adolescents are shielded from influences that normalize or promote smoking. The proximity of cigarette advertisements and sellers to schools creates a conducive atmosphere for adolescents to experiment with smoking, often leading to long-term addiction and health risks.

In alignment with Islamic teachings, the *Majelis Ulama Indonesia* (MUI) issued a fatwa in 2009 prohibiting smoking for children, pregnant women, and in public places, deeming it *haram* (forbidden) in specific contexts and *makruh* (discouraged) in general. This prohibition directly relates to protecting young individuals from exposure to harmful substances,

particularly through advertisements and sales points near schools. The fatwa reinforces the urgency of implementing stricter regulations to eliminate cigarette advertisements and sales within residential and educational zones. By limiting these influences, communities can foster healthier behaviors and reduce the normalization of smoking among students. These efforts are critical to reducing the long-term public health burden and aligning societal practices with Islamic ethical standards.

METHODS

This study employed a cross-sectional design and was conducted from July to November 2024 in Tebing Tinggi City, North Sumatra Province. The research focused on understanding the density of cigarette sellers around schools and their impact on students' smoking behavior. The study involved observations and data collection from 10 schools in Tebing Tinggi City, including both public and private junior and senior high schools, covering a total of 1914 students. The research instruments consisted of structured questionnaires derived from the Global Adult Tobacco Survey (GATS) and the Basic Health Research (Riskesdas) questionnaire from the Indonesian Ministry of Health. The questions included both closed-ended and open-ended formats, capturing data on smoking behavior, smoking laws, age at first smoking, daily cigarette consumption, smoking locations, and exposure to cigarette advertisements around schools and homes.

Informed consent was obtained from all participants before data collection, ensuring ethical compliance and voluntary participation. GPS technology was used to collect the coordinates of schools and nearby cigarette vendors. The spatial data was analyzed using QGIS 3.0 to map the density and proximity of cigarette vendors to schools. The analysis involved both quantitative and qualitative methods. Quantitative data on smoking behavior and vendor density were analyzed using the JASP software, with descriptive and inferential statistical approaches. Qualitative insights were gained through in-depth interviews with a representative from the Tebing Tinggi City Health Office, focusing on local policies and their effectiveness in controlling youth smoking behaviors.

RESULTS

Table 1. Distribution and Frequency of Adolescent Smoking Behaviour in Tebing Tinggi City

Smoking Behaviour	F	%
Never Smoke		
Ever	156	8,2
Never	1758	91,8
Total	1914	100
Smoking Law		
Not applicable	365	19,1
Don't know	344	18,0
Mubah (No problem)	309	16,1
Haram	513	26,8
Makruh	338	17,7
Sunnah	14	0,7
Obligatory	7	0,4
Total	1914	100
Age at first smoking		
<18 years	175	9,1
>18 years	18	0,9
No smoking	1721	89,9
Total	1914	100
Cigarette smoking		
Smoking	93	4,9
Not Smoking	1821	95,1
Total	1914	100
Number of cigarettes per day		
>10 cigarettes	19	1,0
<10 cigarettes	97	5,1
No smoking	1798	93,9
Total	1914	100
Smoking Location		
Smoking inside the house	18	0,9
Not smoking inside the house	130	6,8
No smoking	1766	92,3
Total	1914	100

The table above reveals that 8.2% of adolescents in Tebing Tinggi City have smoked, whereas 91.8% have never smoked. Regarding their views on the smoking law, which prohibits smoking in certain public places and sets age restrictions, 19.1% stated that it does not apply, 18.0% do not know, 16.1% consider mubah (no problem), 26.8% consider haram, 17.7% consider makruh, 0.7% consider sunnah, and 0.4% consider it mandatory.

In terms of the age of first smoking, 9.1% of adolescents started smoking before the age of 18, 0.9% started smoking after the age of 18, and 89.9% did not smoke, 4.9% of adolescents smoked cigarettes, while 95.1% did not. Regarding the number of cigarettes per

day, 1.0% smoked more than ten cigarettes, 5.1% smoked less than ten, and 93.9% did not smoke.

In terms of smoking location, 0.9% of adolescents smoked inside the house, 6.8% did not smoke inside the house but smoked elsewhere, and 92.3% did not smoke at all. This data shows that the majority of adolescents in Tebing Tinggi City do not smoke and have mixed views on the smoking law. The percentage of adolescents who smoke is relatively small, both in terms of ever smoking, the number of cigarettes smoked per day, and the location of smoking.

Table 2. Distribution and Frequency of Cigarette Advertisements Around School and Home

Cigarette Advertisements	F	%
Cigarette Advertisements Around The School		
Ever	650	34,0
Never	1264	66,0
Total	1914	100
Cigarette Advertisements Around The House		
Ever	721	37,7
Never	1193	62,3
Total	1914	100

According to a survey of 1914 respondents, the table above shows their exposure to cigarette advertisements in their neighbourhood, both around school and at home. Six hundred fifty people (34.0%) had seen cigarette advertisements around schools, while 1264 people (66.0%) had never seen them in that location. Seven hundred twenty-one people (37.7%) said they had seen cigarette advertisements around their homes, while 1193 people (62.3%) said they had never seen cigarette advertisements around their homes. This data indicates a significant exposure to cigarette advertisements in both environments, with more than a third of respondents reporting seeing them around their school or home. However, most respondents still stated that they had never seen cigarette advertisements in both locations.

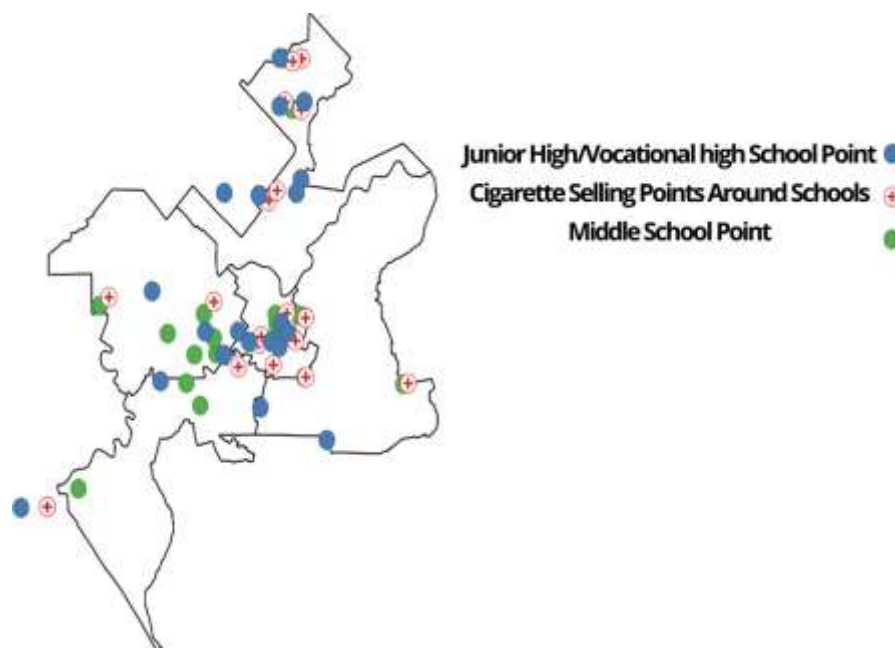


Figure 1. The density of cigarette sellers around schools in Tebing Tinggi City

This study's results indicate that both junior and senior high schools have a very high density of cigarette sellers. Every junior and senior high school is surrounded by cigarette sellers located around the school. The map illustrates the density of cigarette-selling points near schools in Tebing Tinggi City, showing a significant clustering of cigarette vendors (red "+" symbols) around Junior High/Vocational High Schools (blue dots) and Middle Schools (green dots). This close proximity highlights the ease of access to cigarettes for students, raising public health concerns and emphasizing the need for stricter regulations to limit tobacco availability near educational institutions.

The density of cigarette sellers near educational institutions raises concerns about the influence of such environments on youth smoking behaviors. This analysis underscores the potential for increased exposure and access to cigarettes among school-aged children, particularly in zones with a high concentration of schools. By visualizing these relationships, the map serves as a tool for identifying priority areas for regulatory action or public health interventions aimed at reducing youth exposure to cigarettes in Tebing Tinggi City.

DISCUSSION

Burning tobacco products, such as clove cigarettes, white cigarettes, cigars, or other products made from *Nicotiana tabacum* plants, *Nicotiana rustica*, and other species, or their synthetics containing nicotine and tar, with or without additional ingredients, constitutes the behaviour of smoking. Cigarette sellers present cigarette advertisements in a stylish, masculine,

cheerful, and even exclusive manner, aiming to convince people that smoking makes them appear relaxed, manly, and classy, a perception that many people still hold today. Advertising media on billboards with large sizes and images, slogans, cigarette brands, health warning messages, logos and lighting can be predictors of smoking behaviour in adolescents through promoted advertisements, advertising images on billboards, slogans and cigarette brands promoted by cigarette manufacturers (Kurniawan, 2020). Cigarette advertisements in cigarette shops around schools greatly influence adolescents' perceptions and beliefs about cigarettes causing addiction. This is because the government has no ban on outdoor advertising, so adolescents have more opportunities to smoke (Yamamoto, 2022).

Cigarette fish have a 3.667 times higher risk of smoking compared to someone who is not exposed to cigarette advertisements (Fransiska et al., 2021). This is because they effectively influence students to smoke. Many cigarette advertisements are found on television and the highway as banners and posters using young people's idols. (S. F. Siregar, 2021); (Nasution, 2019) Because they often see these cigarette advertisements, teenagers are interested in smoking; they want to look dashing and macros like their idols.

Cigarettes sold freely by cigarette sellers are a factor that causes adolescents to smoke with the ease of obtaining cigarettes. Usually, teenagers buy cigarettes at the nearest stalls around them (Dwiyani et al., 2017). This is because cigarette sellers are easily found in various sales places, from roadside stalls to supermarkets. People buy cigarette products from roadside stalls because they can purchase them at retail stores and they are close to their homes.

Accessibility to buying cigarettes has a relationship with adolescent smoking behaviour. This is because easy access to cigarettes has a greater possibility of making adolescents smoke compared to difficult access to cigarettes (Irmawati et al., 2022). Teenagers consume the most cigarettes when they are hanging out with their friends, such as during late-night hangouts, picnics, or get-togethers. This makes it easy for teenagers to visit grocery stores, convenience stores, or small shops in cigarette retailers near schools. Television and mass media advertisements encourage teenagers to mimic and emulate the actions of models promoting these cigarette products, creating an image of smokers as prosperous, relaxed, mature, and resilient individuals capable of overcoming any challenge.

Adolescents will persist in smoking if they perceive smoking as a significant source of psychological fulfilment and a way to boost their social confidence in their peer group, emulating the excellent, challenging, and mature image portrayed in cigarette advertisements. This, in turn, leads to an increase in cigarette consumption among adolescents, disregarding

the long-term effects on their health (Nurhayati, 2022). The parental factor is one of the substantial factors that influence smoking habits in adolescents. This is because teenagers who have smoking parents tend to have curiosity and a sense of wanting to try cigarettes (Yunalpi et al., 2021). After all, they see their parents smoking, and they think it is okay to smoke because their parents are also smokers (Fahmi et al., 2021).

The distance between cigarette retailers and schools affects adolescent smoking behaviour. The farther the distance of cigarette stalls, the greater the chance of success in quitting smoking compared to the close distance of cigarette stalls (Awaluddin et al., 2019). The proximity of cigarette shops to schools that facilitate easy access to cigarettes significantly increases the likelihood of smoking behaviour among adolescents compared to those whose schools lack such convenience or are not near cigarette retailers (Fransiska et al., 2021).

The presence of cigarette sellers around the school and their affordable prices are factors that lead adolescents to smoke. Curiosity, the desire to try new experiences, a desire to escape boredom, a desire to be perceived as more manly, a desire to fit in with their group, or the influence of their role models, such as their parents or older siblings, can all contribute to adolescents smoking (Dewi et al., 2020). Sales Promotion Girl (SPG) uses a high level of cigarette advertising, including television and roadside banners, to promote the sale of cigarette products to increase cigarette sales (Widianawati et al., 2022).

The accessibility of cigarettes is a significant factor influencing adolescent smoking behavior, with local markets, mini-markets, and small stalls near schools and residential areas often selling cigarettes without age verification. Studies show that environmental factors, such as the high density of tobacco advertising near schools, and peer influence further exacerbate youth smoking rates, with 18.8% of Indonesian adolescents aged 13-15 identified as smokers. While government policies, such as raising the minimum smoking age to 21 and restricting cigarette sales near schools, aim to address this issue, the persistent increase in youth smoking highlights the need for stricter enforcement, public health campaigns, and community interventions to reduce smoking initiation among adolescents (PLOS One, 2024; MDPI, 2024; Reuters, 2024)

From an Islamic perspective, smoking is considered harmful (*madharat*), directly conflicting with the principles of protecting life (*hifz al-nafs*). The Quran warns against self-destructive behaviors, as emphasized in *Surah Al-Baqarah* (2:195): “*And do not throw yourselves into destruction with your own hands.*” This guidance calls for urgent action to safeguard adolescents from exposure to cigarette advertisements and easy access to tobacco

products, especially around schools and homes. The portrayal of smoking as desirable in advertisements near schools undermines Islamic values, leading to behaviors that compromise the physical and spiritual health of adolescents. Smoking behavior in teenagers, normalized through strategic advertising, contradicts the essence of Islamic teachings, which advocate for moderation and avoiding wasteful, harmful practices (*Surah Al-Isra* 17:27).

The *Majelis Ulama Indonesia (MUI)* issued a fatwa in 2009, categorizing smoking as *haram* (forbidden) for children, pregnant women, and in public spaces, emphasizing the health risks and moral degradation associated with smoking. This fatwa highlights the critical need to prevent the spread of smoking habits, especially among adolescents frequently exposed to cigarette advertisements around schools and homes. The MUI also stressed the responsibility of communities and governments to enforce regulations limiting cigarette access and advertising near educational facilities. Recent studies, such as those by Irmawati et al. (2022) and Fransiska et al. (2021), corroborate these concerns, demonstrating a strong correlation between the proximity of cigarette shops to schools and increased smoking behavior among adolescents. By aligning public health policies with Islamic ethical guidelines, communities can mitigate the negative impact of cigarette advertising on teenagers and foster environments that promote well-being and healthy behaviors.

Ease of access to cigarettes is the most dominant factor associated with adolescent smoking behaviour. Most teenagers can quickly get cigarettes if they want them. The availability of shops or stalls selling cigarettes near schools and the neighbourhood supports this. In reality, mini-markets rapid growth has also helped to spread cigarettes among students. Small stalls also contribute to the ease of access to cigarettes. This occurs because small stalls primarily sell cigarettes, quickly sold in the neighbourhood, regardless of whether the buyers are adults or teenagers. The escalating number of young smokers, particularly teenagers, is a recurring issue that demands immediate attention from the government. The government must establish policies that restrict smoking, particularly for teenagers.

CONCLUSIONS

The majority of adolescents in Tebing Tinggi City do not smoke, with relatively small percentages in terms of ever smoking, number of cigarettes smoked per day, and location of smoking. Most adolescents also had mixed views on the smoking law, suggesting confusion or ambiguity in its application. There was significant exposure to cigarette advertisements around school and home environments, although most respondents reported never seeing cigarette

advertisements in either location. Furthermore, this study revealed that cigarette vendors surrounded every junior and senior high school, providing students with easy access to cigarettes. There is a need for increased awareness and more effective law enforcement regarding smoking among adolescents, as well as the need to control cigarette advertising and cigarette sales in the school environment.

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