

Imas Arumsari - Association of Tobacco Advertising, Promotion, and Sponsorship (TAPS) exposure on smoking intention and current smoking behavior among youth in Indonesia

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Association of Tobacco Advertising, Promotion, and Sponsorship (TAPS) exposure on smoking intention and current smoking behavior among youth in Indonesia

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ABSTRACT

Background: This study aimed to assess the association of tobacco Advertising Promotion and Sponsorship (TAPS) exposure on smoking intensity and smoking behavior among youth in Indonesia.

Method: This study used secondary data from the Global Youth Tobacco Survey (GYTS) 2019. The participants were secondary students from grades 7 to 12. We used multiple logistic regression to assess the association of TAPS exposure with smoking intention among smokers and current smoking status.

Results: More than half of participants (64,54%) reported being exposed by TAPS in television, followed by outdoor media (60,82%) and point of sales (55,45%). About 2.27% of 7,679 nonsmoking participants had the intention to smoke cigarettes. Furthermore, TAPS exposure in sports events, music concerts, community gatherings, or social events, being offered free tobacco products, owning the tobacco industry's merchandise, and receiving vouchers of cigarettes discounts was associated with the smoking intention of nonsmokers and current smoking status. In addition, a significant association was found between TAPS exposure in television, the internet, and print media with current smoking status among youth in Indonesia.

Conclusions: TAPS exposure was significantly associated with smoking intention and smoking behavior among youth in Indonesia. Therefore, we recommended that the government ban TAPS in any form.

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KEYWORDS

TAPS; smoking; cigarettes; youth

Introduction

Cigarette smoking has become a global pandemic (Warner & MacKay, 2006). About 1 billion individuals worldwide used tobacco products, consisting of 847 million males and 153 million females, by 2019 (WHO, 2021). Of these, a total of 25 million smokers youth aged 13–15 (Lian & Dorotheo, 2021). The Southeast Asia Region (SEARO) and Western Pacific Region (WPRO) have the highest number of smokers, contributing around 6.4 million and 4.7 million, respectively (Lian & Dorotheo, 2021). Indonesia is one of the leading contributors to the tobacco epidemic in the region (Lian & Dorotheo, 2021).

In Indonesia, smoking prevalence is approximately 38.3% among youth aged 13–18 (Lian & Dorotheo, 2021). This rate is substantially higher compared to the neighboring countries such as Malaysia (20.6%), Thailand (17.2%), and Myanmar (17%; Lian & Dorotheo, 2021). The average age of smoking initiation is also the youngest among the Association of Southeast Asia Nation (ASEAN) countries, which is approximately 16.8 years old (Lian & Dorotheo, 2021; Soe et al., 2020). Therefore, the Indonesian government needs to implement tobacco control best practices to reduce the burden of tobacco-related diseases.

A large body of evidence shows that smoking at a young age has a severe impact on health immediately and accelerates the development of chronic diseases across the entire life course (USDHHS, 2012). Smoking cigarettes by youth can cause nicotine addiction, which will have a lasting adverse impact on

brain development (USDHSS, 2014). Youth who smoke cigarettes have a higher risk of early cardiovascular function damage (USDHHS, 2012). Moreover, young smokers are also in danger of slowing lung function and impaired lung growth (USDHSS, 2014). A prior case-control study in Blitar City revealed that those who started smoking before the age of 15 were 12 times more likely to develop Chronic Obstructive Pulmonary Disease (COPD) than those who did not smoke at all (Safitri et al., 2014).

The tobacco industry spends millions of dollars a year to promote its deadly product through various channels such as television, radio, cinema, newspaper, magazines, point of sales, outdoor displays, and the internet (WHO, 2013). Big tobacco also carried out marketing activities using indirect advertising, including sponsoring sports events, community gatherings, and music concerts, offering free products, merchandise, price discount, and engaging in so-called “corporate social responsibility” initiatives (Siahaya & Smits, 2021; WHO, 2013). The National Cancer Institute (NCI) revealed that most cross-sectional and longitudinal studies had shown a significant association between TAPS exposure and current and future smoking behavior (NCI & WHO, 2016). Therefore, WHO considered TAPS ban as one of the best buys in tobacco control (NCI & WHO, 2016).

Indonesia is one of few countries in the ASEAN region that have not comprehensively banned the TAPS (Lian &

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Dorotheo, 2021). At the national level, tobacco advertising is still allowed in broadcast media from 9.30 pm to 5.00 am (Soerojo et al., 2020). No restrictions are imposed on TAPS in print media and the internet (Soerojo et al., 2020). A survey by Vital Strategies involving 2,281 adolescents aged 13–15 found that 81% of them reported ever seen or heard tobacco advertising on the television, 51% on the internet, and 38% on the billboard (Vital Strategies, 2021). Unfortunately, the study evaluating the impact of TAPS exposure on smoking intention and behavior is still limited. This evidence is essential to convince policymakers to issue TAPS banned regulation in Indonesia.

This study aimed to examine the association between TAPS exposure on the smoking intention of nonsmokers and current smoking behavior among youth in Indonesia.

Method

Data source

This study utilized the secondary data of the Global Youth Tobacco Survey (GYTS) 2019. The GYTS is a global initiative to provide comparable data sources of the tobacco epidemic in various countries. Indonesia has participated in GYTS four times in 2006, 2009, 2014 dan 2019 (Kemenkes-Ministry of Health et al., 2020).

The Indonesia GYTS 2019 involved 9,992 secondary school students from grades 7th to 12th. It applied a two stages sampling method. First, the schools were selected through probability-proportional-size sampling based on the number of students. Second, the classes were chosen randomly from selected schools. All students from selected classes were invited to participate in the survey (Kemenkes-Ministry of Health et al., 2020). Our study analyzed all participants of the GYTS 2019.

Measures

Smoking intention and current smoking status

The smoking intention of nonsmokers and current smoking behavior were dependent variables in this study. First, the participants were considered to have a smoking intention if they thought they would consume cigarettes during the next 12 months from the interview. The GYTS 2019 asked about the smoking intention of all participants. Nevertheless, we only included nonsmoking participants in the analysis of smoking intention determinants. Second, current smoking behavior was treated in binary outcomes, smokers and nonsmokers. A smoker was defined as someone who reported smoking cigarettes in the past 30 days.

Sociodemographic characteristics

Sociodemographic variables consisted of age (≤ 12 , 13–14, 15–16, and ≥ 17 years), sex (female and male), and pocket money. Pocket money was measured by asking the participants about the average amount of money spent in a week. This outcome was grouped into three categories, $\leq 10,000$, 11,000–30,000, 31,000–50,000, and $\geq 51,000$ Rupiah. Pocket money was used as the proxy variable of the economic status.

Parental smoking status

The participants were also asked about the smoking status of their father and mother. Parental smoking status was classified as “no,” “don’t know,” or “yes” if father/mother or both parents currently smoked.

Accessibility

Accessibility was assessed with the question on, “can you purchase cigarettes near your school?.” The outcomes were classified into three groups as follows: no, don’t know, or yes.

Affordability

Cigarette affordability was estimated using the Relative Income Price (RIP). This method was developed by Blecher dan van Walbeek (Blecher & Walbeek, 2008). The RIP is defined as the share (percentage) of Gross Domestic Products (GDP) per capita required to buy 100 packs of cigarettes. The higher RIP values indicate that the cigarette price is less affordable. In this study, the cigarette price was assigned as the average estimated amount of money to purchase one pack of 20 cigarettes within a primary sampling unit. The price was then converted to international dollar using Purchasing Power Parity (PPP) conversion rate. The Organization of Economic Cooperation and Development (OECD) provided the database of PPP conversion rate to Indonesian Rupiah in 2019 (OECD, 2020). For the 2019 GDP per capita, the data was drawn from the world bank database, which was also adjusted by the PPP conversion rate (World Bank, 2020).

Anti-smoking messages exposure

Anti-smoking exposure was defined as exposure by anti-smoking messages in television, radio, newspaper, magazines, the internet, billboards, posters, movies, sports events, fairs, concerts, or public gatherings in the past 30 days. The outcomes were in binary options (No/Yes).

TAPS exposure

Self-reported direct TAPS exposure in the past 30 days were analyzed from types: television, printed media (newspapers or magazines), outdoor media (billboards, posters, banners, and digital billboards), the internet or social media, point of sales, music concerts, sports events, and community events or social gatherings. We also measured indirect TAPS exposure in multimedia by a question, “During the past 30 days, did you see any people using tobacco on TV, in videos, or in movies?.” The participants were also asked about ownership of tobacco-related merchandise such as t-shirts, pens, backpacks, hats, or sunglasses with a tobacco brand logo on it. In addition, the participants were also asked whether they ever got free/discounts cigarettes vouchers or coupons, and offered free tobacco products by tobacco industry representatives directly. The outcomes of TAPS exposure variables were in binary options (No/Yes).

Statistical analysis

The data analysis took into account the complex survey sampling design, which produced the weighted results. Participants’ characteristics, determinants of smoking behavior, and TAPS

exposure were descriptively presented. The bivariate analysis with binary logistic regressions was carried out to select the independent variables included in the final model. The odds ratio of each type of TAPS exposure in multiple logistic

regression was adjusted with independent variables with $p < .25$. The significance level was defined at alpha 0.05. The current smoking behavior regression analyzed all participants while smoking intention only included nonsmoker participants. All statistical analysis was performed using STATA v.16.

Table 1. Descriptive statistics.

Variables	Weighted Percent/ mean (SD)
Current smoking status (n = 9,398)	
No	80.38%
Yes	19.62%
Age group in years (n = 9,978)	
≤ 12	17.72%
13–14	40.98%
15–16	28.57%
≥ 17	12.73%
Sex (n = 9,983)	
Females	51.07%
Males	48.93%
Pocket money in Rupiahs (n = 9,970)	
≤ 10,000	25.14%
11,000–30,000	32.72%
31,000–50,000	18.41%
≥ 51,000	23.73%
Parents smoking (n = 9,930)	
No	55.51%
Don't know	4.98%
Yes	42.51%
Easy to buy cigarettes (n = 9,963)	
No	47.96%
Don't know	38.76%
Yes	13.27%
Affordability (n = 9,992)	3.858 (0.161)
Anti-smoking messages exposure in media & event (n = 9,966)	
No	19.21%
Yes	80.79%
Anti-smoking messages exposure in school (n = 9,915)	
No	23.76%
Don't know	16.13%
Yes	60.11%
Intention to use cigarettes in the next 12 months*	
No	97.73%
Yes	2.27%

*only included the nonsmoking participants (n = 7,679).

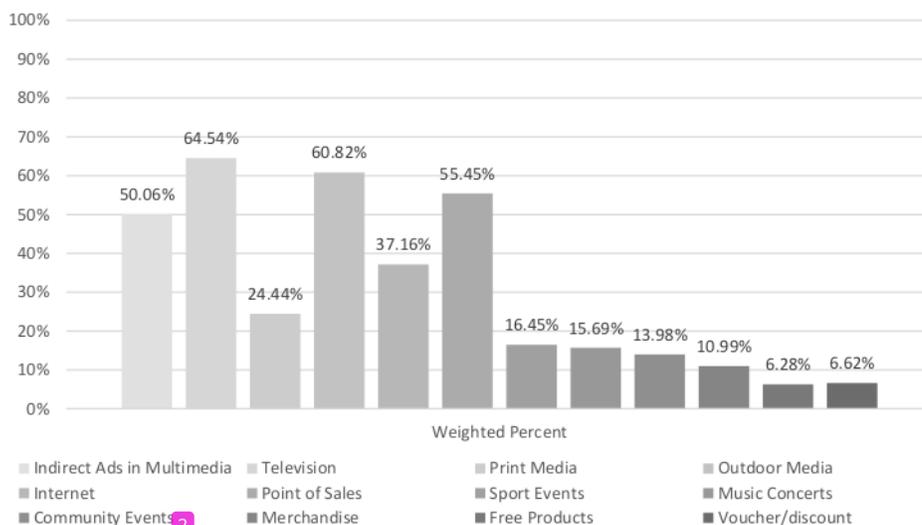
Results

The results show that the proportion of smokers is 19.62%, weekly spend pocket money dominantly at range IDR 11,000–30,000 (32.72%), and prevalence of parents smoking is 42.51%. The youth are mostly exposed to anti-smoking campaigns (80.79%) and were taught the danger of smoking at school (60.11%). Moreover, about 2% of nonsmokers had an intention to smoke cigarettes during the next 12 months (Table 1).

Graphic 1 presents the level of self-reported TAPS exposure among youth in Indonesia. The most dominant TAPS exposure is from television (64.54%) followed by outdoor media (60.82%), point of sales (55.45%), indirect advertising in multimedia (50.06%), printed media (24.44%), and the proportions are distributed fairly between sport events, music concert, community event, souvenir, and free products.

The study found that age, sex, age, sex, pocket money, parents smoking status, affordability, access to buy cigarettes, and TAPS exposure in school had p-value < 0.25 in the bivariate analysis of the current smoking status, while smoking intention regression was adjusted by sex, parent smoking status, access to buy cigarettes, and anti-smoking exposure in the media & offline events. We also found that TAPS exposure in sports events, music concerts, community events, merchandise, free products, and voucher/discounts were significantly associated with smoking intention and smoking behavior ($p < .001$) in the bivariate analysis (Table 2).

The full multivariate analysis results can be found in the supplement. The smoking intention of nonsmokers was also statistically significantly associated with TAPS exposure in sports events, music concerts, community events, merchandise, free products, and vouchers/coupons. The results also show that



Graphic 1. Self-reported TAPS exposure among youth in Indonesia.

Table 2. Bivariate analysis.

Variables	Smoking intention		Current smoking	
	OR	95% CI	OR	95% CI
Age group in years				
≥12	Ref.		Ref.	
13-14	0.881	0.536–1.448	1.160	0.933–1.441
15-16	1.091	0.639–1.864	1.184	0.907–1.545
≥17	1.103	0.529–2.301	1.158	1.201–2.083*
Sex				
Female	Ref.		Ref.	
Male	4.337	2.754–6.828**	28.486	20.007–40.559**
Pocket money in Rupiahs				
≥10,000	Ref.		Ref.	
11,000–30,000	0.957	0.596–1.537	0.879	0.730–1.059
31,000–50,000	0.829	0.460–1.493	0.693*	0.552–0.870
≥51,000	1.031	0.694–1.531	0.725*	0.600–0.876
Parents smoking				
No	Ref.		Ref.	
Don't know	1.103	0.434–2.805	1.190	0.831–1.705
Yes	1.540	0.961–2.466	1.215*	1.033–1.428
Easy to buy cigarettes				
No	Ref.		Ref.	
Don't know	0.633*	0.439–0.914	0.405**	0.343–0.478
Yes	2.329*	1.419–3.823	3.548**	2.868–4.390
Affordability	1.495	0.388–5.779	0.441*	0.218–0.893
Anti-smoking messages exposures				
Media & events				
No	Ref.		Ref.	
Yes	0.607*	0.387–0.951	0.941	0.772–1.147
Schools				
No	Ref.		Ref.	
Don't know	1.021	0.582–1.789	0.861	0.696–1.066
Yes	0.790	0.517–1.208	0.893	0.751–1.061
TAPS exposures				
Indirect advertisements in multimedia				
No	Ref.		Ref.	
Yes	1.133	0.791–1.621	1.050	0.923–1.195
Television				
No	Ref.		Ref.	
Yes	0.923	0.643–1.324	1.265*	1.086–1.472
Print media				
No	Ref.		Ref.	
Yes	1.377	0.955–1.983	1.872**	1.656–2.116
Outdoor media				
No	Ref.		Ref.	
Yes	1.141	0.797–1.633	1.070	0.928–1.234
Internet				
No	Ref.		Ref.	
Yes	1.207	0.877–1.660	1.318**	1.173–1.480
Point of sales				
No	Ref.		Ref.	
Yes	1.208	0.827–1.765	1.305**	1.154–1.475
Sport events				
No	Ref.		Ref.	
Yes	2.920**	1.893–4.505	2.825**	2.381–3.352
Music concerts				
No	Ref.		Ref.	
Yes	2.663**	1.732–4.096	3.533**	2.961–4.215
Community or social events				
No	Ref.		Ref.	
Yes	2.380**	1.536–3.690	2.977**	2.498–3.547
Merchandise				
No	Ref.		Ref.	
Yes	3.085**	2.029–4.692	2.829**	2.300–3.479
Free products				
No	Ref.		Ref.	
Yes	5.219**	3.218–8.463	4.613**	3.642–5.844
Vouchers/coupons				
No	Ref.		Ref.	
Yes	3.760**	2.102–6.723	4.741**	3.779–5.947

*p < 0.05, **p < 0.001, Ref = reference group.

Table 3. Multivariate analysis of the relationship between TAPS exposure with smoking intention and current smoking behavior among youth in Indonesia.

TAPS exposure	Smoking intention ^a		Current smoking ^y	
	AOR	95% CI	AOR	95% CI
Television	ns		1.211*	1.037–1.415
Print media	1.341	0.908–1.979	1.694**	1.462–1.963
Internet	1.259	0.902–1.757	1.242*	1.062–1.454
Point of sales	ns		1.042	0.891–1.220
Sport events	2.547**	1.628–3.895	1.993**	1.604–2.476
Music concerts	2.326**	1.505–3.594	1.590**	2.059–3.258
Community or social events	2.030*	1.343–3.068	2.293**	1.854–2.837
Merchandise	2.430**	1.587–3.718	1.994**	1.576–2.523
Free products	3.842**	2.293–3.439	2.840**	2.174–3.708
Vouchers/coupons	2.790*	1.462–5.323	2.099**	2.099–3.622

ns = not significant in bivariate analysis, *p < 0.05, **p < 0.001.

^aadjusted with sex, parent smoking status, access to buy cigarettes, and exposure to anti-smoking message in media & offline events.

^y adjusted with age, sex, pocket money, parent smoking status, access to buy cigarettes, affordability and anti-smoking exposure in school.

smoking behavior was most associated with free products (OR: 2.840, 95% CI: 2.174–3.708), voucher or discount (OR: 2.757, 95% CI: 2.099–3.622), music concerts (OR: 2.030, 95% CI: 2.059–3.258), and community or social event (OR: 2.293, 95% CI: 1.854–2.837; Table 3).

Discussion

Our study shows that TAPS exposure among adolescents was highest through television (64.54%). This finding is consistent with prior research, which found that television was the medium that exposed the most TAPS to adolescents (Fauzi et al., 2018; Septiono et al., 2021). Television has the largest audience compared to other forms of media in Indonesia. Television viewers in Indonesia were approximately 93.02% of the population in 2018, while radio listeners account for 18.57% and print media readers account for only 17.66% (BPS-Statistics, 2019).

Our study also shows that adolescents who were exposed to TAPS in television had a greater likelihood of being current smokers (OR: 1.211, 95% CI: 1.037–1.415) than those who were not. These findings support the majority of previous studies that found a link between exposure to TAPS on television and smoking behavior in children and adolescents (Lovato et al., 2011). The industry certainly understands the importance of tobacco advertising on television for the survival of their business. Indonesian Food and Drugs Administration (FDA) reported that there were approximately 42,597 tobacco advertisements on television in 2020 (BPOM-Food and Drugs Administration, 2021). In addition, the spending on cigarette advertising on television has risen from 1.8 trillion rupiahs in 2010 to 5.4 trillion rupiahs in 2017 (Soerojo et al., 2020).

In this study, outdoor media and point of sale are two major sources of TAPS exposure for adolescents at rates of 60.82% and 55.45%, respectively. The lack of regulation is one of the reasons for the high exposure to TAPS from those channels. In Indonesia, the regulation on advertisement in outdoor media and point of sales is under local government jurisdiction (Chandra et al., 2021). To date, only 23 out of 514 cities/districts have regulations prohibiting cigarette advertisements on billboards, while 19 cities/regencies have already banned the

display of cigarette advertisements at points of sale. (Fakta, 2020). In a prior study conducted in Surabaya City and Banyuwangi District, the density of cigarette advertisements in outdoor media is higher in Surabaya than in Banyuwangi (Sebayang et al., 2022). Surabaya city has no regulations prohibiting cigarette advertisements in outdoor media, while Banyuwangi has partially banned cigarette advertisements in outdoor media (Sebayang et al., 2022).

Despite the fact that some local governments already have TAPS banned regulation in the outdoor media and point of sales, the law enforcement is still weak. A study in Banyuwangi discovered around 1,283 cigarette advertising items at 667 points that should have been prohibited (Sebayang et al., 2019). In another survey in Bogor City, 17% of modern retailers do not comply with the local regulation on cigarettes packages display and advertising banned at points of sales (Priyono et al., 2020). The level of compliance would be inevitably lower if the study also investigated the traditional retailers or small kiosks, which are less monitored yet have more points than modern retailers.

Cigarette advertisements on the internet and social media should also be given more considerable attention from the government. Our study found that around 37.16% of adolescents were exposed to cigarette advertisements on the internet and social media. This study also revealed that there was a significant relationship between exposure to cigarette advertisements on the internet and social media with current smoking behavior (OR: 1.242, 95% CI: 1.062–1.220). Social media has become an important channel for promoting commercial products in Indonesia. About 170 million people actively used social media in 2021, accounting for 61.8% of the population (Kemp, 2021). Thus, it is unsurprising if the tobacco industry uses these platforms to promote its deadly products. A prior study showed that Indonesian adolescents are mostly exposed to TAPS on the internet from Instagram, Facebook, and YouTube (Septiono et al., 2021). The tobacco industry spent approximately 481.3 million USD on digital advertisements in 2017 (Soerojo et al., 2020). This amount is almost double in 2021, reaching 844.9 million USD (Soerojo et al., 2020). Furthermore, no policy restricts the TAPS on the internet and social media (Soerojo et al., 2020). Unlike television or

radio, in which tobacco advertisements are permitted to be broadcast between 9.30 pm to 5 am, the tobacco industry can even advertise its products for 24 hours on the internet and social media (Soerojo et al., 2020).

We also found that exposure to TAPS at sporting events increased the smoking intention of nonsmokers (OR: 2.457, 95% CI: 1.628–3.895) and the likelihood of becoming a current smoker (OR: 1,993, 95% CI: 1,604–2,476). In Indonesia, there is no regulation prohibiting the tobacco industry from sponsoring sporting events (Soerojo et al., 2020). The tobacco industry also uses so-called “Corporate Social Responsibility” (CSR) to sponsor popular sports such as football, badminton, and volleyball (Tjandra et al., 2020). The Djarum company, for example, established Djarum Badminton Club and sponsored badminton tournaments at the national and international levels (Siahaya & Smits, 2021). One of the most popular tournaments is the Indonesia Open, which was classified as Badminton World Federation (BWF) tour super 1000 (BWF, 2018). Djarum badminton CSR and Djarum company shared the same visual identity, which enabled the company to associate with sports culture (Siahaya & Smits, 2021). Djarum badminton CSR also appeals to youth by presenting an image of caring for youth development and has successfully fostered Indonesian young people to become world champions (Siahaya & Smits, 2021). CSR through sports also allows the tobacco industry to advertise in national media without time limitations, which is usually applied to tobacco advertising (Siahaya & Smits, 2021).

Our study shows that music concerts were one of the promotional tools that primarily expose TAPS to teenagers (15.69%). Exposure to TAPS at music concerts also had a statistically significant relationship with smoking intention (OR: 2.326, 95% CI: 1.505–3.594) and smoking behavior (OR: 2,590, 95% CI: 2,059–3,258) among adolescents. The tobacco industry uses music to shape brand image, generate brand recognition, increase appeal to youth (Chandra et al., 2021). PT. HM Sampoerna/Phillip Morris International, for instance, organized a SoundrenAline music concert that drew a large number of young people (Astuti et al., 2018). This concert is part of Sampoerna’s efforts to build A Mild as a brand image synonymous with creativity and self-expression (Astuti et al., 2018). The use of the internet and social media makes music concert promotion more interactive and increases brand penetration to young adults (Astuti et al., 2018).

We also measured the Direct to Consumer (DTC) marketing exposure, including receiving vouchers/coupons of free or discount of cigarettes, and offered free tobacco products by a tobacco industry representative. DTC exposure was relatively low (<7%) in Indonesia compared to the finding in the United States (Soneji et al., 2014). his finding is unsurprising because Indonesia’s tobacco promotion and marketing activities were less restricted than in the US. The DTC strategy was used in the US after Master Settlement Agreement in 1998 prohibited tobacco marketing in billboards, magazines, and other forms targeting the youth (Brock et al., 2015). Despite the fact that DTC exposure is low but highly related to adolescents’ smoking intention and smoking behavior in our study. Therefore, we recommended that the government ban any form of DTC in Indonesia.

This study has some potential limitations. First, the study design is cross-sectional. Thus, we may not be able to conclude the causal relationship between TAPS exposure and smoking behavior. Second, the data collection method for TAPS used self-reported. This approach is subject to recall bias, which could lead to overestimation or underestimation.

Conclusions

Indonesian adolescents were highly exposed to TAPS, particularly in television, outdoor media, and point of sales. Moreover, TAPS exposure was significantly associated with smoking intention and smoking behavior among adolescents. These finding may indicate that the current partial TAPS ban were not effective. Therefore, we recommended the government totally ban the TAPS, particularly in broadcasting media, outdoor media, point of sales, and the internet. Although some cities/districts already have some regulations banning the TAPS in outdoor media and point of sales, compliance still needs to be improved. Thus, monitoring and enforcement are necessary to make regulation effective.

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