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# ANTI-SMOKING MESSAGES VERSUS PRO-SMOKING MESSAGES AMONG INDONESIAN ADOLESCENT SMOKERS

## *Pesan Anti Rokok dan Pesan Pro Rokok pada Remaja Perokok di Indonesia*

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## Abstract

**Background:** Anti-smoking messages (ASM) is a program designed to educate the public about the dangers of tobacco use, aiming to prevent adolescents and young people from smoking cigarettes in any form and to assist smokers in giving up their smoking habit. On the contrary, pro-smoking messages (PSM) is a marketing technique to promote tobacco products.

**Aims:** This study was conducted to describe the exposure to ASM and PSM among Indonesian adolescent smokers (IAS).

**Methods:** This study analyzed secondary data from the 2019 Global Youth Tobacco Survey (GYTS) Indonesia. The outcome variable was the respondent's smoking intensity in the last 30 days. The independent variables were the exposure to ASM and PSM in the various below-the-line media.

**Results:** Most IAS were male (93.4%), mostly in secondary school (60.3%) and spent more than IDR 11,000 per week (71.1%). Adolescent smokers were exposed to ASM at a rate of 92.4%. Furthermore, ASM exposure happened to 60.5% of the low-intensity youth smoker group and 39.5% of the high-intensity youth smoker group. Meanwhile, 93% of adolescent smokers were exposed to PSM, with 40.8% in the high-intensity youth smoker group and 59.2% in the low-intensity youth smoker group.

**Conclusion:** The exposure to ASM and PSM in the adolescent smoker group was relatively the same.

**Keywords:** ASM, PSM, prevention, public health, tobacco control, youth

## Abstrak

**Latar belakang:** Pesan anti rokok (PAR) adalah program yang mengedukasi masyarakat tentang bahaya penggunaan tembakau, mencegah remaja dan anak muda merokok dalam bentuk apapun, dan membantu perokok untuk berhenti dari kebiasaan rokoknya. Sebaliknya, Pesan Pro Rokok (PRR) adalah teknik pemasaran untuk mempromosikan produk tembakau.

**Tujuan:** Penelitian ini dilakukan untuk mendeskripsikan paparan PAR dan PRR di kalangan perokok remaja Indonesia (PRI).

**Metode:** Penelitian ini menganalisis data sekunder dari Global Youth Tobacco Survey (GYTS) Indonesia 2019. Variabel luaran yaitu intensitas merokok responden dalam 30 hari terakhir. Variabel bebasnya adalah paparan PAR dan PRR di berbagai media.

**Hasil:** Sebagian besar PRI adalah laki-laki (93,4%), dan mereka kebanyakan bersekolah di sekolah menengah (60,3%) dan menghabiskan lebih dari Rp11.000 dalam seminggu (71,1%). Perokok remaja terpapar rokok pada tingkat 92,4%. Selain itu, paparan PAR mencapai 60,5% pada kelompok perokok remaja dengan intensitas rendah dan 39,5% pada kelompok perokok remaja dengan intensitas tinggi. Sementara itu, 93% perokok remaja terpapar PRR. Lebih lanjut, paparan PSM adalah 40,8% pada kelompok perokok remaja intensitas tinggi dan 59,2% pada kelompok perokok remaja intensitas rendah.

**Kesimpulan:** Paparan PAR dan PRR pada kelompok perokok remaja relatif sama.

**Kata kunci:** kesehatan masyarakat, PAR, PPM, pengendalian tembakau, pencegahan, remaja



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## Introduction

One of the leading causes of death globally is tobacco usage. There is growing apprehension regarding the susceptibility of adolescents to tobacco addiction (WHO, 2021). Adolescents between the ages of 13 and 15 years make up 25 million of the world's cigarette consumers. The Southeast Asia Region (SEARO) and Western Pacific Region (WPRO) showed the highest prevalence of smoking with an estimated 6.4 million and 4.7 million individuals affected, respectively. Indonesia significantly contributes to the prevalence of smoking throughout its regions (Lian and Dorotheo, 2021).

Tobacco smoke comprises a vast array of over 4,000 distinct chemical compounds, 40 of which have carcinogenic properties. The presence of carbon monoxide, tar, nicotine, and heavy metals in tobacco smoke at elevated levels can lead to the development of cardiovascular disease, oral and lung cancer, diminished respiratory function, and impaired fertility (Lian and Dorotheo, 2021).

Numerous studies have provided substantial evidence suggesting that the initiation of smoking during adolescence causes immediate detrimental impacts on health and raises the risk of serious illnesses throughout one's lifespan (USDHSS, 2012). The initiation of cigarette smoking during adolescence can result in nicotine dependence, hence exerting detrimental effects on the long-term development of the brain. In addition, it is important to note that those who engage in smoking at a young age face potential consequences such as the deceleration of lung function and delayed lung development (USDHSS, 2014).

Anti-smoking messages (ASM) programs play a vital role in disseminating knowledge to the general population regarding the hazards associated with tobacco consumption. These initiatives serve to prevent adolescents and young individuals from initiating cigarette smoking in any manifestation, while also providing support to smokers to stop smoking (Andersen *et al.*, 2018). Contrarily, pro-smoking messages (PSM) function as a

marketing strategy utilized by the tobacco industry to endorse its products, primarily focusing on attracting younger audiences (USDHSS, 2012).

Previous studies have addressed the correlation between ASM and PSM and youth smoking behavior. Numerous studies have examined the impact of anti-tobacco media on the decrease or prevention of tobacco use in adolescents (Emory *et al.*, 2015; Erguder *et al.*, 2016). Other studies on anti-tobacco media have focused on anti-smoking campaigns and the prevailing smoking rates to develop impactful interventions to mitigate the prevalence of smoking (Rao *et al.*, 2014). Additional evidence can be found in a study conducted by Mannocci *et al.* (2021), which revealed that adolescents exhibit a preference for anti-smoking messages that include a scientific orientation and effectively challenge misconceptions about smoking (Mannocci *et al.*, 2021).

On the other hand, several studies have also shown an association between PSM and youth smoking behavior. PSM can be defined as a combination of direct and indirect marketing strategies through the sponsorship of athletic events and music festivals, which involve the use of billboards and ads (USDHSS, 2012). Existing studies have unequivocally demonstrated a correlation between adolescent smoking patterns and the promotion of tobacco products through advertisements (Agaku, King and Dube, 2014; Megatsari *et al.*, 2019; Shang *et al.*, 2016). Therefore, this study aims to describe the exposure to ASM and PSM among Indonesian adolescent smokers (IAS).

## Method

The 2019 Indonesian Global Youth Tobacco Survey (GYTS) was a cross-sectional study conducted at Indonesia's public and private schools to investigate the prevalence of tobacco use among students aged from 13 to 17 years.

The authors acquired the data for the 2019 Indonesia Global Youth Tobacco Survey (GYTS) from the official website of the Centers for Disease Control and

Prevention (CDC):  
<https://www.gtssacademy.org/explore/dataset/>.

Sampling in this study was divided into two distinct phases. In the initial phase, schools were selected using the probability-proportionate-to-size (PPS) method. The subsequent phase involved the random selection of courses from various educational institutions. A comprehensive survey was conducted among the entire student population of the selected classes.

The data collection method was initiated by the enumerators through a brief chat with the teacher and administration team at the school. During this interaction, the enumerators explained the sample class, and thereafter, all students in the selected class actively participated in the survey. The interview was conducted with all students enrolled in the designated class, with an approximate duration of 45 minutes.

Before disseminating the questionnaire to the students, the enumerators provided a comprehensive explanation of the protocols and guidelines for completing the answer sheets and the questionnaire. Before participating in the survey, students were required to provide consent. Data collected were generally about the response choices provided by each student. Upon the completion of all the questions, the research team proceeded with data collection from the answer sheets.

The dependent variable in this study was the smoking consumption level reported by the respondents within the past 30 days. For the categorization, the consumption was considered low if the respondent smoked less than one cigarette per day, while high consumption was defined as consuming two cigarettes or more than two cigarettes per day. The study examined ASM and PSM exposure across a range of existing media platforms, including television, radio, internet, billboards, posters, newspapers, magazines, and movies throughout a 30-day timeframe. The other variables were

sex (male and female), grade (secondary school and high school), and weekly spending money categories (I usually don't have any spending money, less than IDR 11,000, IDR 11,000-20,000, IDR 21,000-30,000, IDR 31,000-40,000, IDR 41,000-50,000, and more than IDR 50,000).

The variables were weighted and subsequently analyzed using the chi-square statistical test. The data analysis was processed on STATA 16.0.

## Results and Discussions

Table 1 shows the respondent characteristics. Most of the individuals in the IAS were male, accounting for 93.4% of the participants. Furthermore, a significant proportion of the participants, specifically 60.3% of them, were enrolled in secondary school. Additionally, a substantial majority of the participants, around 71.1%, reported spending more than IDR 11,000 per week.

The prevalence of smoking among adolescent males in Indonesia remains high according to numerous previous studies and official surveys. According to a survey conducted by the Indonesian Ministry of Health, the prevalence of smoking among individuals aged 10-18 years rose. The survey revealed that the smoking rate climbed from 7.2% in 2013 to 9.1% in 2018 (MOH-RI, 2019). In 2020, a study conducted by Soerojo *et al.* showed that the prevalence of male smokers was significantly higher compared to female smokers (Soerojo *et al.*, 2020). Another study by Efendi *et al.* revealed that many factors were related to male adolescents' smoking habit (Efendi *et al.*, 2019).

Some studies found that the number of students at the secondary level was quite high. A study conducted by Gentzke *et al.* showed that 6.7% of middle school students (equivalent to 800,000 individuals) notably acknowledged themselves consuming tobacco products (Gentzke *et al.*, 2020).

Table 2 presents the cross-tabulation analysis between ASM exposure and IAS. The table indicates that the level of exposure to ASM among IAS group with low cigarette consumption was significantly

Table 1. Respondent characteristics

Characteristics	n	%
<b>Sex</b>		
Male	1,602	93.47
Female	112	6.53
Total	1,714	100
<b>Grade</b>		
Secondary school	1,033	60.27
High school	681	39.73
Total	1,714	100
<b>Weekly spending money</b>		
I usually don't have any spending money	102	25.44
Less than IDR 11,000	394	22.99
IDR 11,000-20,000	401	23.40
IDR 21,000-30,000	175	10.21
IDR 31,000-40,000	107	6.24
IDR 41,000-50,000	168	9.80
More than IDR 50,000	367	21.41
Total	1,714	100

Table 2. Cross-tabulation between ASM and IAS

Exposure of ASM	IAS				Total	
	Low Consumption		High Consumption		Num	%
	Num	Percentage	Num	Percentage		
Yes	959	60.54	625	39.46	1,584	100
No	69	53.08	61	46.92	130	100
Total	1,028		686		1,714	

higher than those with high cigarette consumption. The overall proportion of IAS exposed to ASM was found to be 92.4%. Conversely, the proportion of IAS who did not have any exposure to ASM was shown below 8%. Moreover, it was observed that over 5% of the IAS, particularly those in the high consumption category, were not exposed to ASM.

Researchers and various agencies believe that health communication strategies can serve as an effective technique for conveying the ASM effectively (Andersen *et al.*, 2018). The Centers for Disease Control and Prevention (CDC) have developed a framework consisting of four distinct health communication strategies for effectively disseminating anti-smoking messages. These strategies include the use of paid media, earned media, social media, and

communication programs. ASM covers a lot of information about smoking prevention, smoking cessation, and the inherent hazards associated with smoking among other related topics (Bayly, Cotter and Carroll, 2019; Beasley *et al.*, 2020).

Anti-smoking campaigns play a crucial role in complete tobacco control programs since they seek to provide knowledge about the detrimental effects of smoking, alter attitudes and beliefs about smoking, enhance individuals' intentions to quit smoking, and encourage attempts to quit smoking. It is recommended that these efforts focus on large populations that are at a higher risk and provide sustained and continuous dissemination of information, particularly on conveying messages regarding the detrimental health consequences associated with smoking (Sadeghi, Masoudi and Khanjani 2020).

Public education campaigns that specifically target adults and youth have the potential to exert a substantial influence on young individuals to refrain smoking habits, thus contributing to the sustainable reduction in smoking prevalence (Beasley *et al.*, 2020).

Indonesia has implemented multiple campaigns aimed at disseminating anti-smoking messages. The Ministry of Health of Republic of Indonesia (MOH-RI) initiated a national campaign in 2016 known as "Suara Hati Anak" (the voice of children) (Ramadhan, 2016) The campaign was inspired by a real-life incident of a smoker residing in Muara Angke, North Jakarta, whose smoking habit had detrimental consequences on the well-being of his children. Another nationwide effort was *Suara Tanpa Rokok* (the voice without cigarettes), which aimed to promote a smoke-free environment (Maharani, 2016; MOH-RI, 2015). The campaign addressed the health implications associated with cigarette smoking.

In addition, the Indonesian Government issued the Regulation of The Indonesian Minister of Education and Culture Number 64 of 2015 concerning smoke-free areas in the school environment. In general, the purpose of this regulation is to prohibit students from smoking, educate them about the harm of tobacco products, and ban all forms of PSM.

However, challenges in implementing the regulation were not easy to tackle. Some studies showed that even though the regulation was published, the compliance rate was still low. In 2021, Asyary *et al.* performed a nationally representative survey encompassing 900

elementary, junior, and senior high schools over 60 regions across 24 provinces in Indonesia. They found that the compliance rate with smoke-free zones (SFZs) in Indonesian schools was 66.2% based on seven out of eight indicators. This indicates that the majority of schools have not yet completely complied with SFZ laws (Asyary *et al.*, 2021).

Table 3 displays the results of the cross-tabulation study conducted to examine the relationship between PSM and IAS. The table demonstrates a statistically significant disparity in the level of exposure to PSM. The study revealed that 93% of the IAS had been exposed to PSM. In contrast, the percentage of IAS who did not have any prior exposure to PSM was found to be less than 8%. Furthermore, it was revealed that a significant proportion of Indonesian youth, around 95%, under the high consumption category were exposed to PSM.

Several researchers have shown evidence of the correlation between the level of PSM exposure and youth smoking behavior in Indonesia. In 2016, a study was undertaken by Prabandari *et al.* to investigate the correlation between the perception of cigarette advertising and the initiation of smoking among young individuals. Their study revealed that cigarette advertisements were found to have an impact on the inclination of adolescents to engage in smoking behavior. Furthermore, it found a positive association between smoking status and many factors, including perception of youth-targeted cigarette advertisements, attitude towards PSM, susceptibility to smoking, as well as the presence of smoking friends and family members (Prabandari and Dewi, 2016).

Table 3. Cross-tabulation between PSM and IAS

Exposure of PSM	IAS				Total	
	Low Consumption		High Consumption		Num	%
	Num	Percentage	Num	Percentage		
Yes	943	59.20	650	40.80	1,593	100
No	73	60.33	48	39.67	121	100
Total	1,016		698		1,714	

In the context of Indonesia, social media have emerged as a prominent medium for the promotion of commercial products and services. In 2021, a significant proportion of the population, numbering 170 million individuals or approximately 61.8% of the total population, engaged in the active utilization of social media platforms (Kemp, 2021). Instagram, Facebook, and YouTube serve as the primary digital platforms to which Indonesian adolescents are exposed to the PSM (Septiono *et al.*, 2022). In 2017, the tobacco industry allocated a substantial amount of 481.3 million USD towards digital advertising. By 2021, the amount was projected to increase twofold, reaching a total of 844.9 million USD. Regrettably, the absence of regulatory measures about the use of PSM on the internet and social media platforms allows the tobacco industry to promote their products massively daily (Soerojo *et al.*, 2020).

In a study conducted by Sutrisno *et al.*, a robust correlation was identified between exposure to cigarette advertisements, the presence of smoking peers, and the subsequently inclined number of adolescents to engage in smoking behavior, both in short and long-term, in Sleman Regency, Indonesia (Sutrisno and Melinda, 2021).

During the Covid-19 pandemic in Malang, Indonesia, Laili *et al.* revealed a significant level of exposure among the youth population was influenced by several forms of cigarette marketing and promotional activities. Exposure to such advertisements was determined to have a potential influence on the escalation of smoking behavior (Laili *et al.*, 2022).

The relatively high exposure to PSM in Indonesia is due to the tobacco industry interference (TII). TII encompasses various strategies employed by the tobacco industry to impede the massive use of tobacco and influence tobacco control. These strategies include both direct and indirect political lobbying and campaigns, research funding endeavors, regulation formation, policy-making, and engagement in social responsibility initiatives as public-relation campaigns (WHO, 2008). In 2023, Indonesia obtained a global tobacco index

score of 84, positioning it at the 87th rank out of a total of 90 countries. This indicates that the level of TII in Indonesia remains significantly higher in comparison to other nations (GCGGTC, 2023).

Various institutions in Indonesia, including governmental and civic entities, have already initiated endeavors to control tobacco. Since 2012, many organizations and agencies have made endeavors to enact an update to the Broadcasting Law 32 of 2002 with regards to the telecommunications and broadcasting public service. Many civil organizations initiated a legal examination of Article 46 Paragraph 3 about cigarette advertisements, which was subsequently presented to the Indonesian Constitutional Court in 2017. The outcome of the judicial review, however, did not yield the desired results (MKRI, 2017). The Indonesian Child Protection Commission (KPAI) has called upon the Indonesian Government to revise the National Law Number 32 of 2002 and implement a comprehensive prohibition on all forms of tobacco advertisements, promotion, and sponsorship (TAPS). These proposed measures seek to safeguard the well-being of children and adolescents by mitigating their exposure to smoking-related behaviors (KPAI, 2017).

The utilization of policy interventions is strongly recommended by the WHO, especially when WHO released MPOWER in 2007. The primary purpose of MPOWER is to support the implementation of impactful interventions at the national level, aiming to reduce the demand for tobacco as outlined in the World Health Organization Framework Convention on Tobacco Control (WHO FCTC). MPOWER stands for (1) monitoring tobacco use; (2) protecting people from tobacco smoke; (3) quitting tobacco; (4) warning about the dangers of tobacco; (5) banning tobacco advertisements, promotion, and sponsorship; and (6) raising taxes on tobacco (WHO, 2008).

Since 2008, the WHO has also periodically evaluated the situation of tobacco control in each country. One of the WHO's agendas is conducting an assessment or scoring on the MPOWER aspect at the country level. The evaluation

and scoring are released in the form of a report entitled WHO Report on The Global Tobacco Epidemic, where the quantitative assessment of the MPOWER aspect is placed at the end of each report published by the WHO.

In general, the assessment method carried out by the WHO on the MPOWER aspect includes several aspects, namely data source, data validation, data sign-off, and finally data analysis. Details of the assessment method for MPOWER scoring can be examined in more depth in each WHO's MPOWER report published from 2008 to the latest in 2021 (WHO, 2021).

The purpose of the MPOWER assessment is to assist countries in developing policies and intervention programs related to tobacco control. Quoting the explanation from Heydari *et al.*, the MPOWER assessment or scoring is carried out to see what has been achieved and what still needs to be addressed by countries to strengthen tobacco control programs (Heydari *et al.*, 2013).

Studies have been done at a global scale to examine the correlation between MPOWER scores and key indicators of tobacco control. The study conducted by Dubray *et al.* examined the relationship between MPOWER scores and the prevalence of smoking behavior on a global scale. The findings indicated that higher levels of MPOWER, along with consistent and regular monitoring of tobacco use (M) and increase in taxes (R), were associated with lower tobacco smoking rates over some time (Dubray *et al.*, 2015). A study conducted by Shang *et al.* yielded findings consistent with Dubray's research, indicating the efficacy of MPOWER policies in reducing smoking prevalence among adult populations (Ngo *et al.*, 2017).

Regarding MPOWER number five (5), Indonesia dealt with challenging situations. The latest report of the WHO's MPOWER in 2022 showed that the position of regulation banning tobacco advertising was categorized as "complete absence of a ban or ban that does not cover national television, radio, and print media" (WHO, 2023). Astuti *et al.* in 2017 investigated the stakeholders' perspectives on the adoption and implementation of the tobacco control

regulation, as portrayed in news media coverage. They found that the tobacco company made most of the opposing arguments, while the national government, media, and activists of tobacco control made up almost all of the pro arguments (Astuti and Freeman, 2017). This study is subject to a constraint due to the restricted scope of the variable used, which relies on the availability of secondary data (specifically GYTS data). In addition, the authors lack particular information regarding certain detailed factors, such as the primary message conveyed in the anti-smoking campaign and the type of internet connection used by respondents when viewing TAPS or anti-smoking messaging. Nevertheless, the study has a beneficial influence for tobacco control initiatives in Indonesia.

Furthermore, this study can be extrapolated to the national level by appropriately assigning weight to accurately depict the extent of the issue at a national scale. Moreover, this study might serve as a valuable resource for other researchers seeking to delve into many aspects of the anti-smoking campaign in Indonesia, including the messaging strategies, program implementation, and more.

## Conclusions

The levels of exposure to ASM and PSM among IAS were found to be comparable. The Indonesian government ought to consider a prohibition from exposing people to PSM and focus on developing an innovative and strategic ASM program that specifically caters to the adolescent group's needs.

## Abbreviations

KPAI: *Komisi Perlindungan Anak Indonesia* (Indonesian Commission for Child Protection); MKRI: *Mahkamah Konstitusi Republik Indonesia* (Constitutional Court of the Republic of Indonesia); ASM: Anti-Smoking Messages; PSM: Pro-Smoking Messages; IAS: Indonesian Adult Smoker; WHO: World Health Organization; SEARO: Southeast

Asia Region; WPRO: Western Pacific Region; USDHSS: United State Department of Human and Health Services; GYTS: Global Youth Tobacco Survey; CDC: Center for Disease Control and Prevention; PPS: Probability proportionate to size; MOH-RI: Ministry of Health of Republic of Indonesia; TII: Tobacco Industry Interference; GCGGTC: Global Centre for Good Governance in Tobacco Control; TAPS: Tobacco Advertisement, Promotion, and Sponsorship; MPOWER: (1) Monitoring tobacco use; (2) Protecting people from tobacco smoke; (3) Offering people quitting tobacco; (4) Warning about the dangers of tobacco; (5) Enforce banning tobacco advertisements, promotion, and sponsorship; and (6) Raising taxes on tobacco.

### Declaration

### Ethics Approval and Consent Participant

The Indonesian 2019 Global Youth Tobacco Survey (GYTS) has obtained ethical approval from the Health Research Ethics Commission and the National Health Research and Development Agency. The notification number indicating the approval is LB.02.01/2/KE.315/2019. The respondents gave consent forms to participate in this study, and all of their identities were removed from the dataset. All procedures were conducted according to the applicable norms and legislation.

### Conflict of Interest

All authors declare that they have no conflicts of interest.

### Availability of Data and Materials

The datasets generated and analyzed during the current study are available on the CDC website repository, <https://www.gtssacademy.org/explore/datasets/>

### Authors' Contribution

HM, RD, and DK conceptualized the study; HM, MI, and SKS created the methodology; HM, SRN, and EA wrote, reviewed, and edited the manuscript; HM and RD wrote the original draft.

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