



## Understanding the Impact of Pictorial Health Warnings on Smoking Behavior Among Adolescents

Pandji Winata Nurikhwan<sup>1</sup>, Hadrianti Haji Darise Lasari<sup>2\*</sup>, Dessy Maulina<sup>3</sup>, Mustafa<sup>4</sup>, Abdillah Ahsan<sup>5</sup>, Anis Kamila Saleha<sup>2</sup>, Indra Haryanto Ali<sup>2</sup>

<sup>1</sup>Undergraduate Medicine Study Program, Faculty of Medicine and Health Sciences, Lambung Mangkurat University, South Kalimantan, Indonesia

<sup>2</sup>Department of Public Health, Faculty of Medicine and Health Sciences, Lambung Mangkurat University, South Kalimantan, Indonesia

<sup>3</sup>Department of Development Economics, Faculty of Economics and Business, Lambung Mangkurat University, South Kalimantan, Indonesia

<sup>4</sup>LBH Pers, Jakarta, Indonesia

<sup>5</sup>Department of Economics, Faculty of Economics and Business, University of Indonesia, West Java, Indonesia

\*Authors Correspondence: [hadrianti.lasari@ulm.ac.id/085342117311](mailto:hadrianti.lasari@ulm.ac.id)

---

### ARTICLE INFO

#### *Article History:*

Received Jun, 13<sup>th</sup>, 2025

Accepted Sep, 24<sup>th</sup>, 2025

Published online Sep, 30<sup>th</sup>, 2025

---

#### **Keywords:**

Pictorial Health Warnings;

Smoking Behavior;

Dolescents;

Smoking Cessation Intention;

---

### ABSTRACT

Smoking behavior remains a health challenge in Indonesian society. Riskesdas data shows an increase in smoking prevalence in adolescent groups. One of the control efforts is the implementation of PHW (Pictorial Health Warnings) on cigarette packs in accordance with Permenkes RI No. 28 of 2013. This study aims to determine the effectiveness of cigarette packs in influencing smoking intention and behavior PHW among adolescents in Tanah Bumbu Regency, Banjarbaru City and Banjarmasin City. The study used a quantitative method with a cross-sectional design. Samples were obtained through an accidental sampling technique, obtaining 315 smoking adolescents and 62 non-smoking adolescents. The instrument was a modified version of the Global Youth Tobacco Survey questionnaire. The analysis used was a linear regression test. The results further showed that 64.5% of respondents who did not smoke stated that their intention was very likely due to fear (89.03%) after seeing the warning and the image of smoking causing lung cancer, hence they did not smoke. Furthermore, there is a relationship between pictorial warnings on cigarette packaging with fear (p-value = 0.0001, r = 0.430) with a positive influence of 16.3%. In adolescent smokers, smoking pictures causing throat cancer 2 caused the most fear (71.3%) and the highest urge to quit smoking (66.48%). There is a relationship between pictorial warnings with fear (p-value = 0.0001, r = 0.195) and smoking cessation intensity (p-value = 0.0001, r = 0.728). The positive effect on fear was 3.5% and smoking cessation intensity was 52.9%.

---

## INTRODUCTION

Smoking is one of the global health problems that is still a challenge in various parts of the world, including Indonesia, which until now is difficult to stop. This smoking habit is a national problem that is prioritized for its prevention, because smoking involves various aspects of life, namely economic, socio-political, and especially health aspects. By 2023, an estimated 10 million deaths occurred due to smoking, with 70% coming from developing countries. If this trend continues, around 650 million people are projected to die from smoking, half of them at productive age, reducing life expectancy by 20 to 25 years.<sup>1</sup>

The Southeast Asia Tobacco Control Alliance (SEATCA) report in 2023 stated that Indonesia has the highest number of smokers in Southeast Asia. The Indonesian Health Survey (IHS) in 2023 showed that 27% of Indonesia's population were active smokers, including 7.4% of those aged 10-18 years. This figure reflects the very high prevalence of smoking and many individuals who start this habit in adolescence. Based on the 2019 Global Youth Tobacco Survey (GYTS) report, Indonesia is ranked as the country with the highest adolescent smoking rate in Southeast Asia, with a percentage reaching 19.2%. The proportion of smoking incidence among adolescents in Indonesia, particularly among males, is 35.3%, while among females it is 3.4%. This figure shows that the problem of adolescent smoking in Indonesia is increasingly urgent to overcome, especially because it will have an impact on future generations.<sup>2,3</sup>

The South Kalimantan, according to the 2023 SKI, has a smoking prevalence of 16.5%, and an adolescent smoking prevalence of 4.5%.<sup>4</sup> In this case, Banjarbaru City has the highest prevalence of the original first age of smoking in adolescents in South Kalimantan at 57.28%. Another city with the highest age at first smoking is Banjarmasin City at 45.04%. Tanah Bumbu Regency also recorded a high age at first smoking of 39.85%.<sup>4</sup>

The high prevalence of smoking in adolescents is one of the causes of great curiosity which is influenced by their social environment. In addition, exposure to cigarette advertisements directly or indirectly influences adolescents that smoking is a common thing.<sup>5</sup> The increase in the

number of adolescents who smoke has the potential to cause serious long-term health impacts, namely various deadly diseases such as lung cancer, oral cancer, emphysema and chronic bronchitis. More than 5 million adolescents under the age of 18 may die sooner due to diseases caused by smoking.<sup>6,7</sup>

The WHO established the Framework Convention on Tobacco Control (FCTC) to control the impact of smoking on public health globally. This international agreement contains the government's obligation to protect the public by providing information on the dangers of tobacco in the form of pictures and writing. The Government of Indonesia has issued several regulations related to tobacco and the dangers of smoking.<sup>8</sup> The Health Minister has issued Minister of Health Regulation No. 28/2013 on the Inclusion of Health Warnings and Health Information in Tobacco Product Packaging.<sup>9</sup>

The policy was first introduced through Ministry of Health Regulation (Permenkes) No. 28 of 2013, mandating that five pictorial and textual warnings cover 40% of the front and back panels of cigarette packs. This was later amended by Permenkes No. 56 of 2017, which strengthened the provisions and enabled revisions of the warning images, with three images updated in 2018 following policy evaluation.<sup>9-11</sup> Such Picture Health Warnings (PHW) have long been deployed overseas. As a result, Health image and text warnings in Brazil and Canada have proven effective in reducing the number of active smokers in both countries.<sup>8</sup> The results of a study in Pontianak, West Kalimantan also showed that PHW had a significant effect on increasing smoking cessation intensity.<sup>1,12</sup>

Through cigarette packages, PHW is intended to influence the behavior of adolescents, both smokers and non-smokers. Images of the negative effects of smoking serve as a visual stimulus that is processed by the brain, triggering emotional reactions such as fear, anxiety, or discomfort. These reactions may encourage individuals to quit, reduce their habit, or avoid cigarettes. Scary pictorial warnings increase awareness of the dangers of smoking and motivate adolescent smokers to quit.<sup>13</sup>

This study further aims to analyze the relationship between PHW on cigarette packs with smoking intention, fear, and intensity of smoking

cessation among male adolescents, both smokers and non-smokers. This study was conducted in South Kalimantan, specifically in Tanah Bumbu Regency, Banjarbaru City, and Banjarmasin City. Research on PHWs among adolescents in this region remains limited; therefore, this study is important to provide local evidence. The findings are expected to support stronger health policy advocacy in reducing adolescent smoking prevalence.

## MATERIAL AND METHOD

This research is a quantitative study with an observational analytic approach and cross-sectional design conducted in July 2024 in Tanah Bumbu Regency, Banjarbaru City, and Banjarmasin City. The population is male adolescents aged 10–19 years in South Kalimantan. A total of 377 respondents (315 smokers and 62 non-smokers) were obtained using purposive sampling, based on the following inclusion criteria: male adolescents who had ever seen PHWs on cigarette packs, with smokers defined as those currently smoking and non-smokers as those who had never smoked. This approach was chosen to ensure that the selected respondents were thematically relevant to the research objectives. Data were further collected using a modified questionnaire from the Global Youth Tobacco Survey (GYTS),<sup>14</sup> which included demographic characteristics, smoking behavior, attention to PHW, fear, smoking intention, and smoking cessation intensity. All study variables were analyzed in categorical form. Concern for PHW was classified into three categories: very concerned, concerned, and less concerned. The fear of PHW was measured using several questionnaire items, with responses scored and summed to produce a composite score ranging from 10 to 100, which was then categorized as high (70–100), moderate (40–69), and low (10–39). The intention to smoke among smokers was grouped into three categories (ready, somewhat ready, and not ready to quit), while the willingness to delay smoking among non-smokers was classified into five categories (very likely, likely, uncertain, unlikely, and not likely). The intensity of quitting smoking was also categorized as low, moderate, and high based on the total score obtained from the relevant questionnaire items.

Data were further analyzed using univariate analysis to examine the frequency distribution, and bivariate analysis with linear regression tests to assess the significance of the relationship between variables. Prior to regression analysis, the assumption of normality was evaluated using skewness and kurtosis values, which are recommended for large sample sizes ( $n > 300$ ). The coefficient of determination ( $R^2$ ) test was then used to determine the contribution of the independent variable to the dependent variable. This study has obtained Ethical Clearance from the Health Research Ethics Commission of the Faculty of Medicine, Lambung Mangkurat University with number 116/KEPK-FKIK ULM/EC/VII/2024.

## RESULTS

There are two research results, namely the results of research on respondents who smoke and the results of research on respondents who are non-smokers. The following are the results of the research that has been done. Table 1 presents that most of the smoker respondents were in the age range of 17 to 18 years, while the non-smoker respondents were dominated by the age of 15 years. This difference indicates that smoking behavior tends to increase in late adolescence. Based on the level of education, more smoker respondents were from high school/MA/ SMK level, while the majority of non-smoker respondents were from junior high school/ MTs level. This indicated that the higher the level of education of adolescents, the greater the tendency to be exposed to smoking behavior. Most respondents from both groups were unemployed, but smokers tended to have greater economic access to buy cigarettes, as shown by the higher proportion of daily income of  $\geq$  IDR20,000 compared to non-smokers.

Table 2 shows that more non-smoking respondents were very attentive to PHWs compared to smokers, indicating that non-smokers are generally more responsive to health messages in visual form. Furthermore, the fear variable was categorized into low, moderate, and high levels. In this case, non-smokers are reported in higher levels than smokers, suggesting a stronger emotional impact among those without smoking habits. In the smoker

group, readiness to quit was nearly balanced between the “ready” and “less ready” categories, with a considerable proportion in the “ready” category, showing that PHWs may encourage motivation to quit. Among non-smokers, most respondents stated they were very likely to delay or avoid smoking after seeing PHWs, confirming the important role of PHWs in preventing smoking initiation among adolescents.

In Table 3, among the five Health Warning Images (HWI) shown in Figure 1, the lung cancer image evoked the strongest fear among non-smokers, with the highest composite score and percentage (89.03%), calculated as the proportion of respondents' fear scores relative to the maximum possible score. On the other hand, the throat cancer image 2 generated the highest score among smokers (71.30%). Overall, the percentage scores for all Health Warning Images (HWI) were consistently higher among non-smokers than smokers, indicating that visual warnings have a stronger emotional impact on individuals who have never smoked than on smokers who are already accustomed to smoking.

Table 4 presents the results of the regression analysis. In the smoker group, the regression

analysis results yielded the equation:  $Y = 38.712 + 0.182X$ , indicating that the fear of PHW score will increase by 0.182 points for every 1% increase in attention to PHWs. Furthermore, the constant value of 38.712 reflects the baseline level of fear without PHW exposure. This relationship was classified as very weak ( $r = 0.195$ ), with PHW contributing 3.5% in explaining the variation in fear ( $R^2 = 0.035$ ;  $p$ -value = 0.0001). Meanwhile, in the non-smoker group, the equation obtained:  $Y = 43.430 + 0.287X$ , indicating that every 1% increase in attention to PHW will increase the fear score by 0.287 points. The constant indicates a higher baseline level of fear compared to the smoker group. This relationship was unidirectional and moderately strong ( $r = 0.420$ ), with a 16.3% contribution of the PHW variable to the increase in fear ( $R^2 = 0.163$ ;  $p$ -value = 0.001).

The intensity of smoking cessation variable was only analyzed in the smoker group. A very strong and significant relationship was obtained ( $r = 0.728$ ;  $p$ -value = 0.0001), with a coefficient of determination of 52.9%. These results suggest that attention to PHW is the dominant factor influencing intention to quit smoking in this group.

**Table 1. Characteristics of Respondents**

Charasteristics	Smokers		Non-smokers	
	n	%	n	%
<b>Age (years)</b>				
10	-	-	3	4.8
11	1	0.3	4	6.5
12	2	0.6	8	12.9
13	9	2.9	9	14.5
14	26	8.3	9	14.5
15	37	11.7	10	16.1
16	75	23.8	4	6.5
17	84	26.7	8	12.9
18	81	25.7	7	11.3
<b>Education</b>				
No School	2	0.6	-	-
Elementary	5	1.6	17	27.4
Junior High	85	27	27	43.5
High School	213	67.6	14	22.6
College	10	3.2	4	6.5
<b>Employment Status</b>				
Unemployed	280	88.88	58	4.8
Employed	35	11.11	4	95.2
<b>Daily income</b>				
<IDR20.000	98	31.1	32	51.6
≥IDR20.000	217	68.9	30	48.4

Source: Primary Data 2024

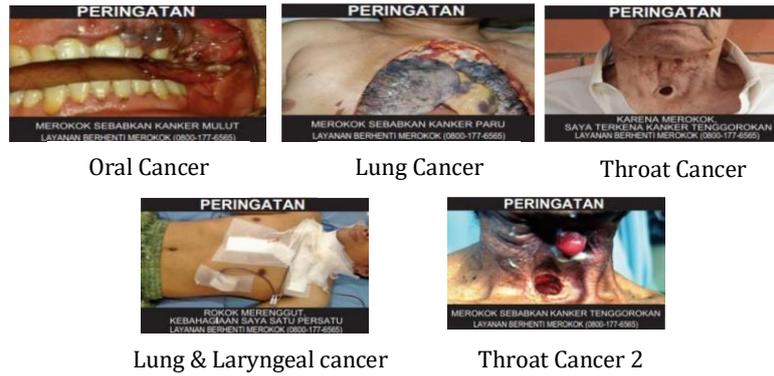


Figure 1. Pictorial Health Warning

Table 2. Research Variabel

Research Variables	Smokers		Non-smokers	
	n	%	n	%
<b>Attention to PHW</b>				
Very attentive	90	28.6	38	61.3
Attentive	208	66	24	38.7
Less attentive	17	5.4	0	0
<b>Fear of PHW</b>				
High	108	34.3	50	80.6
Moderate	148	47	12	19.4
Low	59	18.7	0	0
<b>Intention to Quit/Not Smoke</b>				
Ready	143	45.4	-	-
Less Ready	147	46.7	-	-
Not Ready	25	7.9	-	-
<b>Willingness to Delay Smoking</b>				
Very Likely	-	-	40	64.5
Likely	-	-	10	16.1
Doubthful	-	-	7	11.3
Not Sure	-	-	1	1.6
Impossible	-	-	4	6.5

Source: Primary Data, 2024

Table 3. Perceived Fear of PHW

PHW	Smokers		Non-smokers	
	Skor	%	Skor	%
Oral Cancer	1906	60.89	511	82.41
Lung Cancer	2206	70.47	552	89.03
Throat Cancer	1723	55.04	460	74.19
Lung & Laryngeal cancer	1813	57.92	449	72.41
Throat Cancer 2	2232	71.30	534	86.12

Source: Primary Data, 2024

Table 4. Regression Analysis Results

Outcome Variable	Group	Const.	Coef. (B)	SE	t	p-value	R <sup>2</sup>	r
Fear of PHW	Smokers	38.712	0.182	0.052	3.542	0.0001	0.035	0.195
	Non-smokers	43.430	0.287	0.080	3.585	0.001	0.163	0.420
Cessation Intensity	Smokers	11.163	0.345	0.018	18.793	0.0001	0.529	0.728

Source: Primary Data, 2024

Independent variable: attention to PHW

Outcome variables: fear of PHW (smokers and non-smokers) and cessation intensity (smokers only)

## DISCUSSION

This study aimed to analyze the relationship between attention to Pictorial Health Warnings (PHWs) and smoking intention, fear, and cessation intensity among male adolescents in South Kalimantan. The findings showed that non-smokers paid more attention to PHWs and reported higher fear levels compared to smokers, indicating that PHWs are more effective in influencing adolescents who have not yet developed smoking habits. Among smokers, a substantial proportion reported readiness to quit after exposure to PHWs, suggesting that such warnings also have potential to encourage cessation. These results confirm the important role of PHWs as a public health strategy to reduce smoking behavior among adolescents.

The efforts that can be made in decreasing smoking behavior is to provide health warning images on cigarette packs or called PHW. PHW is an illustration found on cigarette packaging, in the form of a picture of a terrible disease or a dangerous disease and a very low recovery rate also accompanied by a loud and firm connotation of writing aimed at preventing the public from consuming or stopping smoking.<sup>1</sup> There are five health warning images in Indonesia shown in Figure 1, namely images of oral cancer, lung cancer, throat cancer, lung and laryngeal cancer.<sup>8</sup>

Table 2 shows that more non-smoker respondents were very concerned about PHW, 61.3% compared to smokers (28.6%). This indicates that non-smoker respondents tend to be more responsive to health messages displayed in visual form. The PHW image that caused the most fear among smoker respondents was the throat cancer image, as it visually displayed the horrific effects of smoking. Meanwhile, in non-smoker respondents, the image that caused the most fear was that of lung cancer. This finding suggests that visual representations of severe diseases such as lung and throat cancer are more capable of triggering emotional responses than other images. This result is in line with previous research which states that images of damage to organs such as the mouth, throat and lungs significantly increase threat perception, create fear and discomfort, and encourage individuals to quit smoking or prevent the urge to start smoking.

Throat cancer images in particular were rated as the most effective visual element in anti-smoking campaigns.<sup>16</sup>

Pictures of warnings such as lung cancer and throat cancer prominently displayed on cigarette packs have a strong emotional impact, especially on non-smoking respondents. These findings are in line with an innovative approach in Canada's tobacco control strategy, which implements health warnings directly on each cigarette. This approach has been shown to increase exposure to health messages, reduce avoidance behavior, and shape negative associations with smoking. These graphic and persistent warnings are believed to trigger shame, increase social awareness, and build reluctance to smoke, especially among adolescents. This effort is in line with the principles of population-based tobacco control as advocated by the WHO.<sup>17</sup>

The research findings are reinforced by an experimental study in Colombia by Rodríguez-Lesmes et al. (2024), which found that plain cigarette packs with large PHW significantly decreased consumer preference in both smokers and non-smokers. The research also showed that non-smokers had a high aversion to pictorial packs, reflected by negative willingness to pay (WTP) values towards plain packs, signalling a strong visual influence in preventing smoking initiation.

Among non-smoking respondents, PHW had a significant impact in reducing smoking intentions. The majority of respondents (64.5%) stated that they might delay or discourage smoking after seeing the warning. In line with research conducted by Aldani et al on "The Effect of Visual Warnings on Cigarette Packs on Smoking Behavior in High School Students", which states that there is a significant relationship between pictorial warnings on cigarette packs and adolescent smoking behavior. PHW helps the adolescents to reduce their smoking behavior. This study supports the view that strong and frightening visual warnings are able to lead individuals to reconsider smoking or even prevent them from starting to smoke.<sup>18</sup>

The Previous Research conducted by Edwards et al, showed that about 40% of smokers reported delaying smoking or trying to avoid seeing PHW on cigarette packs due to the

presence of PHW. This means that, when seeing PHWs, some active smokers admitted to delaying smoking or avoiding seeing these warnings. This finding indicates that PHW has an effect on their behavior, especially in reducing the urge to smoke directly or avoiding visual stimuli that remind them of the dangers of smoking.<sup>19</sup>

The results of the study on the variable of fear of PHW showed that most non-smoking respondents (80.6%) had high fear when they saw PHW. Meanwhile, among respondents who smoked, 34.3% of them felt a high level of fear, 47% felt moderate fear, and 18.7% felt low fear. This shows that the majority of respondents have a sense of fear when they see PHW on cigarette packs, which means that PHW has been quite effective in influencing adolescents' fear. These results are in line with previous research which showed that most informants felt fear and disgust towards health warning images on cigarette packs, as well as a desire to reduce cigarette consumption after seeing them.<sup>1</sup>

The correlation analysis showed that PHWs were associated with fear among both smokers and non-smokers. The relationship was weak among smokers but stronger among non-smokers, suggesting that adolescents who have never smoked are more emotionally affected by PHWs. Nevertheless, regression results indicated that most of the variation in fear was explained by other factors outside PHW exposure, meaning that while PHWs contribute, they are not the sole determinant of adolescents' fear responses.

Among the smoking cessation intensity variables, the majority of respondents who smoked answered less ready at 46.7% and 45.4% of respondents answered ready. Regression analysis indicated that attention to PHWs was strongly associated with smoking cessation intensity among adolescent smokers. The relationship was positive and in the same direction, meaning that greater attention to PHWs was linked to stronger intentions to quit smoking. However, the analysis also showed that nearly half of the variation in cessation intensity was explained by other factors beyond PHWs, suggesting that although PHWs play an important role, they are not the only influence on adolescents' decision to stop smoking. This is in line with research conducted by Trisnowati

Heni et al (2018) which discovered that there is a significant relationship between PHW such as smoking causes oral cancer, throat cancer, lung cancer on smoking cessation intensity.<sup>20</sup>

Stop smoking is a behavior that arises from a person's desire or urge to no longer use tobacco products. According to Stephen P. Robbins, intensity is a strong determination or motivation to perform an action or achieve a certain condition in the future. In this context, smoking cessation intensity refers to an individual's strong desire to end smoking. This desire can be influenced by various factors, including communication media, such as PHW on cigarette packs. Research shows that PHW have a significant relationship with smoking cessation intensity, where the images and messages displayed act as psychological triggers that can increase a person's motivation to quit smoking.<sup>13,21</sup>

This research demonstrated a significant effect of PHWs on smoking intention, fear, and cessation intensity among adolescents in Tanah Bumbu District, Banjarbaru City, and Banjarmasin City. PHWs on cigarette packs effectively reduced smoking intention and increased cessation intention. Including both smokers and non-smokers allowed comparison between prevention and cessation perspectives, while purposive sampling ensured relevant respondents. The findings emphasize the need to protect adolescents from smoking and support stricter government policies on packaging and broader anti-smoking campaigns. Although the study was conducted in three districts, future research could involve a larger and more diverse sample to better represent adolescents across Indonesia. These results provide important evidence for strengthening tobacco control policies using PHWs to reduce adolescent smoking prevalence.

## CONCLUSION AND RECOMMENDATION

The results indicated that PHWs influenced smoking intention, with most respondents reporting a higher likelihood of not smoking after seeing PHWs on cigarette packs. The findings also showed a significant relationship between PHWs and fear of smoking, as well as smoking cessation intensity among adolescent smokers and fear among non-smokers. Thus, PHW on cigarette packs are effective in

influencing smoking cessation intentions, fear and intensity among adolescents in Tanah Bumbu Regency, Banjarbaru City and Banjarmasin City, South Kalimantan Province.

### ACKNOWLEDGMENTS

The authors acknowledge the Indonesia Tobacco Control Research Network (ITCRN) for funding the 2024 research. This research grant program is organized by the Center for Sharia Economics and Business (PEBS) FEB UI in collaboration with the Institute for Global Tobacco Control (IGTC), Johns Hopkins School of Public Health. The authors also acknowledge the Health Research Ethics Committee of the Faculty of Medicine, Lambung Mangkurat University for ethical approval. Gratitude is also extended to all adolescent respondents in Banjarbaru City, Banjarmasin City, and Tanah Bumbu Regency who were willing to participate in this research.

### AUTHOR CONTRIBUTIONS

PWNI participated in the design of the initial experiments and outlined the research methodology. HHDL was responsible for designing and conducting the field experiments, including data collection. DM AND M provided statistical analysis of the data and reviewed the findings. AA contributed references and scientific materials that supported the writing of the manuscript. AKS and IHA contributed to the writing of the manuscript and processing of the article structure. PWNI = Pandji Winata Nurikhwan; HHDL = Hadrianti Haji Darise Lasari; DM = Deasy Maulina; M = Mustafa; AA = Abdillah Ahsan; AKS = Anis Kamila Saleha; IHA = Indra Haryanto Ali.

### CONFLICTS OF INTEREST

There are no conflicts of interest associated with this research.

### REFERENCES

1. Andriani P, Fahdi FK, Ligita T. Pengaruh Gambar Peringatan Kesehatan pada Kemasan Rokok Terhadap Rasa Takut dan Intensitas Berhenti Merokok. *MAHESA: Malahayati Health Student Journal*. 2023;3(4):872-889. <https://doi.org/10.33024/mahesa.v3i4.10035>
2. Kemenkes RI. Perokok Aktif di Indonesia Tembus 70 Juta Orang, Mayoritas Anak Muda. Jakarta: Kementerian Kesehatan; 2024. <https://kemkes.go.id/id/perokok-aktif-di-indonesia-tembus-70-juta-orang-mayoritas-anak-muda>
3. Deonisia Arlinta. Rapor Merah Indonesia Dalam Pengendalian Tembakau. Jakarta: KOMPAS;2024. <https://www.kompas.id/artikel/rapor-merah-indonesia-dalam-pengendalian-tembakau>
4. Kemenkes RI. Riset Kesehatan Dasar (Riskesdas): Laporan Provinsi Kalimantan Selatan Hasil Riset Kesehatan Dasar Tahun 2018. Jakarta: Kementerian Kesehatan RI; 2019. <https://repository.badankebijakan.kemkes.go.id/id/eprint/3896/1/Riskesdas%20Kalimantan%20Selatan%202018.pdf>
5. Surbakti Ia, Susilawati M, Nilakusmawati Dpe. Faktor-Faktor Yang Mempengaruhi Perilaku Merokok Pada Remaja Usia 15-19 Tahun di Kuta Selatan. *E-Jurnal Matematika*. 2023;12(4):295-301. <https://doi.org/10.24843/MTK.2023.v12.i04.p432>
6. Irwan, Fikar Ahmad Z, Khairun Ni S. Hubungan Persepsi Tentang Label Peringatan Bergambar pada Kemasan Rokok Terhadap Perilaku Merokok Remaja. *Journal Health & Science: Gorontalo Journal Health and Science Community*. 2023;7(2):252-262. <https://doi.org/10.35971/gojhes.v7i2.18334>
7. Andrayani S, Annaina Sarah S, Nilam Cahya N, et al. Psikoedukasi Pencegahan Perilaku Merokok; Kenali Resiko dan Dampaknya bagi Kesehatan Fisik dan Psikologis pada Remaja Akhir di SMAN 2 Dewantara. *Jurnal Pengabdian Kolaborasi dan Inovasi IPTEKS*. 2024;2(3):939-944. <https://doi.org/10.59407/jpki2.v2i3.862>
8. Aulia Nursya A, Novita Sari V, Muharia. Analisis Pengaruh Peringatan Bahaya pada Iklan Rokok terhadap Kesadaran dan Kebiasaan Perokok. *At Tajir Jurnal Manajemen Bisnis Syariah*. 2024;2(1):90-104. <https://ejournal.stai-alkifayahriau.ac.id/index.php/attajir>

9. Kemenkes RI. Peraturan Menteri Kesehatan Republik Indonesia Nomor 28 Tahun 2013 Tentang Pencantuman Peringatan Kesehatan dan Informasi Pada Kemasan Produk Tembakau. Jakarta: Kementerian Kesehatan RI; 2013.  
<https://peraturan.bpk.go.id/Details/130049/permenkes-no-28-tahun-2013>
10. Nasir A, Kris Yulianto C, Tinggi Ilmu Ekonomi Gempol S. Analisa Pengaruh Pictorial Health Warning dan Iklan Rokok Terhadap Perilaku Pengambilan Keputusan Perokok Dewasa dalam Membeli Rokok di Kota Porong. *Economics And Business Management Journal (EBMJ)*. 2023;2(1):99-106.  
<https://www.ejournal-rmg.org/index.php/EBMJ/article/view/94>
11. Kemenkes RI. Peraturan Menteri Kesehatan Republik Indonesia Nomor 56 Tahun 2017 Tentang Perubahan Atas Peraturan Menteri Kesehatan Nomor 28 Tahun 2013 Tentang Pencantuman Peringatan Kesehatan dan Informasi Kesehatan Pada Kemasan Produk Tembakau. Jakarta: Kementerian Kesehatan RI; 2017.  
<https://peraturan.bpk.go.id/Details/112234/permenkes-no-56-tahun-2017>
12. Handayani T, Dwi Jatmika R. Analisis terhadap Regulasi Kadar Nikotin dalam Produk Tembakau: Perspektif Perlindungan Hukum bagi Perokok. *Proceeding Masyarakat Hukum Kesehatan Indonesia*. 2024;1(1):413-425.
13. Lasari HHD, Winata P, Ikhwan N, et al. Effect of Pictorial Health Warnings on Fear and Intensity Smoking Cessation. *Jurnal Promkes: The Indonesian Journal of Health Promotion and Health Education*. 2024;(12):155-162.  
<https://doi.org/10.20473/jpk.V12.ISI2.2024.155-162>
14. Global Youth Tobacco Survey Collaborative Group. Global Youth Tobacco Survey (GYTS): Core Questionnaire with Optional Questions, Version 2.3. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health: Atlanta, GA: U.S; 2023.  
[https://cdn.who.int/media/docs/default-source/ncds/ncd-surveillance/gyts2023\\_core\\_questionnaire\\_v2.3\\_aug\\_2023.pdf?sfvrsn=f763ac85\\_13](https://cdn.who.int/media/docs/default-source/ncds/ncd-surveillance/gyts2023_core_questionnaire_v2.3_aug_2023.pdf?sfvrsn=f763ac85_13)
15. Kemenkes RI. Laporan Riskesdas 2018 Nasional. Lembaga Penerbit Badan Litbang Kesehatan. Jakarta: Kementerian Kesehatan RI; 2019.  
[https://drive.google.com/file/d/1GHS6lCsSfhuU\\_ZkUuKpWv1mWJ1ZFPr/view](https://drive.google.com/file/d/1GHS6lCsSfhuU_ZkUuKpWv1mWJ1ZFPr/view)
16. Baiquni F, Sari F, Dewi T, et al. Eksplorasi Ancaman Peringatan Kesehatan Bergambar pada Kemasan Rokok. *Berita Kedokteran Masyarakat*. 2016;32(7):223-230.  
<https://doi.org/10.22146/bkm.11617>
17. Udhaya E, Tripathy S, Mathur A, et al. Warning on every puff: Learning from Canada's Innovative Tobacco Control Strategy. *Oral Oncology Reports*. 2024;9.  
<https://doi.org/10.1016/j.oor.2024.100214>
18. Aldani NA, Usman S, Tahlil T, et al. Pengaruh Peringatan Visual Pada Bungkus Rokok Terhadap Perilaku Merokok Pada Siswa SMA. *Jurnal Ilmu Keperawatan*. 2015;3(2):1-9.  
<https://jurnal.usk.ac.id/JIK/article/view/6404>
19. Edwards R, Thomas L, Stanley J, et al. New Zealand Adolescents' Responses to Plain Packaging and New Pictorial Warning Labels: Repeat Cross-Sectional Survey Analysis. *Australian and New Zealand Journal of Public Health*. 2023;47(4).  
<https://doi.org/10.1016/j.anzjph.2023.100066>
20. Trisnowati H, Nabut O, Marlinawati U. Persepsi terhadap Peringatan Kesehatan Bergambar pada Bungkus Rokok dan Perilaku Merokok Remaja di Yogyakarta. *Jurnal Kedokteran dan Kesehatan*. 2018;14(2):10-20.  
<https://doi.org/10.24853/jkk.14.2.10-20>
21. Ade Ismayanti S, Auliavika Khabibah S, Annisa Haq T, et al. Perilaku dan Pengetahuan Remaja Indonesia tentang Merokok. *Jurnal Farmasi Komunitas*. 2024;11(1):79-85.  
<https://doi.org/10.20473/jfk.v11i1.42580>