

# Perception Of Conventional And Electronic Cigarette Among Teenage Students

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**Abstract:** *From years to years, the smoking behavior of teenagers in Indonesia seems to keep increasing. There are also various types of cigarette being consumed, the most popular of which are, beside conventional cigarettes, electronic cigarettes. This research aims at expounding the perception of conventional and electronic cigarettes on teenage students in on Sumedang Regency, West Java, Indonesia. The research method is quantitative-descriptive, involving 365 students using stratified cluster sampling. The research result shows that most teenagers have a high positive perception on the impact of conventional cigarettes (65.2%) and electronic cigarettes (59.8%). The tendency of respondents who have a high perception on the impact of conventional and electronic cigarettes are in grade X (tenth), are female, have a daily allowance, and are not smokers, both of conventional and electronic cigarettes.*

**Keywords:** *Conventional cigarettes, electronic cigarettes, perception, teenage smoking behaviour.*

## 1. INTRODUCTION

There were 1.1 billion smokers worldwide in 2015. Around 76.2% male and 3.6% females in Indonesia are smokers. In Asia, Indonesia ranks the second best with the most number of smokers after India (WHO, 2015), with the average of approximately 12.3 cigarettes per day (Ministry of Health Indonesia, 2016). Estimatedly, this number will keep rising up to 2025, where Indonesian smokers reach 87.2% higher (WHO, 2015). On the other hand, the electronic cigarette smokers will rise up to 2012, from 1.5% to 2.8% (Corey, Wang, Johnson, & Apelberg, & Husten, 2013) (Bam et al., 2014).

One of the provinces with most numbers of smokers in Indonesia is West Java, placing the second rank after Riau Islands (Ministry of Health Indonesia, 2016). From 27 regencies and cities in West Java, Sumedang Regency places the 6th position as the regency whose 28.8% of its population are smokers, spending 8.3 cigarettes per day on average (Department of Health Republic of Indonesia, 2007).

The Agency for Regional Development (Bappeda) West Java Province & Central Bureau of Statistics (BPS) of West Java Province (2008) added that 293.932 residents in Sumedang Regency were smoking every day. Moreover, the regency is also the biggest source of tobacco production in West Java (Sunaryo, 2013).

The shift of smoking behavior from conventional to electronic cigarettes has become a trend in teenagers. Proven by the emergence of cafes to hang out for electronic cigarette smokers. A research even shows that the cigarette is considered harmless, thus the teenagers are interested in using them (Choi & Forster, 2013).

The Baseline Health Research (Riskesdas) in 2007, 2010, and 2013 show the age group with the most numbers of smokers is those aged 15-19 years old (2014), knowing this group

is in the phase middle and late, where biological, cognitive, and social changes occur. This makes them susceptible to using cigarettes, alcoholic drinks, and dangerous substances such as drugs (Stanford Children's Health, 2017).

Based on research, teenagers often use cigarettes as a social tool (Anjum et. al., 2016). This is related to one of the adolescence phases which is to build a close interpersonal relationship and communicate with peers. Besides, it is a phase to find the true self through a high level of curiosity and the willingness to discover something new (Gunarsa, 2008).

Teenagers with a negative perception toward the danger of smoking will be likely to become smokers, (Murphy-Hoefer et al., 2004). Wibowo (2017) said that 51.4% of teenagers have the perception that they are susceptible to illness due to smoking. They also have the perception that electronic cigarettes will impact their health and social life for both short- and long-term.

Unlike previous research results, Putra et al (2017) claim that 13.5% teenagers perceive that smoking electronic cigarettes doesn't cause any illness. This argument is supported by Alzyoud, Kheirallah, Weglicki, & Ward (2014) claiming that teenagers think it is acceptable to smoke electronic cigarettes. Further, they think that smoking will make them popular at school, look more mature, cooler, and feel more relaxed (Aryal, Petzold, & Krettek, 2013; Robalino & Macy, 2018). Therefore, the thesis statement is "How is the description of perception on the impact of conventional and electronic cigarettes on teenagers?"

## 2. METHOD

This research is quantitative-descriptive, aiming at describing a phenomenon or occurrence. By perception, the researcher means an understanding about the consequence of conventional and electronic cigarettes in terms of health, including the impact of physical ability, respiratory system, reproductive system, digestive system, and cardiovascular system, and in terms of psychology, including addiction, alertness, calmness, and the intention to quit smoking, and the impact to the social life, including annoy friends and families, look cool, cause more problems, bad breath, yellow teeth, and endangering people.

The population of this research was school teenagers of one Regency as many as 1345 students. The sampling technique was stratified cluster sampling--that was, the combination of stratification and cluster technique (Sedgwick, 2013). There were 339 samples in total. The instrument used in this research was an adaptation from the instrument used by Chaffee et al. (2015) on an article titled "Conditional Risk Assessment of Adolescents' Electronic Cigarette Perceptions."

The researcher adopted 2 questions and 21 questions regarding the danger of conventional and electronic cigarettes. The 2 questions regarding age and grade, and the 21 others regarding the impact on health, including physical ability, respiratory system, reproductive system, digestive system, and cardiovascular system. Its impact on psychology included addiction, alertness, calmness, and the intention to quit smoking, its impact on social life included annoy friends and family, bad breath, yellow teeth, problem-stricken, look cool, and endanger others. These 21 questions were addressed for those who smoke both electronic and conventional cigarettes. The researcher also added questions regarding gender, age, grade, faith, daily allowance, first exposure to electronic cigarettes, and the use of conventional and electronic cigarettes.

Therefore, the total of questions and statements in the instrument was 51. The scale being used was 0-100%. For positive statements, 0-24% meant strongly disagree, 25-49% disagree, 50-74% agree, and 75-100% strongly agree. The researcher and data collector distributed questionnaires to all respondents in each school. In this research, univariate analysis was used to identify the frequency distribution of age, grade, gender, faith, daily

allowance, first exposure to electronic cigarettes, and the perception of conventional and electronic cigarettes. Perception data were cross-tabulated with the data of the respondent's characteristics to see tendencies to correlate using Chi-square method. There was a tendency to correlate the value of Asymp. Sig (2-sided) <0.05. After that, the data result was shown in a form of percentage table.

### 3. RESULTS

Table 1 Table of Respondent's Frequency Distribution based on Characteristics

Characteristics	Frequency	Percentage (%)
<b>Age</b>		
≤15 years old	80	22,4
16-18 years old	276	77,6
<b>Grade</b>		
X	185	52
XI	171	48
<b>Gender</b>		
Male	142	39,9
Female	214	61,1
<b>Faith</b>		
Islam	345	96,9
Christian	11	3,1
<b>Daily Allowance</b>		
<Rp 10.000	26	7,3
Rp 10.000 - Rp 25.000	241	67,7
>Rp 25.000	89	25
Student knows the term "Conventional Cigarette"	356	100
Student knows the term "Electronic Cigarette"	356	100
<b>Smoker</b>		
Yes	58	16,3
No	298	83,7
<b>Smoke Conventional Cigarette Only</b>		
Yes	32	9
No	324	91
<b>Smoke Electronic Cigarette Only</b>		
Yes	9	2,5
No	347	97,5
<b>Smoke Conventional and Electronic Cigarettes</b>		
Yes	17	4,8
No	339	95,2
Total	356	100

Table 4.1 shows the respondent's frequency distribution based on age, gender, grade, faith, daily allowance, first exposure to and the use of conventional and electronic cigarettes.

The research result about the perception of the impact on conventional and electronic cigarettes on teenagers.

Table 2 Perception of the impact of conventional and electronic cigarettes

	Low		High	
	Frequency	Percentage (%)	Frequency	Percentage
Conventional Cigarette	124	34,8	232	65,2
Electronic Cigarette	143	40,2	213	59,8

Table 3 Perception of conventional cigarettes based on the respondent's characteristics

Respondent's Characteristics	Perception on the impact of conventional cigarettes				Asymp. Sig (2-sided)
	Low		High		
	Frequency	Percentage (%)	Frequency	Percentage (%)	
Age					
≤15 years old	23	6,5	52	14,6	0,174
16-18 years old	101	28,4	180	50,6	
Grade					
X	75	21,1	110	30,9	0,019
XI	49	13,8	122	34,3	
Gender					
Male	78	21,9	46	12,9	0,000
Female	64	18,	168	47,2	
Faith					
Islam	124	34,8	221	62,1	0,014
Christian	0	0	11	3,1	
Daily Allowance					
<Rp 10.000	14	3,9	12	3,4	0,002
Rp 10.000 - Rp 25.000	90	25,3	151	42,4	
>Rp 25.000	20	5,6	69	19,4	
Smokers					
Yes	47	13,2	11	3	0,000
No	77	21,6	220	61,8	
Conventional Cigarette Smoker Only					
Yes	27	7,6	5	1,4	0,000
No	97	27,2	227	63,8	
Electronic Cigarette Smoker Only					
Yes	6	1,7	3	0,8	0,042
No	118	33,1	229	64,3	
Conventional and Electronic Cigarette Smokers					
Yes	14	3,9	3	0,8	0,000
No	110	30,9	229	64,3	

Based on table 4.3, it can be seen that the tendency between the respondent's characteristics to the impact of conventional cigarettes. There is a correlation when the value of Asymp. Sig (2-sided) is  $> 0.05$ . Therefore, the respondent's characteristics such as class, gender, faith, daily allowance, and the use of cigarettes has a relation with the perception of the impact of conventional cigarettes.

Table 4 The perception of the impact of electronic cigarettes based on the respondent's characteristics

Demography's Characteristics	Perception on the impact of conventional cigarettes				Asymp. Sig (2-sided)
	Low		High		
	Frequency	Percentage (%)	Frequency	Percentage	
Age					
<15 years old	23	6,5	52	14,6	0,604
16-18 years old	101	28,1	180	50,6	
Grade					
X	79	22,2	106	29,8	0,310
XI	64	18,	107	30,1	
Gender					
Male	81	22,8	61	17,2	0,000
Female	62	17,4	152	42,7	
Faith					
Islam	141	39,6	204	57,3	0,131
Christian	2	0,6	9	2,5	
Daily Allowance					
<Rp 10.000	16	4,5	10	2,8	0,053
Rp 10.001 - Rp 25.000	90	25,3	151	42,4	
>Rp 25.000	36	10,1	53	14,9	
Smokers					
Yes	47	13,2	11	3,1	0,000
No	96	26,9	202	56,7	
Conventional Cigarette Smoker Only					
Yes	27	7,6	5	1,4	0,000
No	116	32,6	208	58,4	
Electronic Cigarette Smoker Only					
Yes	7	2	2	0,6	0,020
No	136	38,2	211	59,3	
Conventional and Cigarette Smokers					
Yes	13	3,7	4	1,1	0,002
No	130	36,6	209	58,7	

#### 4. DISCUSSION

The result shows that most of the respondents have a high perception, 65.2%, while 34.8% others show the opposite of conventional cigarettes. This is in line with previous research by Darmiyanti, Purwanta, & Istiono (2015) saying that 56.9% teenagers of high school and vocational school in Yogyakarta have a good perception of the impact of smoking. This is different from a research in Iraq by Dawood, Rashan, Hassali, & Saleem (2016), saying that most respondents have a perception of the impact of smoking on low health levels.

Much the same way, electronic cigarettes have an impact on teenagers in (Table 4.2), the majority of them have a high perception, 59.5%. However, the percentage on the impact of electronic cigarettes is 5.4% lower than the impact of conventional cigarettes. This is supported by East et al. (2018) and Martinez-Sánchez et al. (2015). It contrasts with the research from Hall, Austin, Do & Richardson (2017), the research from Florida shows that most respondents have a negative perception on the impact of electronic cigarettes.

The respondents in the high perception category are those who have grades above average out of all respondents. This means they have a good understanding of the impact of conventional and electronic cigarettes therefore they are safe from any smoking behavior. The high level of perception from all respondents are in line with the high percentage by respondents with low perception. As much as 34.8% of all respondents have a low perception on the impact of conventional, and 40.2% of them have a low perception on electronic cigarettes. The latter category has the perception value below average. This means the respondents don't quite understand the impact of conventional and electronic cigarettes, making them show some smoking behavior.

Based on previous research, the perception on the impact of smoking becomes the indicator of smoking behavior. Respondents who have a good perception on the impact of smoking will be prevented from smoking behavior, and vice versa (Jacobson, Catley, Lee, Harrar & Harris, 2014; Song et al., 2009).

The high level of perception from respondents is because the school has applied a Smoking-Free Area (KTR) based on the Regulation from the Ministry of Education and Culture Number 64 Year 2015 regarding Smoking-Free Area in the vicinity of school. Beside, the school also put up forbidden signs of smoking on the wall and pantry and photocopy. They also have rules in prohibiting the students to smoke. However, this rule is not enforced with the teachers and other staff. This gives a bad example for the students, even there is a scene where students and the staff smoke together at school.

Based on some statements from the teachers in several schools, there hasn't been any health consultation or education regarding the problem around smoking in teenagers. This can be the cause of the respondents having low perception on the impact of smokers, especially conventional and electronic cigarettes. Therefore, it is necessary to do some effort to improve the perception on the impact of smoking and reduce the number of teenage smokers.

The research result shows the majority of respondents are non-smokers and have a higher perception on the impact of conventional and electronic cigarettes. There are 58 out of 356 respondents or 16.3% are smokers, of conventional, electronic, and both cigarettes. This number is higher compared to the smoking prevalence of teenagers in Kathmandu Metropolitan (16,2%), Aceh (12,8%), and Berlin (7,2%) (Aryal et al., 2013; Haryasti, Abdullah, & Bakhtiar, 2015; Zeiher, Starker, & Kuntz, 2018). However, this is lower than in Makassar (25.3%) and Denpasar (25.2%) (Devhy & Yundari, 2017; Rachmat, Thaha, & Syafar, 2013). The location of the population can be one of the prevalence of smoking in teenagers. It is evident that big cities have a higher smoking prevalence compared to smaller cities as stated by Riskesdas in 2007.

For smokers, 81% respondents have a low perception on the impact of conventional cigarettes. According to Lundborg (2006), teenagers who have a good perception on the impact of cigarettes will likely not smoke. Based on the research result of Gana et al., (2018) smokers have a significantly lower perception compared to non-smokers.

Most respondents who went to school in Regency were female. Table 4.3 and 4.4 shows there is a correlation between perception on the impact of conventional and electronic cigarettes and gender. Respondents who have a high perception are female in majority. This is in line with the research by Ambrose et al. (2014), saying that female teenagers have a better perception than boys do (Amrock & Weitzman, 2015).

In this research, the majority of respondents are 16-18 years old, according to the Center of Data and Statistics of Education and Culture 2015. At this age, the respondents have a higher perception compared to other age categories such as  $\leq 15$  years old. Unlike other research in Sweden, 15- to 16-year-old teenagers have a higher perception than those aged 17- to 18-year-olds (Lundborg, 2017). However, in this research, it is safe to say that age doesn't have any correlation to the perception of smoking impacts.

The respondents are more or less in grade X. The research result shows there is a tendency between the perception of the impact of conventional cigarettes and grade. It can be seen that most respondents have a low perception on the impact of conventional cigarettes in grade X, as much as 21.1%. This is in line with Lydon, Wilson, Child, & Geier (2014) that the teenager's cognitive development is getting more accurate and consistent in their older years. In this case, the respondents who are in grade XI have a slightly low perception compared to those who are in grade X.

Islam is the majority of faith, as much as 96.9%. However in this research, faith doesn't have any relation to the perception of the impact of smoking because there is no difference on the number of respondents. The same thing happens in a research in Yogyakarta (Handayani, 2015; Rahayuwati & Castillo, 2020). The stark difference of the number of respondents makes it unbelievable to say that there is a tendency for it to correlate.

In this research, most respondents have a daily allowance around Rp10,000-Rp25,000. The statistical test results show that there is a correlation between the perception of the impact of conventional cigarettes and the daily allowance. However, based on the research (Binita, Istiarti, & Widagdo, 2016; Purba, 2009) there is no significant relation between daily allowance and perception on smoking behavior.

It can be concluded that most respondents in this research are female, are in grade X, have a daily allowance Rp10,000-Rp 25,000, are not smokers, and have a high perception on the impact of conventional and electronic cigarettes. Another conclusion is that the teenagers have a fairly good understanding on the impact of conventional and electronic cigarettes.

The limitation of this research is the basic information on perception on the health impact of conventional and electronic cigarettes, because there is only one variable which is perception and doesn't focus on other variables related to the perception and factors affecting the smoking behavior.

## 5. CONCLUSION

Based on previous research, there are 365 teenagers who went to school in have a high perception on the impact of conventional and electronic cigarettes. However, there are also respondents who have a low perception. The tendency of respondents who have a high perception on the impact of conventional and electronic cigarettes are in grade X, are female, have a daily allowance, and are not smokers, both of conventional and electronic cigarettes.

## 6. REFERENCES

- [ 1] Alzyoud, S., Kheirallah, K. A., Weglicki, L. S., & Ward, K. D. (2014). Tobacco Smoking Status and Perception of Health among a Sample of Jordanian Students. 7022–7035. <https://doi.org/10.3390/ijerph110707022>
- [ 2] Ambrose, B. K., Rostron, B. L., Johnson, S. E., Portnoy, D. B., Apelberg, B. J., Kaufman, A. R., & Choiniere, C. J. (2014). Perceptions of the Relative Harm of Cigarettes and E-cigarettes Among U.S. Youth. *American Journal of Preventive Medicine*, 47(2), S53–S60. <https://doi.org/10.1016/j.amepre.2014.04.016>
- [ 3] Amrock, S. M., & Weitzman, M. (2015). Adolescents' Perceptions of Light and Intermittent Smoking in the United States. *Pediatrics*, 135(2), 246–254. <https://doi.org/10.1542/peds.2014-2502>
- [ 4] Anjum, S., Srikanth, M. K., Reddy, P. P., Monica, M., Rao, K. Y., & Sheetal, A. (2016). Reasons for Smoking among The Teenagers of Age 14 – 17 Years in Vikarabad Town : A Cross - Sectional Study. *Journal of Indian Association of Public Health Dentistry*, 14(1), 2016–2019. <https://doi.org/10.4103/2319-5932.178733>
- [ 5] Aryal, U. R., Petzold, M., & Krettek, A. (2013). Perceived Risks and Benefits of Cigarette Smoking among Nepalese Adolescents: a Population-based Cross-sectional Study. *BMC Public Health*, 13(1), 1. <https://doi.org/10.1186/1471-2458-13-187>
- [ 6] Badan Perencanaan Daerah [Bapeda] Provinsi Jawa Barat, & Badan Pusat Statistik [BPS] Provinsi Jawa Barat. (2008). *Data Sosial Ekonomi Daerah Provinsi Jawa Barat years old 2008*.
- [ 7] Bam, Bollow, Berezhnova, Jackson-Moris, Jones, & Latif. (2014). Position Statement on Electronic Cigarette or Electronic Nicotine Delivery Systems. *Int J Tuberc Lung Dis*, 18(1), 5–7.
- [ 8] Binita, A. M., Istiarti, V. T., & Widagdo, L. (2016). Hubungan Persepsi Merokok dengan Tipe Perilaku Merokok pada Siswa SMK “X” di Kota Semarang. *Jurnal Kesehatan Masyarakat*, 4(5), 268–276.
- [ 9] Chaffee, B. W., Gansky, S. A., Halpern-Felsher, B., Couch, E. T., Essex, G., & Walsh, M. M. (2015). Conditional Risk Assessment of Adolescents' Electronic Cigarette Perceptions. *Am J Health Behav*, 39(3), 421–432. <https://doi.org/10.1016/j.contraception.2015.12.017>
- [ 10] Choi, K., & Forster, J. (2013). Characteristics Associated With Awareness , Perceptions , and Use of Electronic Nicotine Delivery Systems Among Young US Midwestern Adults. 103(3), 556–562. <https://doi.org/10.2105/AJPH.2012.300947>
- [ 11] Corey, C., Wang, B., Johnson, S. E., Apelberg, B., & Husten, C. (2013). Notes from the Field. *CDC*, 62(35), 2011–2012.
- [ 12] Darmiyanti, Purwanta, & Istiono, W. (2015). Persepsi Remaja terhadap Dampak Rokok dan Harapan terhadap Perilaku Merokok. Universitas Gadjah Mada.
- [ 13] Dawood, O. T., Rshan, M. A. A., Hassali, M. A., & Saleem, F. (2016). Knowledge and Perception about Health Risk of Cigarette Smoking among Iraqi Smokers. *Journal of Pharmacy and BioAllied Sciences*, 8(2), 146–151. <https://doi.org/10.4103/0975-7406.171738>
- [ 14] Department Of Health Republic Of Indonesia. (2007). *Riskesmas. Provinsi Jawa Barat years old 2007*.
- [ 15] Devhy, N. L. P., & Yundari, A. . I. D. H. (2017). Faktor yang Berpengaruh Terhadap Perilaku Merokok Konvensional dan Elektrik Pada Remaja di Kota Denpasar. *Bali Medika Jurnal*, 4(2), 63–72.
- [ 16] East, K., Brose, L. S., McNeill, A., Cheeseman, H., Arnott, D., & Hitchman, S. C. (2018). Harm perceptions of electronic cigarettes and nicotine: A nationally

- representative cross-sectional survey of young people in Great Britain. *Drug and Alcohol Dependence*, 192, 257–263. <https://doi.org/10.1016/j.drugalcdep.2018.08.016>
- [ 17] Gana, G. J., Idris, S. H., Sabitu, K., Oche, M. O., Abubakar, A. A., & Nguku, P. M. (2018). Prevalence and Perception of Cigarette Smoking among Out of School Adolescents in Birnin Kebbi, North-western Nigeria. *The Pan African Medical Journal*, 30, 304. <https://doi.org/doi:10.11604/pamj.2018.30.304.16641>
- [ 18] Gunarsa, S. D. (2008). *Psikologi Perkembangan Anak dan Remaja* (Y. S. D. Gunarsa, Ed.). Jakarta: Gunung Mulia.
- [ 19] Hall, M., Austin, R., Do, T., & Richardson, A. (2017). Perceptions of harm from electronic-cigarette use among a sample of US Navy personnel. *Tobacco Prevention & Cessation*, 3, 1–9. <https://doi.org/10.18332/tpc/78430>
- [ 20] Handayani, E., & Kurniawati, T. (2015). Hubungan Persepsi tentang BahaYes Merokok dengan Sikap terhadap Kebiasaan Merokok pada Remaja di Kmapung Gemblakan Bawah YogYeskarta. *Sekolah Tinggi Ilmu Kesehatan AisyiYesh*. Retrieved from [http://opac.unisayogYes.ac.id/1040/1/Naskah Publikasi Eka HandaYesni.pdf](http://opac.unisayogYes.ac.id/1040/1/Naskah%20Publikasi%20Eka%20HandaYesni.pdf)
- [ 21] Haryasti, W., Abdullah, A., & Bakhtiar. (2015). Self-efficacy dan Perilaku Merokok Remaja. *Jurnal Ilmu Keperawatan*, 100–109.
- [ 22] Jacobson, J. D., Catley, D., Lee, H. S, Harrar, S. W., & Harris, K. J. (2014). Health Risk Perceptions Predict Smoking-related Outcomes in Greek College Students. *Psychol Addict Behav*, 28(3), 743–751. <https://doi.org/10.1037/a0037444>
- [ 23] Lundborg, P. (2006). Smoking, Information Sources, and Risk Perceptions – New Results on Swedish Data. *Network for Studies on Pensions, Aging, and Retirement*, 1–42.
- [ 24] Lundborg, P. (2017). Smoking, information sources, and risk perceptions - New results on Swedish data. *Journal of Risk and Uncertainty*, 34(3), 217–240. <https://doi.org/10.1007/s11166-007-9010-0>
- [ 25] Lydon, D. M., Wilson, S. J., Child, A., & Geier, C. F. (2014). Adolescent Brain Maturation and Smoking: What We Know and Where We're Headed. *Neurosci Biobehav Rev*, 45, 323–342. <https://doi.org/10.1016/j.neubiorev.2014.07.003>
- [ 26] Martínez-Sánchez, J. M., Marcela, F., Montse, B., Martín-Sánchez, J. C., Saltó, E., & Fernández, E. (2015). Knowledge of electronic cigarettes and their perceived harmfulness among the adult population in Barcelona. *Gaceta Sanitaria*, 29(4), 296–299. <https://doi.org/10.1016/j.gaceta.2015.01.014>
- [ 27] Ministry of Education And Culture. Peraturan Menteri Pendidikan dan KebudaYesan Nomor 64 years old 2015. Pub. L. No. 64(2015).
- [ 28] Ministry of Health Indonesia. (2016). *Perilaku Merokok MasYesrakat Indonesia*. Jakarta: Kementerian Kesehatan Republik Indonesia.
- [ 29] Murphy-Hoefer, R., Alder, S., & Higbee, C. (2004). Perceptions about cigarette smoking and risks among college students. 6(3), 371–374. <https://doi.org/10.1080/14622200412331320770>
- [ 30] Purba, Y. C. (2009). Hubungan Karakteristik, Pengetahuan, Dan Sikap Remaja Laki-Laki Terhadap Kebiasaan Merokok Di SMU Parulian 1 Medan. Universitas Sumatera Utara.
- [ 31] Putra, I. G. N. E., Putra, I. M. R., Prayoga, D. G. A. R., & Astuti, P. A. S. (2017). Gambaran pemahaman, persepsi, dan penggunaan rokok elektrik pada siswa sekolah menengah atas di kota Denpasar. *Research Gate*, (January), 1–12.
- [ 32] Rachmat, M., Thaha, R. M., & Syafar, M. (2013). Perilaku Merokok Remaja Sekolah Menengah Pertama. *Kesmas: National Public Health Journal*, 7(11), 502. <https://doi.org/10.21109/kesmas.v7i11.363>

- [ 33] Robalino, J. D., & Macy, M. (2018). Peer Effects on Adolescent Smoking: Are Popular Teens More Influential? *Plos One*, 13(7), 1–12.
- [ 34] Sedgwick, P. (2013). Stratified cluster sampling. *BMJ*, 1–2. <https://doi.org/10.1136/bmj.f7016>
- [ 35] Song, A. V., Morrell, H. E. R., Cornell, J. L., Ramos, M. E., Biehl, M., Kropp, R. Y., & Halpern-Felsher, B. L. (2009). Perceptions of smoking-related risks and benefits as predictors of adolescent smoking initiation. *American Journal of Public Health*, 99(3), 487–492. <https://doi.org/10.2105/AJPH.2008.137679>
- [ 36] Standford Children’s Health. (2017). *Cognitive Development*.
- [ 37] Sunaryo, T. (2013). *Kretek Pusaka Nusantara* (1st ed.). YogYeskarta: SAKTI.
- [ 38] Wibowo, M. (2017). *Persepsi Kerentanan dan Keseriusan Terkena Penyakit akibat Merokok dengan Kemungkinan Remaja Berhenti Merokok di Gondokusuman YogYeskarta*. Universitas Ahmad Dahlan, 978–979.
- [ 39] Zeiher, J., Starker, A., & Kuntz, B. (2018). Smoking behaviour among children and adolescents in Germany. Results of the cross-sectional KiGGS Wave 2 study and trends. *Journal of Health Monitoring*, 3(1), 38–44. <https://doi.org/10.17886/RKI-GBE-2018-025>.