

Determinants of Adolescents' Desire to Quit Smoking in Indonesia: Data Analysis of the 2014 Global Youth Tobacco Survey

Mega Puspa Sari*, Elia Nur Ayunin, Yuli Dwi Setyowati

Department of Public Health, Faculty of Health Sciences, Universitas Muhammadiyah Prof. DR Hamka, Jakarta, Indonesia

*corresponding author, e-mail: ns.megapuspasari@uhamka.ac.id

ARTICLE INFO

ABSTRACT

Article history

Received 09/15/21

Revised 12/02/21

Accepted 12/27/22

Keywords

Teenager

Determinant

Cessation of smoking

Background: The high prevalence of smoking is not only among adults but also among children and adolescents. Almost all adolescent smokers wish to quit smoking. They are aware of the dangers of cigarettes, tobacco, and other types so they are motivated to quit smoking. This study aims to determine the determinants of the desire to quit smoking in Indonesian students, using a cross-sectional study design. **Method:** This study is a secondary data analysis of the Global Youth Tobacco Survey (GYTS) in Indonesia in 2014. The sample of the study was all students in grades 7-9 in Indonesia who participated in the 2014 GYTS and had complete data, namely 5,986 people. Logistic regression statistical test analysis was used to determine the relationship between the determinants and the desire to stop smoking in adolescents. **Results:** Adolescents who want to quit smoking are 92.1%. There is a relationship between adolescents who have tried cigarettes and other types of tobacco on the desire to stop smoking behavior (OR=11,3; 95% CI=5,216-24,615; $p<0.025$). There is a relationship between the dangers of smoking from family discussions on the behavior and desire of adolescents to stop smoking (OR=2,1; 95% CI=1,213-3,784; $p<0.025$). **Conclusion:** Family support and motivation can assist adolescents in reducing smoking habits by monitoring and reminding adolescents of the purpose of quitting smoking, and by inviting adolescents to consult and take therapy with Public Health Services.

This is an open access article under the [CC-BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license



1. Introduction

The high prevalence of smoking was not only in adults but also among children and adolescents. This was evidenced by the increasing prevalence of smoking in the population aged 10-18 years, which was 1.9%, from 2013 (7.2%) to 2018 (9.1%) [1]. Between 2000 and 2017, about 7% or more than 24 million children aged 13-15 years smoked [2]. The World Health Organization (WHO) estimated that there were 367 million smokeless tobacco users by the age of 15. More men used smokeless tobacco products (237 million) than women (129 million). The largest use of smokeless tobacco was in Southeast Asian countries (82%) with the majority of smokeless tobacco users being in lower-middle-income countries (86%) [2].

The majority of smoked tobacco users in Indonesia were students (32.1%). By gender, boys used tobacco products more than girls. The current use of tobacco products by adolescents was 20.3%, 19.4% were tobacco smokers, and 2.1% are smokeless tobacco users [3]. Based on the Basic Health Research (*Riset Kesehatan Dasar/Riskesdas*), the prevalence of smoking in the

Indonesian population aged 15 years and over increased from 34.2% in 2007 to 34.7% in 2010, and to 36.3% in 2013 [4].

About 780 million people stated they wanted to quit smoking, but only 30 percent of them had access to means of dealing with physical and psychological addiction to tobacco [5]. Based on the 2014 GYTS study, most student smokers (80.8%) wanted to quit smoking [6]. The adolescents' desire to quit smoking at school was an important thing to study. Many factors influenced the success of smoking cessation efforts in adolescents. Researchers stated that adolescents had the intention to quit smoking because they had a concern for the environment and advice from parents and teachers [7]. In addition, the perception of adolescents who had the intention to quit smoking showed that they were able to deal with the symptoms of nicotine withdrawal and also had a good perception of maintaining health and fitness [7]. Previous research had shown that adolescents who have a desire to quit smoking had reasons including economic and health reasons. Respondents felt that their pocket money would run out quickly if it was only used to buy cigarettes [8].

Previous research explained that the respondent's desire to quit smoking was influenced by two determining factors, namely internal and external factors. In addition, health was also important as a reason for respondents to stop smoking. Internal factors referred to personal determination, while external factors were support from outside parties, such as parents and close relatives [9]. The earlier the age of smokers to quit smoking was, the greater their chances were of living a healthier life without the threat of adverse effects from smoking [10].

Based on the rationale above, it was necessary to study the desire to quit smoking, especially in students who smoked. This study aimed to determine the determinants of the desire to quit smoking in students through further analysis using data from the GYTS survey in Indonesia in 2014.

2. Materials and Method

This research was quantitative research that used a cross-sectional study design. This study was a further analysis of the results of the Global Youth Tobacco Survey (GYTS) in Indonesia in 2014. GYTS was a school-based survey that used a two-stage cluster sample design to produce a nationally representative sample [11].

The population of this study was based on the GYTS survey population, which was all students from all schools in Indonesia who were in 7, 8, and 9 grade or junior high school students. The sample in this study were all respondents of the 2014 GYTS survey who had complete data, and there were no missing answers to the questions. The research variables needed were 5986 people (86.7% of all Indonesian GYTS samples).

All research variables were adjusted to the list of questions in the GYTS questionnaire. The dependent variable of smoking cessation behavior was measured based on questions number 15 and 16 in the GYTS questionnaire. The independent variables consisted of the respondent's characteristics (age, gender, and school grade), the respondent's income (question number 4), had tried smoking, and/or other tobacco products (questions number 5 and 9), family discussion about the dangers of smoking (question number 54), and reading school references about the impact of smoking (question number 55). Data analysis used univariate analysis, bivariate analysis with chi-square statistical test (p-value), and multivariate analysis with logistic regression statistical test.

3. Results and Discussion

3.1. Results

The general characteristics of respondents showed that the majority of respondents were 13 years old, which were as many as 222 respondents (30.8%). Respondents who were male were as many as 658 respondents (91.3%), with 8th graders as many as 255 respondents (35.4%). The category of respondents' pocket money every week was mostly around IDR 11,000-50,000 which was stated by as many as 338 respondents (46.9%). The results of the analysis showed that Indonesian adolescents had tried cigarettes and other types of tobacco (95.6%) and were willing to quit smoking (92.1%). More details can be seen in Table 1.

Table 2 shows that there was a relationship between adolescents who knew the dangers of smoking from family discussions (OR=2.2; 95%CI=1.3-3.8, $p<0.05$), and adolescents who had tried cigarettes and other types of tobacco (OR=11.7; 95%CI=5.4-25.1; $p<0.05$) with the desire to quit smoking.

Table 1. Respondents' General Characteristics

Variable	n	%
Age (years)		
11	8	1.1
12	115	16.0
13	222	30.8
14	219	30.4
15	115	16.0
16	34	4.7
17	8	1.1
Grade		
7	252	35.0
8	255	35.4
9	214	29.7
Gender		
Male	658	91.3
Female	63	8.7
Pocket Money		
< IDR 11,000	317	44.0
IDR 11,000 – Rp 50,000	338	46.9
> IDR 50,000	66	9.2
Had Tried Cigarettes and Other Types of Tobacco		
Yes	689	95.6
No	32	4.4
Behavior of the Desire to Quit Smoking		
Yes	664	92.1
No	57	7.9

Table 2. Bivariate Analysis

Variable	Desire to Quit Smoking				Total		OR (95% CI)	P-value
	Yes		No		n	%		
	n	%	n	%	n	%		
Income							0.67	
< IDR 11,000	287	90.5	30	9.5	317	100	(0.3-1.2)	0.377
IDR 11,000 – Rp 50,000	316	93.5	22	6.5	338	100	0.78	
> IDR 50,000	61	92.4	5	7.6	66	100	(0.3-2.1)	
Knowing the Dangers of Smoking in Family							2.2	0.003*
Yes	432	94.3	26	5.7	458	100	(1.3-3.8)	
No	232	88.2	31	11.8	263	100		
Reading School Books on the Effects of Tobacco							1.6	0.11
Yes	506	93.0	38	7.0	544	100	(0.9-2.9)	
No	158	89.3	19	10.7	177	100		
Had Tried Cigarettes and Other Types of Tobacco							11.7	0.000*
Yes	646	93.8	43	6.2	689	100	(5.4-25.1)	
No	18	56.3	14	43.8	32	100		

*Chi-square test, $p\text{-value} < \alpha (0.05)$

The multivariate results in Table 3 show that the behavior of having tried cigarettes and other types of tobacco most influenced the respondents' desire to stop smoking behavior (OR=11.3; 95% CI=5.216-24.615; $p < 0.025$). The results of the logistic regression test also showed the influence of family discussions about the dangers of smoking on the desire to quit smoking. Respondents who knew about the dangers of smoking from their families had twice the desire to quit smoking than respondents who did not know the dangers of smoking (OR=2.1; 95% CI=1.213-3.784; $p < 0.025$).

Table 3. Multivariate Analysis

Variable	B	P – Value	OR	95% CI
Knowing the Dangers of Smoking in Family	0.762	0.009	2.143	1.213 – 3.784
Had Tried Cigarettes and Other Types of Tobacco	2.428	0.000	11.331	5.216 – 24.615

3.2. Discussion

The results showed that the educational characteristics of most smokers were 13 years old, which was the age at the junior high school level, amounting to 30.8%. This is following other studies which stated that junior high school students were a period when people began to enter their teens. When looking at the age when respondents experienced first smoking, of the 14 (47%) respondents, as many as 2 (7%) teenage boys had started smoking since elementary school or aged 10 years, and as many as 8 (27%) teenage boys started smoking since junior high school or aged 13-14 years, and as many as 1 (3%) teenagers started smoking since high school or aged 16 years [8]. The results of a study showed the age characteristic of adolescents who smoked at the age of 14 to 16 years old was as many as 54.6%, and as many as (65.4%) of school adolescents had a low level of nicotine dependence [13]. The age of early smokers continues to increase; even starting in elementary and junior high school age [14]. This was different from other studies which showed that the proportion of smoking in adolescents aged ≥ 15 years was greater than in adolescents aged < 15 years [12].

The proportion of respondents based on the category of pocket money/income was that there were as many as 93.5% of respondents who had a desire to quit smoking had an allowance of 11 thousand to 50 thousand. The results of the analysis on the pocket money variable showed that there was no relationship between the respondent's pocket money and the desire to quit smoking in Indonesian teenagers. This was following a study that showed that there was no relationship between pocket money and intention to quit smoking in high school students in Kota Bima [15]. Monthly pocket money had no significant effect on the level of motivation to quit smoking [16]. However, another study had shown that respondents who had lower incomes/pocket money had the motivation to quit smoking [17].

The proportion of respondents wanting to quit smoking was higher in respondents who knew about the dangers of smoking from family discussions (94.3%) compared to other respondents who did not know the dangers of smoking (88.2%). There was a significant relationship between respondents knowing the dangers of smoking from their families with the desire to stop smoking behavior. The research showed that the respondents who knew the dangers of smoking from their family had as much as twice the desire to stop smoking behavior as the respondents who did not know the dangers of smoking. Therefore, giving the understanding to prevent the younger generation from becoming active smokers was important by looking at the negative impacts in daily life. Parents, teachers, religion lecturers, and lecturers of citizenship education had an important role in providing education and efforts to instill understanding so that students had the self-awareness to stop being active smokers [18].

A study stated that the knowledge of the adolescents at SMP Negeri 2 Ramba Hilir, Rokan Hulu Regency about the dangers of smoking was good, especially on the effects and diseases caused by smoking. As people get older, the grasping power and mindset would also develop, so that the knowledge gained was getting better [19]. However, this study was not following the other study regarding the relationship between the level of knowledge of active smokers about the dangers of smoking and students' motivation to quit smoking in SMA Muhammadiyah Cipondoh.

There was no significant relationship between the level of knowledge of active smokers about the dangers of smoking and students' motivation to quit smoking in SMA Muhammadiyah Cipondoh [20].

Motivation to quit smoking in students was influenced by various factors ranging from proper knowledge about the dangers of smoking, physiological needs, a sense of security and comfort, a sense of love, self-esteem, and self-actualization; because adolescence was a period of transition from childhood to adulthood, where at that time there was rapid growth that affects the mindset and behavior of adolescent students. The results of statistical tests in a study showed that there was a relationship between the level of knowledge and motivation to quit smoking. This indicated that the higher the level of knowledge, the higher the motivation to quit smoking [21]. The results of another study showed that respondents who have a desire to quit smoking because they wanted to live a healthy life are 78.7%. 81.2% of respondents said they wanted to quit smoking because of their own motivation, and 58.7% of respondents wanted to quit smoking because of information obtained from mass media such as newspapers. The motivation to stop smoking in this study were respondents who had tried to quit smoking and the motivation measuring scale was in the form of a questionnaire to determine whether the level of motivation of respondents was high, medium or low [22].

The proportion of respondents who had tried cigarettes and other types of tobacco had a desire to quit smoking was 93.8%, compared to respondents who have never tried smoking and other types of tobacco which were 56.3%. In 2019, as many as 57.8% of adolescents (junior and high school students) who used tobacco products, as many as 3.3 million respondents, reported that they were seriously thinking about quitting all tobacco products [23].

The results of a study found that the majority of teenagers who smoked had a high level of self-efficacy, namely 21 people (60%), and teenagers who smoked had the majority of a high level of motivation amounting to 20 people (57.1%). There was an influence of self-efficacy on motivation to decrease smoking behavior in adolescents in Southeast Pontianak [24]. Highly dependent and highly motivated smokers were more successful in the process of quitting smoking compared to those who were less dependent and motivated [25].

The proportion of respondents based on reading school books about the effects of tobacco showed there were 93% of respondents had a desire to stop smoking behavior compared to respondents who did not read books about the effects of tobacco (89.3%). The results of a study stated that the level of knowledge of adolescents in *Jabodetabek* was good, especially knowledge about the dangers of smoking and the diseases caused by smoking. Of the 116 respondents, 81 (69.8%) of them had smoked and 56% of them had quit smoking [26]. Another study stated that the level of knowledge of the youth of Mx Club Samarinda 135 about the dangers of smoking to health was included in the good category, which was 25 respondents (83.3%) [27].

This was in line with a study that showed a significant relationship between the level of knowledge and motivation to quit smoking in former smokers in the pulmonary section of the RSU (General Hospital) Siloam Lippo Village [28]. Most smokers in European countries knew that smoking increased the risk of heart disease, and lung and throat cancer; and tobacco use could cause oral cancer, lung disease, and stroke. The research supported the need for stronger educational policies and measures that could increase the effectiveness of health warnings in communicating health risks and promoting smoking cessation efforts [29].

Several books included information about the dangers of smoking which was quite complete, such as the book entitled "*Pembunuh Berbahaya Itu Bernama Rokok*", and the book entitled "*Mengenal Rokok dan Bahayanya*", and other books about the dangers of smoking. However, sources of information from books were difficult to access and generally paid for, so sources of information from books were limited [30].

4. Conclusion

The determinants that were most significantly related to the desire to quit smoking among adolescents in Indonesia were knowing the dangers of smoking from family discussions and the status of adolescents who had tried cigarettes and other types of tobacco. Therefore, it was

expected that support and motivation from family could slowly help adolescents reduce their smoking habits by monitoring and reminding them of the purpose of quitting smoking, and inviting adolescents to consult and take therapy to public health services.

Declaration

Acknowledgments: No acknowledgments.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Nardiello C, Morty RE. World No Tobacco Day 2020. *Am J Physiol Lung Cell Mol Physiol*. 2020 May 1;318(5):L1010-L1015. doi: 10.1152/ajplung.00110.2020. Epub 2020 Apr 1. PMID: 32233793.
2. Fouad H, Commar A, Hamadeh R, El-Awa F, Shen Z, Fraser C. Estimated and Projected Prevalence of Tobacco Smoking in Males, Eastern Mediterranean Region, 2000-2025. *East Mediterr Health J*. 2021 Jan 23;27(1):76-82. doi: 10.26719/2021.27.1.76. PMID: 33538322.
3. World Health Organization Regional Office for South-East Asia. *Global Youth Tobacco Survey (GYTS): Indonesia Report 2014* [Internet]. Who-Searo. 2015. p. 92. Available from: http://www.searo.who.int/tobacco/data/ino_rtc_reports/en/%5Cnhttp://www.searo.who.int/tobacco/documents/ino_gyts_report_2014.pdf
4. Ahsan A, Wiyono NH, Veruswati M, Adani N, Kusuma D, Amalia N. Comparison of Tobacco Import and Tobacco Control in Five Countries: Lessons Learned for Indonesia. *Global Health*. 2020 Jul 18;16(1):65. doi: 10.1186/s12992-020-00595-y. PMID: 32682431; PMCID: PMC7368732.
5. Kristina SA, Permitasari NPAL, Krisnadewi KI, Santoso KA, Puspawati PR, Masrida WO, Andriani Y. Cancer Attributable to Tobacco Smoking in Member Countries of Association of Southeast Asian Nations (ASEAN) in Year 2018. *Asian Pac J Cancer Prev*. 2019 Oct 1;20(10):2909-2915. doi: 10.31557/APJCP.2019.20.10.2909. PMID: 31653134; PMCID: PMC6982657.
6. GYTS. *Lembar Informasi Indonesia 2019 (Global Youth Tobacco Survey)*. World Heal Organ [Internet]. 2020;1-2. Available from: <https://www.who.int/indonesia/news/events/world-no-tobacco-day-2020>
7. Dewi LC, Hidayati L, Nastiti AA, Istifaizah N. Factors Affecting Smoking Cessation Among Adolescents - An Application of Theory of Planned Behavior. *Proceedings of the 9th International Nursing Conference*. 2019;(Inc):532-7. doi: <https://doi.org/10.5220/0008328105320537>
8. Conner M, Grogan S, Simms-Ellis R, Cowap L, Armitage CJ, West R, Marshall AM, Siddiqi K. Association Between Age at First Reported E-Cigarette Use and Subsequent Regular E-Cigarette, Ever Cigarette and Regular Cigarette Use. *Addiction*. 2021 Jul;116(7):1839-1847. doi: 10.1111/add.15386. Epub 2021 Jan 12. PMID: 33394523; PMCID: PMC8609424.
9. Melizza N, Kurnia AD, Masrurroh N, Dewi LS. Smoking Behavior, Perceived Self-Efficacy, and Motivation of Smoking Cessation among University Student. *Int J Health Sci (Qassim)*. 2020;8(01):23-9. doi: <https://doi.org/10.14251/crisisonomy.2017.13.9.53>
10. Lee HM, Hsu YH, Chen T. The Moderating Effects of Self-Referencing and Relational-Interdependent Self-Construal in Anti-Smoking Advertising for Adolescents. *Int J Environ Res Public Health*. 2020 Nov 16;17(22):8481. doi: 10.3390/ijerph17228481. PMID: 33207698; PMCID: PMC7698122.
11. WHO. *Global Youth Tobacco Survey (GYTS): Indonesia report 2014* [Internet]. Who-Searo. 2015. 24 p. Available from: http://www.searo.who.int/tobacco/data/ino_rtc_reports/en/%5Cnhttp://www.searo.who.int/tobacco/documents/ino_gyts_report_2014.pdf
12. Nakaseko E, Kotera S, Nakazawa M. Factors Associated with Smoking and Drinking among Early Adolescents in Vanuatu: A Cross-Sectional Study of Adolescents and Their Parents. *Int J Environ Res Public Health*. 2020 Nov 13;17(22):8412. doi: 10.3390/ijerph17228412. PMID: 33202941; PMCID: PMC7697674.
13. Rios LE, Freire M do CM. Opinião de escolares adolescentes fumantes sobre aconselhamento e tratamento para cessação do tabagismo em serviços de saúde: estudo transversal, Goiás, 2018. *Epidemiol e Serv Saude Rev do Sist Unico Saude do Bras*. 2020;29(4):e2019604. doi: <https://doi.org/10.1590/scielopreprints.794>

14. Budin CE, Râjnoveanu RM, Bordea IR, Grigorescu BL, Todea DA. Smoking in Teenagers from the Social Protection System-What Do We Know about It? *Medicina (Kaunas)*. 2021 May 12;57(5):484. doi: 10.3390/medicina57050484. PMID: 34066069; PMCID: PMC8150939.
15. Buitenhuis AH, Tuinman MA, Hagedoorn M. A Planning Intervention to Quit Smoking in Single-Smoking Couples: Does Partner Involvement Improve Effectiveness? *Psychol Health*. 2021 Jan;36(1):1-15. doi: 10.1080/08870446.2019.1703983. Epub 2019 Dec 27. PMID: 31880171.
16. Kumar A, Tiwari A, Gadiyar A, Gaunkar RB, Kamat AK. Assessment of Readiness to Quit Tobacco Among Patients with Oral Potentially Malignant Disorders Using Transtheoretical Model. *J Educ Health Promot*. 2018 Jan 10;7:9. doi: 10.4103/jehp.jehp_75_17. PMID: 29417069; PMCID: PMC5791435.
17. Rogers E, Palacios J, Vargas E, Wysota C, Rosen M, Kyanko K, et al. Financial Hardship, Motivation to Quit and Post-Quit Spending Plans among Low-Income Smokers Enrolled in a Smoking Cessation Trial. *Subst Abus Res Treat*. 2019;13. doi: <https://doi.org/10.1177/1178221819878765>
18. Colston DC, Cho B, Thrasher JF, Titus AR, Xie Y, Emery S, Elliott MR, Fleischer NL. Anti-Smoking Media Campaigns and Disparities in Smoking Cessation in the United States, 2001-2015. *Am J Health Promot*. 2021 Jun;35(5):658-668. doi: 10.1177/0890117120985818. Epub 2021 Jan 8. PMID: 33415988; PMCID: PMC8362818.
19. Brown C, Nkemjika S, Yankey B, Okosun I. Alternative Tobacco Product Use and Smoking Quit Attempts Among Teenagers in the United States: A Cross-Sectional Study. *Cureus*. 2021 Jul 29;13(7):e16740. doi: 10.7759/cureus.16740. PMID: 34471583; PMCID: PMC8403058.
20. Rosen LJ, Rier DA, Schwartz R, Talitman M, Zwanziger L. Knowledge and Risk Perceptions of Israelis Towards Combustible Cigarettes: The Need for Immediate Remedial Action. *Isr J Health Policy Res*. 2019 Jan 14;8(1):10. doi: 10.1186/s13584-018-0276-2. PMID: 30642402; PMCID: PMC6330745.
21. Aziizah KN, Setiawan I, Lelyana S. Hubungan Tingkat Pengetahuan Tentang Dampak Rokok Terhadap Kesehatan Rongga Mulut dengan Tingkat Motivasi Berhenti Merokok pada Mahasiswa Universitas Kristen Maranatha. *SONDE (Sound Dent)*. 2019;3(1):16–21. doi: <https://doi.org/10.28932/sod.v3i1.1774>
22. Chen X, Gu X, Li T, Liu Q, Xu L, Peng B, Wu N. Factors Influencing Smoking Behaviour of Online Ride-Hailing Drivers in China: A Cross-Sectional Analysis. *BMC Public Health*. 2021 Jul 6;21(1):1326. doi: 10.1186/s12889-021-11366-8. PMID: 34229627; PMCID: PMC8259384.
23. Wang TW, Gentzke AS, Creamer MLR, Cullen KA, Holder-Hayes E, Sawdey MD, et al. Tobacco Product Use and Associated Factors Among Middle and High School Students-United States, 2019. *MMWR Surveill Summ*. 2019;68(12). doi: <https://doi.org/10.15585/mmwr.ss6812a1>
24. Warner LM, Stadler G, Lüscher J, Knoll N, Ochsner S, Hornung R, Scholz U. Day-to-day Mastery and Self-Efficacy Changes During a Smoking Quit Attempt: Two Studies. *Br J Health Psychol*. 2018 May;23(2):371-386. doi: 10.1111/bjhp.12293. Epub 2018 Jan 15. PMID: 29333730.
25. Pinsker EA, Hennrikus DJ, Erickson DJ, Call KT, Forster JL, Okuyemi KS. Trends in Self-Efficacy to Quit and Smoking Urges Among Homeless Smokers Participating in a Smoking Cessation RCT. *Addict Behav*. 2018 Mar;78:43-50. doi: 10.1016/j.addbeh.2017.10.025. Epub 2017 Nov 2. PMID: 29125976; PMCID: PMC5783755.
26. Kashyap VK, Dhasmana A, Massey A, Kotnala S, Zafar N, Jaggi M, Yallapu MM, Chauhan SC. Smoking and COVID-19: Adding Fuel to the Flame. *Int J Mol Sci*. 2020 Sep 9;21(18):6581. doi: 10.3390/ijms21186581. PMID: 32916821; PMCID: PMC7555793.
27. Ng'ombe JN, Nedson NR, Tembo NFP. "Look at Me, I Plan to Quit Smoking": Bayesian Hierarchical Analysis of Adolescent Smokers' Intention to Quit Smoking. *Healthcare (Basel)*. 2020 Mar 27;8(2):76. doi: 10.3390/healthcare8020076. PMID: 32230923; PMCID: PMC7349091.
28. Wong C, Lucas B, Sungono V, Kurniawan A, Widysanto A. Correlation Between The Knowledge On Health Effects Of Smoking And Motivation On Smoking Cessation In Ex-Smokers Of Lung Department Patients, Siloam General Hospital, Lippo Village. *Medicinus*. 2021;8(2):38. doi: <https://doi.org/10.19166/med.v8i2.3435>
29. Trofor AC, Papadakis S, Lotrean LM, Radu-Loghin C, Eremia M, Mihaltan F, et al. Knowledge of the health risks of smoking and impact of cigarette warning labels among tobacco users in six European countries: Findings from the EUREST-PLUS ITC Europe Surveys. *Tob Induc Dis*. 2018;16(July):1–13. doi: <https://doi.org/10.18332/tid/99542>

-
30. Jackson SE, Proudfoot H, Brown J, East K, Hitchman SC, Shahab L. Perceived Non-Smoking Norms and Motivation to Stop Smoking, Quit Attempts, and Cessation: A Cross-Sectional Study in England. *Sci Rep.* 2020 Jun 26;10(1):10487. doi: 10.1038/s41598-020-67003-8. PMID: 32591555; PMCID: PMC7320183.