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# Social Capital and Non-Smoking Behavior Among University Students: Implementation of Social Cognitive Theory

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## ABSTRACT

**Background:** Smoking is a habit that has a negative impact on health and the environment, especially among college students. Smokers in Malang Regency are dominated by the age group of 20-24 years old as much as 38.01%. This study aims to analyze the influence of social capital on non-smoking behavior in students by applying Social Cognitive Theory (SCT).

**Subjects and Method:** This cross-sectional study was conducted in Malang, East Java, Indonesia, from December 2024 to January 2025. A sample of 200 male students was selected using random sampling. The dependent variable was non-smoking behavior. Independent variables were social capital, observational learning, self-efficacy, attitude, and outcome expectations. Data were analyzed using STATA 13.

**Results:** Students' non-smoking behavior was directly influenced by social capital (b=0.07; 95% CI= 0.01 to 0.12; p= 0.013), self-efficacy (b=0.52; 95% CI= 0.44 to 0.61; p <0.001), attitude (b=0.41; 95% CI= 0.31 to 0.50; p <0.001), and age (b=-0.07; 95% CI=-0.13 to -0.02; p= 0.008). Meanwhile, the indirect influence was observational learning (b= 0.12; 95% CI= -0.00 to 0.24; p= 0.056), and expected outcome (b=0.31; 95% CI= 0.19 to 0.43; p <0.001).

**Conclusion:** The non-smoking behavior of students is directly influenced by social capital, self-efficacy, attitude, and age. While the indirect influence is observational learning, and the expectation of results.

**Keywords:** social capital, social cognitive theory, non-smoking behavior.

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## BACKGROUND

Smoking is a behavior that has a negative impact on health and the environment. Quitting smoking can be difficult due to nicotine addiction. Health problems caused by smoking habits usually develop and appear over a long period of time, making it difficult to prevent or stop smoking (Ahluwalia et al. 2021). Smoking behavior has become part of the lifestyle for some teenagers to college students. Smoking is often done to create an impression of maturity or

as a form of adaptation to the trend of socializing with peers (Rohman et al. 2024). Smoking is an unsolved problem to date (Samet, 2001).

In the data of the world smoker survey conducted by the WHO called Global Adults Tobacco Survey (GATS) in 2021 the number of smokers in the world aged 15 years and over is estimated to reach 1.25 billion people (World Health Organization, 2021). Data from the 2023 Indonesian Health Survey (SKI) shows that the number of active smokers in Indonesia is estimated to reach 34.5% overall (70.2 million adults (Indonesian Health Survey (SKI), 2023). Especially the phenomenon of the number of smokers in Malang, East Java, especially among teenagers. The number of young smokers in Malang continues to increase according to a report by the Malang Health Office throughout 2023 the number of adolescents who smoke in Malang is 16,893 people, placing Malang as the district with the third highest number of smokers aged 15-24 years in East Java with a percentage of 25.07% (BPS Malang, 2024).

The term social capital has been used to describe a number of phenomena related to social relations at the individual and societal levels (Spears, 2021; Hawe and Shiell, 2000). Social capital has a positive relationship with health status. Social capital as one of the important factors in social interaction, has played a significant role in shaping student behavior in disease prevention (Cheers) et al., 2023).

Concepts and models to understand the factors that can drive individuals to produce a behavior, namely Social Cognitive Theory (SCT) or known as Observational Learning This theory provides perspective on how the main constructs of SCT about attitudes, self-efficacy, and outcome expectations can influence an individual's decision to perform certain behaviors (Marlina et al., 2024).

Based on this background, the researcher is interested in conducting a study entitled "The Influence of Social Capital on Non-Smoking Behavior in Students: Application of Social Cognitive Theory" to analyze the influence of social capital, observational learning, self-efficacy, attitudes and outcome expectations on non-smoking behavior in students.

## SUBJECTS AND METHOD

### 1. Study Design

This was an analytic observational study with a cross sectional design. The study was carried out in Malang, East Java, Indonesia, in December 2024-January 2025.

### 2. Population and sample

The population in this study is male students in Malang. This study sample used 200 male students aged 17-25 years who were selected using random sampling.

### 3. Study variables

The dependent variable in the study was non-smoking behavior. The independent variables are social capital and social cognitive theory constructs: observational learning, self-efficacy, attitudes and outcome expectations.

### 4. Operational definition of variables

**Smoking behavior** is an activity that a person does by burning and smoking cigarettes, these activities produce smoke that can also be inhaled by the people around him.

**Social Capital** is a number of phenomena related to social relations at the individual and societal levels.

**Observational learning** is the process of learning by observing others and imitating their behavior or speech.

**Self-Efficacy** is a belief in one's own ability to do something, referring to an individual's perception or competence to successfully perform behavior.

**Attitude is** a relatively stable person's tendency to respond to an object, individual, group, situation, or event in a certain way, either positively or negatively.

**Outcome expectations** are the positive and negative consequences that individuals believe can occur by performing certain behaviors and can predict health behaviors as well.

**5. Study Instruments**

The study instrument used for data collection was a questionnaire. The questionnaire was designed by the researcher based on existing theories to measure variables, namely smoking behavior, social capital, observational learning, self-efficacy, attitudes and expectations of results. The questionnaire has been tested for validity and reliability.

**6. Data Analysis**

The data were analyzed using univariate, bivariate, and path analysis with STATA 13. The analytical process included model specification to define variable correlations, model identification through assessment of measurable, exogenous, and endogenous variables along with degree of freedom (df) calculation, and evaluation of model fit using Chi-square ($p \geq 0.05$), GFI, NFI, and CFI ($\geq 0.90$), and RMSEA ($< 0.05$). Parameter estimation was conducted to determine causal relationships between variables using standardized and non-standardized regression coefficients. The final stage involved model re-specification to refine the path analysis.

**7. Ethical review**

Study ethics, including informational consent, anonymity, and confidentiality, are carefully handled throughout the study process. The letter of approval for the clarification of study ethics was obtained from the Study Ethics Committee at Dr. Moewardi Hospital, Surakarta, Indonesia. No. 2.660/ XI/ HREC/ 2024.

## RESULTS

**1. Sample Characteristic**

The analysis in table 1 presents the mean values, standard deviations, minimum and maximum values of each study variable. In continuous data of 200 male student study subjects, the average age is 19 years old. In the monthly allowance variable, the average monthly allowance for male students is at 1.29 million rupiah.

**Table 1.Results of univariate analysis of sample characteristics**

| Variable | n | Mean | SD | Minimum | Maximum |
|---|---|---|---|---|---|
| Age (years) | 200 | 19.61 | 0.96 | 19.41 | 19.81 |
| Monthly Allowance (xRp1 million) | 200 | 1.29 | 0.67 | 1.15 | 1.42 |

The analysis in table 2 presents the median, standard deviation, minimum value, and maximum of each study variable. The data showed that the median value for the non-smoking behavior variable was 8.26, social capital was 26.68, observational learning was 1.22, attitude was 7.11, and the expected outcome was 7.51.

**Table 2. Results of univariate analysis of the characteristics of the variables of the study of the influence of social capital on non-smoking behavior in students: application of social cognitive theory**

| Variables | n | Mean | SD | Min | Max |
|---|---|---|---|---|---|
| Non-Smoking Behavior | 200 | 8.26 | 4.32 | 0 | 12 |

| Variables | n | Mean | SD | Min | Max |
|---|---|---|---|---|---|
| Social Capital | 200 | 26.68 | 4.57 | 6 | 36 |
| Observational Learning | 200 | 1.22 | 1.36 | 0 | 6 |
| Attitude | 200 | 7.11 | 2.56 | 0 | 10 |
| Expected Results | 200 | 7.51 | 1.10 | 0 | 8 |

**2. Bivariate Analysis**

Table 3 shows the influence of social capital, observational learning, self-efficacy, attitude and outcome expectations on smoking cessation behavior in Malang Regency.

Social capital has an effect on non-smoking behavior in college students, and the relationship is statistically significant. For every 1 unit increase in social capital, non-smoking behavior increases by 0.14 units (b= 0.14; 95% CI=0.01 to 0.27; p= 0.034). Social capital has a positive influence on non-smoking behavior.

Observational learning has an effect on non-smoking behavior in students, and the relationship is statistically significant. For every 1 unit increase in observational learning, non-smoking behavior increased by 0.48 units (b= 0.48; 95% CI= 0.05 to 0.92; p= 0.029). Observational learning has a positive influence on non-smoking behavior in students.

Self-efficacy affects non-smoking behavior in students, every 1 unit increase in self-efficacy, non-smoking behavior increases by 1.58 units, and the relationship is statistically significant (b= 1.58; 95% CI= 1.45 to 1.70; p<0.001). Self-efficacy has a positive influence on non-smoking behavior.

Attitude affect non-smoking behavior in students, for every 1 unit increase in attitude measurement, non-smoking behavior increases by 1.43 units, and the relationship is statistically significant (b= 1.43; 95% CI=1.31 to 1.55; p<0.001). Attitudes have a positive influence on non-smoking behavior in students.

The outcome expectation variable has an effect on non-smoking behavior in students, every 1 unit increase in the measurement of outcome expectations increases non-smoking behavior by 1.05 units, and the relationship is statistically significant. (b= 1.05; 95% CI= 0.52 to 1.58 p<0.001). Expected results have a positive influence on non-smoking behavior in students.

**Table 3. Bivariate analysis of the influence of social capital on non-smoking behavior in college students: Social Cognitive Theory Application**

| Variables | Coef. (b) | 95% CI | | p |
|---|---|---|---|---|
| | | Lower Limit | Upper Limit | |
| Social Capital | 0.14 | 0.01 | 0.27 | 0.034 |
| Observational Learning | 0.48 | 0.05 | 0.92 | 0.029 |
| Self-Efficacy | 1.58 | 1.45 | 1.70 | <0.001 |
| Attitude | 1.43 | 1.31 | 1.55 | <0.001 |
| Outcome Expectation | 1.05 | 0.52 | 1.58 | <0.001 |

**3. Multivariate analysis**

Figure 1 shows that non-smoking behavior in students is directly influenced by social capital, attitude, self-efficacy, and age. Meanwhile, observational learning and outcome expectations are indirectly affected by non-smoking behavior.

Nonsmoking behaviors are indirectly influenced by observational learning and

expected outcomes. Male students who had a lot of observational learning experience had a more positive attitude than a little observational learning experience. Male students who have a positive outcome expectation have a more positive attitude than those who have a negative outcome expectation.

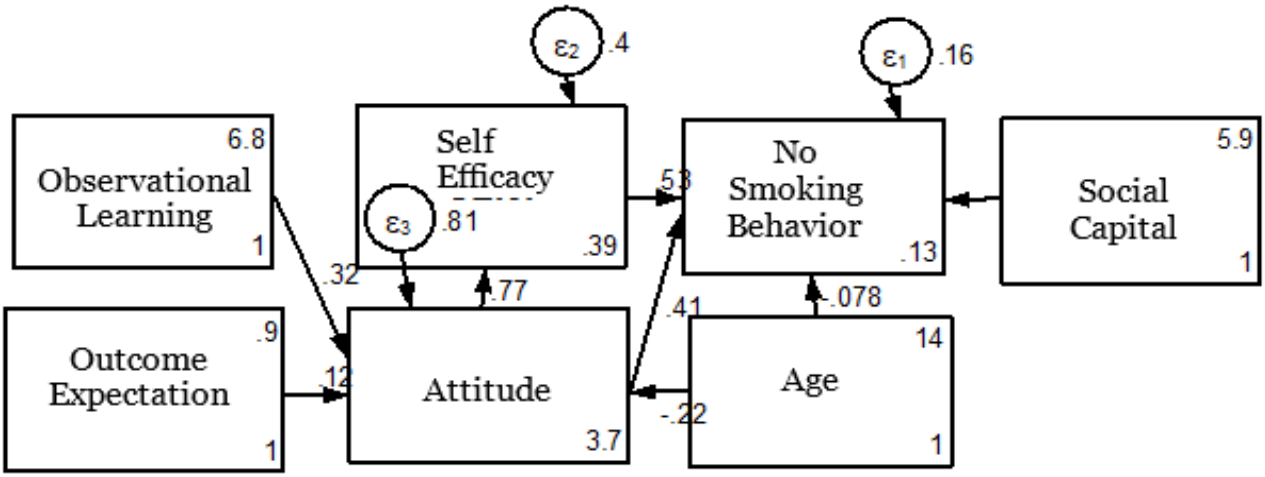


**Figure 1. Diagram of the analysis of the path of the influence of social capital on non-smoking behavior in male students: Application of Social Cognitive Theory**

Table 4 shows that there is a positive relationship between social capital and non-smoking behavior in male students, for every 1 unit increase in social capital measurement, non-smoking behavior increases by 0.07 units, and the relationship is statistically significant. Male students in environments with strong social capital are more likely to not smoke than those with weak social capital (b=0.07; CI95%=0.01 to 0.12; p= 0.013).

Self-efficacy and non-smoking behavior in male students showed a positive attitude, every 1 unit increase in self-efficacy measurement, non-smoking behavior increased by 0.52 units and the relationship was statistically significant. Male students with high self-efficacy were more likely to not smoke than low self-efficacy (b=0.52; CI95%=0.44 to 0.61; p <0.001).

Non-smoking attitudes and behaviors in male college students showed a positive relationship, and the relationship was statistically significant. The results of the double linear regression showed that for every 1 unit increase in attitude, the non-smoking behavior increased by 0.41 units. Male students who have a positive attitude are more likely to not smoke than students who have a negative attitude (b=0.41; CI95%=0.31 to 0.50; p <0.001).

Age and nonsmoking behavior in male college students showed a negative relationship, every 1-year increase in age was associated with a 0.07 unit decrease in non-smoking behavior and the association was statistically significant. Older male college students were less likely to not smoke than younger students (b=-0.07; CI95%=-0.13 to -0.02; p= 0.008).

Self-efficacy and attitude in male students showed a positive relationship, every 1 unit increase in self-efficacy measurement was followed by an increase in positive attitudes by 0.77 units, and the

relationship was statistically significant. Male students who had a positive attitude had stronger self-efficacy than those who had a negative attitude (b=0.77; CI95%=0.71 to 0.82; p <0.001).

Age and attitudes in male students showed a negative relationship, and the relationship was statistically significant. The results of the double linear regression show that every 1 unit increase in the attitude variable, then the age tends to decrease by 0.22 units. Older male college students had more negative attitudes about not smoking than younger students (b=-0.22; CI95%=-0.34 to -0.09; p<0.001).

Observational learning and attitudes in male students showed a positive relationship, for every 1 unit increase in the observational learning measurement, the attitude not to smoke increased by 0.12 units, and the relationship was statistically close to significant. Male students who had a lot of observational learning experience had a more positive attitude than a little observational learning experience (b=0.12; CI95%=-0.00 to 0.24; p= 0.056).

Male students who had a positive outcome expectation had a more positive attitude than those who had a negative outcome expectation (b=0.31; CI95%=0.19 to 0.43; p<0.001).

The analysis of this path showed a good model fit with the Goodness of Fit result: Chi2 p= 0.096. CFI= 0.99. TLI=0.98. RMSEA= 0.06. SRMR=0.02.

**Table 4. Results of path analysis on the influence of social capital on non-smoking behavior in male students: Social Cognitive Theory application**

| Dependent Variable | Independent Variables | b | 95% CI | | p |
|---|---|---|---|---|---|
| | | | Lower Limit | Upper Limit | |
| **Direct influence** | | | | | |
| Non-smoking behavior | ← Attitude | 0.41 | 0.31 | 0.50 | <0.001 |
| | ← Self-efficacy | 0.52 | 0.44 | 0.61 | <0.001 |
| | ← Social capital | 0.07 | 0.01 | 0.12 | 0.013 |
| | ← Age (years) | -0.07 | -0.13 | -0.02 | 0.008 |
| **Indirect influence** | | | | | |
| Attitude | ← Age (years) | -0.22 | -0.34 | -0.09 | <0.001 |
| | ← Observational learning | 0.12 | -0.00 | 0.24 | 0.056 |
| | ← Expected results | 0.31 | 0.19 | 0.43 | <0.001 |
| Self-Efficacy | ← Attitude | 0.77 | 0.71 | 0.82 | <0.001 |
| N observations=200 | | | | | |
| Log Likehood : -279.65 | | | | | |
| p= 0.096 | | | | | |
| CFI= 0.99; TLI=0.98 | | | | | |
| RMSEA=0.06; SRMR=0.02 | | | | | |

## DISCUSSION

### 1. The Influence of Social Capital and Non-Smoking Behavior

In this study, it was found that social capital has a direct effect on students' smoking behavior. The study is in line with the findings Bizmark et al. (2020) Adolescents with higher social capital in school are significantly associated with a decrease in tobacco use among adolescents, This study shows that social capital in schools has the potential to play a role in reducing the desire to smoke among adolescents.

Other findings also explain that there are several components of social capital related to smoking behavior in adolescents.

Information, adolescents' knowledge of healthy lifestyles, including anti-smoking communication obtained from the surrounding environment Adolescents' knowledge of healthy lifestyles and anti-smoking communication from the surrounding environment is important in shaping their awareness. Peers who smoke were the biggest risk factors, with teens who had smoking friends 9 times more likely to smoke, while those who considered smoking dangerous 4 times less likely to smoke (Lőrincz et al. 2019).

**2. The effect of self-efficacy and non-smoking behavior**

In this study, it was found that there was an effect of self-efficacy on non-smoking behavior in students. Elshatarat et al. (2016) stating that self-efficacy plays an important role in smoking cessation, high self-efficacy can increase the chances of success of individuals in not smoking and/or quitting smoking while preventing relapse, the application of self-efficacy as a cognitive behavioral intervention has shown varying degrees of success in dealing with tobacco use and nicotine dependence.

High self-efficacy of anti-smoking plays a very important role in an individual's rejection of external factors such as parental and peer influence, pro-smoking media advertising, and social environment (Nyman et al. 2019). High self-efficacy has an important role in improving individual achievement and changing unwanted behaviors, this also includes the finding that tobacco cessation efforts fail due to tobacco addiction and inadequate motivational factors such as self-efficacy to quit and not engage in such behaviors (Fiore, 2018).

**3. The Influence of Non-Smoking Attitudes and Behaviors**

There is an influence of attitudes on non-smoking behavior of students, male students who have a positive attitude have a greater chance of not smoking than students who have a negative attitude. Study by Shirley & Shirley (2020) There is a direct influence between anti-smoking attitudes and non-smoking behaviors which shows that the more positive the attitude of adolescents to behave non-smoking, the higher the adolescent non-smoking behavior.

Positive attitudes and beliefs about tobacco use will also influence people to quit smoking (Bafunno et al., 2021). Individuals with higher positive attitudes towards non-smoking behaviors are less likely to become active smokers and Non-smoking individuals are more likely to support tobacco control policies, agree more with smoking bans, and avoid exposure to the negative impacts of smoking (Haddad et al., 2020).

**4. Influence of Age and Non-Smoking Behavior**

Age affects non-smoking behavior. Older male college students are less likely to not smoke than younger students. The perceived expectation for life in adolescence may play an important role in establishing an individual's healthy decisions. Adolescents who hope to live to age 35 are less likely to smoke in young adulthood, adolescents may underestimate the negative consequences associated with some problematic behaviors, negative expectations contributing to high-risk behaviors during this period of development (Brumley et al., 2017).

Surveys of adolescents aged 11-16 showed that adolescent smokers tended to have lower confidence in personal control over health and were more likely to believe that health was influenced by luck. They are also less convinced of the benefits of health-preventive behaviors such as eating healthy foods and exercising (Duplaga and Grysztar, 2022). Reinforcing the belief that individuals are in control of their own health and raising awareness about the dangers of

smoking can help prevent smoking behavior in adolescents.

**5. Influence of attitude and self-efficacy**

In this study, it was found that there was an influence of attitude and self-efficacy. Male students who have a positive attitude have stronger self-efficacy than those who have a negative attitude. There is a very strong relationship between attitude and self-efficacy and the intention to quit smoking. Attitudes have an influence on smoking cessation intentions, the results show that the more positive the attitude of adolescent boys, the higher their intention to quit smoking. Teens who intend to quit smoking tend to have a belief that the attitude is something good and beneficial for them (Ningsih et al., 2023).

Perceived self-efficacy is a sense of control over new situations or challenges and competent behavior. An individual with high self-efficacy tends to set more ambitious goals, try harder to achieve them, and feel more capable. Self-efficacy affects a person's feelings, thoughts, and actions, and is an integral part of an individual's commitment to changing health behaviors (Warner and Schwarzer, 2020).

**6. Influence of Age and Attitude**

Older male college students have more negative attitudes about not smoking than younger students. The age at which smoking starts is a significant factor for smoking continuity, men who start smoking before the age of 16 have a ratio of chances of not quitting smoking compared to those who start at a later age. These findings emphasize the need for prevention programs aimed at younger men. The age at which a person starts smoking plays an important role in determining their future smoking patterns (Bonnie et al, 2015).

Age also influences adolescents' attitude towards smoking policies, according to Macy et al, (2011) Teens who smoke tend to support discussions about the dangers of cigarettes in school, but are less supportive of raising cigarette taxes as they grow up especially if they continue to smoke. Adolescents who view smoking positively tend to disagree with smoking bans as adults, these findings suggest the importance of forming negative attitudes towards smoking early on to support future tobacco control policies.

**7. The Influence of Observational Learning and Attitudes**

There was a positive relationship between observational learning and attitudes in male students, male students who had a lot of observational learning experiences had more positive attitudes than those who had little observational learning experiences. Adolescents' thoughts and behaviors toward smoking can influence their acceptance of cigarettes. There are two broad sources of social influence: direct study of behavior, and acceptance of attitudes (Badham et al. 2019).

Observational learning emphasizes that behavior is not only learned through direct experience, but also through observation of the behavior of others. Individual factors, such as peer attitudes and norms most strongly influence adolescent smoking behavior, in the process Observational Learning Adolescents observe and imitate the behavior of those around them, especially friends and family, adolescents learn from real examples they see in the environment, they are more likely to consider the behavior normal and accept it (Adachi et al, 2012).

**8. The influence of outcome expectation and attitude**

In this study, the expectation of results and attitudes in male students had a positive

relationship, male students who had positive outcome expectations had more positive attitudes than those who had negative outcome expectations. Positive expectations of healthy behaviors, including not smoking, can increase adolescents' motivation to avoid smoking behaviors, the expectation of outcomes plays an important role in shaping attitudes and motivations that ultimately influence non-smoking behaviors (Arisandy et al., 2024).

Studies conducted by Aryal and Bhatta (2015) Individuals who are aware of the risk of illness from smoking are likely to take steps to reduce the danger of smoking-related diseases and at the same time, support smoking cessation efforts. In contrast, those who do not consider smoking to be harmful are more likely to become smokers compared to individuals who are aware of the risks to their health.

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The study was self-funded.

**AUTHOR CONTRIBUTION**

Lizya Anggita Abriyanti is the principal researcher who develops conceptual frameworks, collects data, analyzes data, and writes manuscripts. Bhisma Murti helps develop a conceptual framework, guide data analysis, and interpret the results of data analysis. Argyo Demartoto provided contextual guidance in the discussion. All authors have made significant contributions in the analysis of the data as well as in the preparation of the final manuscript.

**CONFLICT OF INTEREST**

There was no conflict of interest in this study.

**REFERENCES**

Adachi AM, Carlos HA, Berke EM, Tanski SE, Sargent JD (2012). A comparison of individual versus community influences on youth smoking behaviours: a cross-sectional observational study. BMJ Open. 2:(5):e000767. doi:10.1136/BMJOPEN-2011-000767

Ahluwalia IB, Angela L, Anna K, Mbulo L, Arrazola R, Twentyman E, King A (2021). Tobacco smoking cessation and quitline use among adults aged ≥15 years in 31 countries: findings from the global adult tobacco survey. Am J Prev Med 60(3):S128–35. doi: 10.1016/J.AMEPRE.2020.04.029.

Albert L, Eniko, Paulik E, Szabo B, Foley K, Gasparik A (2019). Adolescent smoking and the social capital of local communities in three counties in romania. Gac Sanit 33(6):547–53. doi: 10.1016/j.gaceta.2018.05.009.

Aryal R , Bhattda (2015). Perceived benefits and health risks of cigarette smoking among young adults: insights from a cross-sectional study. Tob Induc Dis 13(1):22. doi: 10.1186/S12971-015-00-44-9.

Aziz RA, Kurniawan NE, Patah R (2024). Factors that influence smoking behavior in adolescents (Faktor-faktor yang mempengaruhi perilaku merokok pada remaja). J Penelit Perawat Prof 6(6), 2851–2858. https://doi.org/10.37287/JPPP.V6I6.4613

Badham J, Mcaneney M, Dunne L, Kee F, Thurston A, Hunter R (2019). The importance of social environment in preventing smoking: an analysis of the dead cool intervention. BMC Public Health 19(1):1–7. doi: 10.1186/S-12889-019-7485-7/TABLES/4.

Bafunno D, Catino B, Lamorgese V, Longo V, Montrone M, Pesola M (2021). smoking prevalence, knowledge and perceptions on tobacco control among healthcare professionals: a survey in an italian cancer center. J Community

Health. 46(3):597–602. doi: 10.1007/S10900-020-00907-8.

Bonnie RJ, Stratton K, Kwan LY (2015). Public health implications of raising the minimum age of legal access to tobacco products. public health implications of raising the minimum age of legal access to tobacco products, 1–378. https://doi.org/10.17226/18997.

Brumley LD, Sara R, Jaffee K, Brumley B (2017). Pathways from childhood adversity to problem behaviors in young adulthood: the mediating role of adolescents' future expectations. J Youth Adolesc 46(1):1–14. doi: 10.1007/S10964-016-0597-9/TABLES/4.

Central Statistics Bureau of Malang (2024). The percentage of the population aged 15 years and older who smoke in the past month by district/city and age group in East Java province in 2022-2023 (in Indonesia). [internet].

Duplaga M, Grysztar M (2022) The Use of E-Cigarettes among High School Students in Poland Is Associated with Health Locus of Control but Not with Health Literacy: A Cross-Sectional Study, Toxics, 10:(1), p. 41. Available at: https://doi.org/10.3390/TOXICS10010041/S1.

Elshatarat AE, Ibrahim MY, Khraim F, Saleh Z, Afaneh T (2016). Self-Efficacy in treating tobacco use: a review article. Proc Singapore Healthc 25(4):243–48. doi: 10.1177/2010105816667137/ASSET/IMAGES/LARGE/10.1177_2010105816667137.

Fiore M, Jaén C, Baker T (2008). Treating tobacco use and dependence: 2008 Update. Clinical Practice Guideline. US Dep Heal Hum Serv Public Heal Serv.

Haddad C, Sacren H, Lahoud N, Akiki N, Danielle S, Rouba KZ, Rita F, et al. (2020). Comparing cigarette smoking knowledge and attitudes among smokers and non-smokers. Environ Sci Pollut Res. 27(16):19352–62. doi: 10.1007/S11356-020-08162-Z/TABLES/5.

Macy JT, Chassin L, Presson CC (2011) Smoking behaviors and attitudes during adolescence prospectively predict support for tobacco control policies in adulthood. Nicotine Tob Res, 14:(7): 871. https://doi.org/10.1093/NTR/NTR301.

Ningsih S, Aderita N. Yuliyanti T (2023). The relationship between attitude and self-efficacy and smoking cessation intention in young men (in Indonesia). J Penelit Keperawatan 9(1):114–21. doi: 10.32660/JPK.V9I1.647.

Nyman J, Parisod H, Axelin A, Salanterä S (2019). Finnish adolescents' self-efficacy in peer interactions: a critical incident study. Health Promot Int. 34(5):961–69. doi: 10.1093/HEAPRO/DAY048.

Riyadi S , Handayani S (2020). Attitudes and intentions have a direct or indirect effect on the non-smoking behavior of adolescents in Yogyakarta (in Indonesia). J Holist Nurs Sci. 7(1): 54–61. doi: 10.31603/nursing.v7i1.3045.

Rohman A , Mustajab A, Mulyani S (2024). The relationship between the level of knowledge of the dangers of smoking and smoking behavior in unsiq student Islamic boarding schools (in Indonesia). J Kesehat Saelmakers Perdana. 7(2):286–92. doi: 10.32524/JKSP.V7I2.1212.

Sakai BR, Tracy K. Richmond, Kawachi I, Marc N. Elliott SL, Susan E, et al. (2020). School social capital and tobacco experimentation among adolescents: evidence from a cross-classified multilevel longit. J Adolesc

Health. 66:(4):431–38. doi: 10.1016/-j.jadohealth.2019.10.022.

Samet JM (2001). The risks of active and passive smoking. Smok Risk, Perception. Policy. 3–28. doi: 10.4135/9-781452232652

Indonesian Health Survey (2023). Indonesian Health Survey 2023 in Numbers (in Indonesia). Indonesian Ministry of Health. [internet]. Retrieved January 10, 2025.

Warner LM, Schwarzer R (2020) Self-Efficacy and Health. Wiley Encycl Health Psychol, pp. 605–613.

World Health Organization (2021). Global Adult Tobacco Survey Fact Sheet Indonesia (2021). Fact Sheet Indonesia 1–2.