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*Article*

# Determinants of Smoking Motivation Among Adolescents: A Cross-Sectional Analysis

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**Abstract**

**Background:** Adolescent smoking remains a significant public health concern, particularly in low- and middle-income countries where prevention strategies often fall short. Understanding the psychological and environmental factors that drive smoking motivation is essential for designing effective interventions.
**Objective:** This study aimed to identify the internal and external factors associated with smoking motivation among adolescents in Indonesia.
**Methods:** A cross-sectional survey was conducted among 355 high school students aged 15–18 years, selected through stratified random sampling. Data were collected using a validated 24-item Smoking Motivation Questionnaire assessing both internal (e.g., curiosity, stress relief, emotional regulation) and external (e.g., peer influence, family influence, cigarette availability) factors. Descriptive statistics, independent samples t-tests, and binary logistic regression were used to analyze the data.
**Results:** Peer influence (M = 3.89, SD = 0.62), curiosity (M = 3.84, SD = 0.67), cigarette availability (M = 3.79, SD = 0.65), and stress relief (M = 3.51, SD = 0.72) were the strongest predictors of high smoking motivation. Logistic regression analysis confirmed that peer influence (OR = 2.17, p = .002), curiosity (OR = 1.89, p = .004), and cigarette availability (OR = 1.81, p = .003) significantly increased the likelihood of elevated smoking motivation. Family influence and emotional regulation were not significant in the final model.
**Conclusion:** The study highlights the critical role of peer dynamics, psychological curiosity, and environmental access in shaping adolescents' motivation to smoke. Targeted interventions should emphasize peer-based prevention, stress management education, and stricter regulation of tobacco access to mitigate smoking initiation among youth.

**Keywords:** adolescent smoking, smoking motivation, peer influence, curiosity, tobacco access

## INTRODUCTION

Adolescent cigarette use remains a pressing public health issue with long-term consequences for physical, psychological, and social well-being. Smoking in adolescence can impair lung development, cause nicotine addiction, and disrupt cognitive and academic functioning (Kementerian Kesehatan RI, 2019). Teenagers who initiate smoking at an early age are at greater risk of developing chronic diseases in adulthood, such as chronic obstructive pulmonary disease (COPD). Despite widespread knowledge about the health risks of smoking, many adolescents continue to engage in this harmful behavior.

National data reveal an alarming upward trend in youth smoking in Indonesia. According to the 2018 National Basic Health Research (Riskesdas), the prevalence of smokers aged 10 years and above increased from 28.8% in 2013 to 29.0% in 2018. Even more concerning is the rise in smoking prevalence among adolescents aged 15–19 years, and the emergence of smoking behavior in children as young as 5–9 years old (Kementerian Kesehatan RI, 2019). This highlights a significant gap between awareness of health risks and actual behavior, often driven by psychological, social, and environmental factors.

Understanding what motivates adolescents to smoke is critical for the design of effective prevention strategies. Smoking motivation in teenagers is shaped by a range of internal and external influences. Internally, adolescents may smoke due to curiosity, a desire for pleasure, or as a coping mechanism to manage stress, boredom, or frustration (Wiliyanarti et al., 2020). Low risk perception and favorable attitudes toward smoking, such as believing it enhances mood or social appeal—also contribute to their behavior. These internal factors reflect personal beliefs, emotions, and decision-making processes that drive smoking initiation and continuation.

Externally, peer influence is one of the most powerful motivators for teenage smoking. Adolescents often smoke in the presence of friends as a means of social acceptance and belonging. Additionally, parental smoking behaviors, exposure to cigarette advertising, and easy access to tobacco products can normalize smoking and increase its appeal (Putri et al., 2020; Fransiska & Firdaus, 2019). The absence of consistent school rules or community norms against smoking may further reinforce permissive attitudes. Environmental and social contexts, therefore, play a crucial role in either facilitating or deterring smoking behavior.

Given the multidimensional nature of smoking motivation, it is essential to investigate both the internal dispositions and external conditions that contribute to adolescent tobacco use. This study aims to examine the factors influencing smoking motivation among teenagers, with the goal of informing targeted interventions to reduce smoking initiation and promote healthier behavior among Indonesian youth.

## METHODS

### Study Design

This study employed a quantitative cross-sectional design to identify the internal and external factors influencing smoking motivation among adolescents. The design was chosen for its efficiency in examining associations between variables at a single point in time, which is suitable for behavioral health research (Setia, 2016).

### Sample

The target population consisted of high school students aged 15–18 years in Bandung, Indonesia. A stratified random sampling technique was employed to ensure proportional representation across different grade levels and schools. Adolescents were eligible to participate if they were aged 15–18 years, currently enrolled in high school, able to understand and complete the questionnaire, and had provided informed assent along with parental consent. Students were excluded if they had a diagnosed cognitive or psychological disorder that could impair self-reporting, or if they declined to participate or withdrew during data collection.

The minimum required sample size was calculated using the formula for estimating proportions in cross-sectional studies with a 95% confidence interval, a 5% margin of error, and an anticipated smoking prevalence of 30% among adolescents based on previous national data (Kementerian Kesehatan RI, 2019). The calculated sample size was 323. To account for potential non-responses or incomplete data, 10% was added, resulting in a final target sample size of 355 respondents. This sample size is adequate for multivariate analyses and factor exploration (Kyriazos, 2018).

### Instrument

The primary data collection tool used in this study was the Smoking Motivation Questionnaire for Adolescents (SMQA), which was adapted from previously validated instruments developed by Wills et al. (2017) and later refined by Kim and Seo (2021). This self-report questionnaire was designed to assess a comprehensive range of internal and external factors influencing adolescents' motivation to smoke. The

instrument consists of 24 items rated on a 5-point Likert scale ranging from 1 ("Strongly disagree") to 5 ("Strongly agree"), with higher total scores indicating stronger smoking motivation.

The internal factors assessed in the SMQA include curiosity, emotional regulation, stress relief, boredom, low risk perception, and favorable attitudes toward smoking. These components reflect personal cognitive and emotional processes that may contribute to adolescents' inclination to smoke. External factors measured in the instrument include peer pressure, family influence, exposure to cigarette advertisements, social norms, cigarette availability, and lack of institutional regulation (e.g., school policy enforcement). These domains capture the social and environmental influences surrounding the adolescent.

The SMQA produces subscale scores for internal and external motivation, and composite scores are interpreted based on tertile cutoffs to classify individuals into low, moderate, or high smoking motivation categories. The instrument was translated into Bahasa Indonesia and underwent a two-stage validation process, including expert review and cognitive interviews to ensure semantic, cultural, and contextual relevance. Content validity was confirmed with an item-level content validity index (I-CVI) ranging from 0.83 to 1.00 and a scale-level content validity index (S-CVI/Ave) of 0.89, indicating excellent agreement among experts (Polit & Beck, 2021). The original instrument reported high internal consistency with a Cronbach's alpha of 0.88 for internal motivation and 0.84 for external motivation (Kim & Seo, 2021). This validated and culturally adapted tool was deemed appropriate for assessing multidimensional smoking motivation among Indonesian adolescents in the current study.

### Procedure

Data were collected over a 4-week period in April 2025. After obtaining ethical approval and school permission, researchers coordinated with teachers to schedule classroom sessions for questionnaire administration. The purpose of the study was explained, and informed assent and parental consent were obtained prior to participation. The questionnaire was self-administered in a supervised setting to ensure data quality and clarify any participant queries. Completion time ranged from 20–30 minutes.

### Data Analysis

Data were analyzed using IBM SPSS version 26. Descriptive statistics were used to summarize participant characteristics and item responses. Reliability analysis (Cronbach's alpha) was conducted to assess internal consistency. Bivariate analyses using chi-square and t-tests were performed to examine associations between demographic variables and smoking motivation. Multivariate logistic regression was conducted to identify significant predictors of high smoking motivation, with a significance level set at $p < 0.05$.

### Ethical Consideration

This study received ethical clearance from the Institutional Review Board. All participants and their guardians provided written informed consent. Confidentiality and anonymity were ensured throughout the research process. Participation was voluntary, and students were free to withdraw at any point without any academic consequences. The study adhered to the principles outlined in the Declaration of Helsinki (World Medical Association, 2013).

## RESULT

A total of 355 adolescents aged 15 to 18 years participated in the study. The distribution of smoking motivation levels based on internal and external factors is presented in Table 1. The findings indicate that peer influence (M = 3.89, SD = 0.62), curiosity (M = 3.84, SD = 0.67), and cigarette availability (M = 3.79, SD = 0.65) were the most prominent factors contributing to smoking motivation among adolescents, with mean scores categorized as high. These results suggest that the social environment and ease of access to cigarettes strongly shape adolescent smoking behavior. Among internal factors, curiosity emerged as the highest motivator, reflecting adolescents' developmental tendency to experiment with new behaviors.

Other internal factors such as stress relief (M = 3.51), boredom (M = 3.46), and emotional regulation (M = 3.22) showed moderate influence, indicating that smoking may serve as a coping mechanism for psychological or emotional discomfort.

On the external side, aside from peer pressure and cigarette availability, moderate influence was observed from family members who smoke (M = 3.18), exposure to cigarette advertisements (M = 3.34), and permissive social norms (M = 3.01). Notably, institutional enforcement (M = 2.84) had the lowest mean score, indicating that adolescents perceived school and community-level regulations as weak or ineffective deterrents against smoking.

**Table 1.** Mean Scores of Internal and External Factors Influencing Smoking Motivation Among Adolescents (N = 355)

| Factor | Mean (M) | Standard Deviation (SD) |
|---|---|---|
| Curiosity | 3.84 | 0.67 |
| Stress relief | 3.51 | 0.72 |
| Boredom | 3.46 | 0.68 |
| Emotional regulation | 3.22 | 0.75 |
| Risk perception (low) | 3.15 | 0.80 |
| Positive attitude to smoking | 3.04 | 0.83 |
| Peer influence | 3.89 | 0.62 |
| Family influence | 3.18 | 0.70 |
| Exposure to cigarette ads | 3.34 | 0.69 |
| Social norms | 3.01 | 0.78 |
| Cigarette availability | 3.79 | 0.65 |
| Institutional enforcement | 2.84 | 0.82 |

To explore whether internal and external motivational factors differed between adolescent smokers and non-smokers, independent samples t-tests were conducted. The results are summarized in Table 2. Smokers reported significantly higher scores than non-smokers across multiple domains, particularly curiosity, stress relief, emotional regulation, peer influence, and cigarette availability ($p < .05$). These findings support the hypothesis that both internal psychological needs and external environmental factors are more prominent in adolescents who smoke.

**Table 2.** Comparison of Smoking Motivation Factors Between Smokers and Non-Smokers (N = 355)

| Factor | Smokers (n = 102) | Non-Smokers (n = 253) | t | p-value |
|---|---|---|---|---|
| Curiosity | 4.01 (0.58) | 3.76 (0.69) | 3.35 | 0.001 |
| Stress relief | 3.79 (0.61) | 3.40 (0.73) | 4.87 | <0.001 |
| Boredom | 3.59 (0.67) | 3.39 (0.68) | 2.53 | 0.012 |
| Emotional regulation | 3.40 (0.66) | 3.14 (0.77) | 3.01 | 0.003 |
| Peer influence | 4.02 (0.58) | 3.83 (0.63) | 2.76 | 0.006 |
| Cigarette availability | 3.95 (0.57) | 3.71 (0.67) | 3.21 | 0.001 |

A binary logistic regression analysis was conducted to identify the most significant predictors of high smoking motivation (defined as top tertile scores). The independent variables included peer influence, curiosity, stress relief, cigarette availability, emotional regulation, and family influence. Table 3 summarizes the regression results. Peer influence (OR = 2.17, p = .002), curiosity (OR = 1.89, p = .004), cigarette availability (OR = 1.81, p = .003), and stress relief (OR = 1.57, p = .010) were statistically significant predictors of high smoking motivation. Family influence and emotional regulation were not statistically significant in the final model. These results suggest that interventions should prioritize peer norms, curiosity management, and tobacco access restriction to reduce adolescent smoking motivation.

**Table 3.** Logistic Regression Predicting High Smoking Motivation (N = 355)

| Predictor | B | SE | OR | 95% CI for OR | p-value |
|---|---|---|---|---|---|
| Peer influence | 0.77 | 0.25 | 2.17 | 1.34 – 3.52 | 0.002 |
| Curiosity | 0.63 | 0.22 | 1.89 | 1.22 – 2.94 | 0.004 |
| Cigarette availability | 0.59 | 0.20 | 1.81 | 1.22 – 2.67 | 0.003 |
| Stress relief | 0.45 | 0.18 | 1.57 | 1.11 – 2.22 | 0.010 |
| Family influence | 0.21 | 0.19 | 1.23 | 0.85 – 1.78 | 0.262 |
| Emotional regulation | 0.28 | 0.17 | 1.32 | 0.94 – 1.86 | 0.108 |

## DISCUSSION

This study explored internal and external factors associated with smoking motivation among adolescents. The findings revealed that peer influence, curiosity, cigarette availability, and stress relief were the most dominant predictors of high smoking motivation. These results contribute to a growing body of evidence that adolescent smoking is shaped by a combination of psychosocial and environmental determinants.

The strong influence of peer pressure in this study corroborates previous findings that adolescents are highly susceptible to the behaviors and expectations of their social circles. Robalino (2018) emphasized that popular adolescents exert a disproportionately strong influence on peer smoking behaviors, indicating that peer norms play a crucial role in smoking uptake. Similarly, Wiliyanarti et al. (2020) and Fransiska and Firdaus (2019) reported that adolescents often start smoking to conform to peer groups and gain social acceptance.

Curiosity also emerged as a significant internal motivator, which is consistent with the findings of Hardiyanti et al. (2020), who identified curiosity and sensation-seeking as key triggers for early smoking initiation. This aligns with developmental theories that suggest adolescents are prone to exploratory behaviors due to cognitive immaturity and identity formation processes. Furthermore, Putri et al. (2020) noted that a lack of adequate health literacy and exposure to glamorized media portrayals of smoking reinforce curiosity.

The role of stress relief as a motivational factor echoes the conclusions of Bilsky et al. (2019), who found that adolescents with low distress tolerance are more likely to use cigarettes as a coping mechanism. Creswell and Skrzynski (2021) further supported this by demonstrating that emotional regulation deficits correlate with stronger smoking urges, particularly under stress-inducing conditions. The tendency to use smoking as a stress-relief tool may be exacerbated by limited access to healthy coping strategies in school and family settings.

Cigarette availability was also identified as a significant external predictor of smoking motivation. This is in line with research by Sadono (2018) and Sari (2019), who found that adolescents living in environments with poor tobacco control policies and easy access to cigarettes are more likely to engage in smoking. The ineffectiveness of institutional enforcement, as indicated by the low scores in this study, further underscores the need for stricter school-level interventions and policy implementation. TCSC IAKMI (2018) also highlighted the widespread exposure of youth to tobacco advertisements and sponsorships, which further facilitates accessibility and acceptance of smoking.

Interestingly, family influence and emotional regulation did not significantly predict high motivation in the final regression model. This may be due to the adolescents' gradual shift in social identity from family orientation to peer-centric values, as suggested by Sisilia (2019) and Wijayanti et al. (2017). Additionally, adolescents might underreport familial impact due to perceived stigma or privacy concerns.

## Implication

The findings of this study hold valuable implications for public health and clinical nursing practice. School nurses and health educators should focus on designing peer-based smoking prevention programs, incorporating stress management workshops, and promoting critical thinking about media messages related to tobacco. Behavioral counseling and pictorial health warnings demonstrated to reduce smoking appeal among youth (Wiliyanarti et al., 2020)—could be further integrated into national health education curricula. Moreover, restricting access to cigarettes through stronger community-level surveillance and retail policy enforcement may reduce environmental triggers.

## Study Limitations

Several limitations must be acknowledged. The cross-sectional design restricts causal inferences; longitudinal studies are needed to evaluate how motivational factors evolve over time. Data were self-reported, raising the possibility of social desirability bias, particularly in culturally conservative settings. Additionally, the study was conducted in a limited geographic area, which may affect the generalizability of the findings to rural or socioeconomically different populations.

## Conclusion

This study highlights the multifactorial nature of adolescent smoking motivation, with peer influence, curiosity, cigarette availability, and stress relief identified as dominant factors. These findings reinforce the need for comprehensive, multi-level interventions targeting both psychological and social determinants of smoking. Future prevention efforts must engage adolescents within their peer environments while strengthening institutional tobacco control measures. In doing so, stakeholders can more effectively reduce smoking initiation and promote adolescent well-being.

## Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this manuscript.

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## REFERENCES

Baig, M., Bakarman, M. A., Gazzaz, Z. J., Khabaz, M. N., Ahmed, T. J., Qureshi, I. A., Hussain, M. B., Alzahrani, A. H., Al-Shehri, A. A., Basendwah, M. A., Altherwi, F. B., & Al-Shehri, F. M. (2016). Reasons and motivations for cigarette smoking and barriers against quitting among a sample of young people in Jeddah, Saudi Arabia. *Asian Pacific Journal of Cancer Prevention*, *17*(7), 3483–3487.

Bilsky, S. a., Cloutier, R. M., Guillot, C. R., Bynion, T. M., & Lewis, S. F. (2019). Relations Between Parental Distress Intolerance, Adolescent Motives for Cigarette Use, and Adolescent Cigarette Smoking Levels. *Substance Use and Misuse*, *54*(13), 2207–2217. https://doi.org/10.1080/10826084.2019.1638937

Creswell, K. G., & Skrzynski, C. J. (2021). The Influence of Smoking Motivation on the Associations Among Cigarette Craving, Attentional Bias to Smoking Cues, and Smoking Behavior. *Nicotine & Tobacco Research : Official Journal of the Society for Research on Nicotine and Tobacco*, *23*(10), 1727–1734. https://doi.org/10.1093/ntr/ntab028

Fransiska, M., & Firdaus, P. A. (2019). Faktor yang berhubungan dengan Perilaku Merokok pada Remaja Putra SMA X Kecamatan Payakumbuh. *Jurnal Kesehatan*, *10*(1), 11. https://doi.org/10.35730/jk.v10i1.367

Hardiyanti, V., Efendi, F., & Kusumaningrum, T. (2020). Determinan Perilaku Merokok Pada Remaja Pria: Literatur Review. *Indonesian Journal of Community Health Nursing*, *5*(1), 21. https://doi.org/10.20473/ijchn.v5i1.17755

Itanyi, I. U., Onwasigwe, C. N., McIntosh, S., Bruno, T., Ossip, D., Nwobi, E. A., Onoka, C. A., & Ezeanolue, E. E. (2018). Disparities in tobacco use by adolescents in southeast, Nigeria using Global Youth Tobacco Survey (GYTS) approach. *BMC Public Health*, *18*(1), 1–11. https://doi.org/10.1186/s12889-018-5231-1

Kementerian Kesehatan RI. (2019). Laporan Provinsi Jawa Barat, Riskesdas 2018. In *Lembaga Penerbit Badan Penelitian dan Pengembangan Kesehatan*.

Lee, H. S., Addicott, M., Martin, L. E., Harris, K. J., Goggin, K., Kimber, P., Patten, C. A., Mcclernon, F. J., & Fleming, K. (2018). *Original investigation Implicit Attitudes and Smoking Behavior in a Smoking Cessation Induction Trial*. 58–66. https://doi.org/10.1093/ntr/ntw259

Putri, Riska Hediya., Kameliawati, Feri., Sumarsih., Marthalena, Y. (2020). Remaja KerenTanpa Rokok. *[JURNAL KREATIVITAS PENGABDIAN KEPADA MASYARAKAT (PKM), 3*(2), 338–345.

Ra, J. S., & Jung, M. S. (2018). School-related factors affecting smoking intention among Korean middle school students. *Applied Nursing Research*, *39*(October 2017), 34–40. https://doi.org/10.1016/j.apnr.2017.10.007

Ribeiro Sarmento, D., & Yehadji, D. (2016). An analysis of global youth tobacco survey for developing a comprehensive national smoking policy in Timor-Leste. *BMC Public Health*, *16*(1), 1–7. https://doi.org/10.1186/s12889-016-2742-5

Robalino, J. D. (2018). Smoking Peer Effects among Adolescents : Are Popular Teens More Influential ? *PLoS ONE*, 1–12.

Sadono, D. N. (2018). Analisis Proses Pemberdayaan Pada Perokok Di Kampung Bulaksari Rt 7. *Jurnal PROMKES*, *6*(1), 35. https://doi.org/10.20473/jpk.v6.i1.2018.35-45

Sari. (2019). Perilaku Merokok di Kalangan Siswa Sekolah Menengah Atas di Kota Padang. *Jurnal Ilmiah Kesehatan Masyarakat*, *11*(3), 238–244.

Sisilia, A. (2019). Hubungan Faktor Lingkungan Dengan Perilaku Merokok Pada Remaja Di Kecamatan Magepanda Kabupaten Sikka. *Jurnal Keperawatan Dan Kesehatan Masyarakat*, *VI*(1), 70–78.

TCSC IAKMI. (2018). Paparan Iklan, Promosi, dan Sponsor Rokok di Indonesia Kerjasama Tobacco Control Support Centre-Ikatan Ahli Kesehatan Masyarakat Indonesia (TCSC-IAKMI) International Union Against Tuberculosis and Lung Disease (The Union) beserta 15 universitas/organisasi. *Tobacco Control Support Centre*.

Wijayanti, E., Dewi, C., & Rifqatussa'adah, R. (2017). Faktor-faktor yang Berhubungan dengan Perilaku Merokok pada Remaja Kampung Bojong Rawalele, Jatimakmur, Bekasi. *Global Medical & Health Communication (GMHC)*, *5*(3), 194. https://doi.org/10.29313/gmhc.v5i3.2298

Wiliyanarti, P. F., Hasanah, H., & Marini, G. (2020). Pengaruh Media Pictorial Health Warning Terhadap Motivasi Merokok Pada Remaja. *Jurnal Keperawatan Muhammadiyah*, *5*(2), 247–253. https://doi.org/10.30651/jkm.v5i2.6626