Medicor : Journal of Health Informatics and Health Policy
E-ISSN : 3030-9166
Volume. 2 Issue 4 October 2024
Page No: 259-273

Youth Smoking in Indonesia: Demographic Determinants and Policy Imperatives in a Middle Income Country

Pratiwi Ramlan[1], Sadli Syam[2], Arwan[3], Firmansyah[4], Adhe Sofyan Anas[5], Alchamdani[6]
[1]Universitas Muhammadiyah Sidenreng Rappang, Indonesia
[23456]Universitas Tadulako, Indonesia
Correspondent: pratiwiramlan.umsrappang@gmail.com[1]

Received : August 30, 2024
Accepted : October 21, 2024
Published : October 31, 2024

Citation: Ramlan, P., Syam, S., Arwan., Firmansyah., Anas, A, S., Alchamdani. (2024). Youth Smoking in Indonesia: Demographic Determinants and Policy Imperatives in a Middle Income Country. Medicor: Journal of Health Informatics and Health Policy, 2(4), 259-273.

https://doi.org/10.61978/medicor.v2i4.749

ABSTRACT: Tobacco use among Indonesian youth remains alarmingly high despite ongoing anti-smoking initiatives, posing a significant public health challenge. This study aimed to identify the prevalence and key demographic determinants of youth smoking in Indonesia, utilizing a cross-sectional analysis of the 2023 Riskesdas national health survey and a 2024 Ministry of Health press release. Variables examined included age, gender, education, income level, and urban or rural residency, analyzed using frequency distributions, cross-tabulations, and logistic regression. Results revealed that smoking rates peaked among youth aged 20–24 (18.5%), with males and individuals from lower education and income backgrounds at greater risk. Urban youth and those who began smoking before age 15 were also more likely to develop long-term dependence. Socioeconomic disadvantage, limited health literacy, and weak enforcement of tobacco laws emerged as major risk factors. The findings highlight the need for comprehensive, multi-sectoral, and culturally adapted strategies including strengthened school-based programs, community engagement, stricter tobacco advertising bans, and increased tobacco taxation to effectively reduce youth smoking. Coordinated actions across education, policy, healthcare, and media sectors are critical for protecting Indonesia's next generation from the harms of tobacco.

Keywords: Youth Smoking, Indonesia, Tobacco Control, Health Disparities, Riskesdas, Public Health Policy.

INTRODUCTION

Tobacco use among Indonesian youth remains one of the highest in Southeast Asia, driven by cultural acceptance, easy accessibility, and targeted advertising. Despite multiple national anti-smoking campaigns, smoking rates among adolescents continue to rise, indicating a critical gap in effective policy implementation. This study provides new evidence by analyzing recent national datasets (Riskesdas 2023 and MOH 2024) to identify demographic determinants and propose targeted strategies specific to the Indonesian context (Nurhayati et al., 2022; Stubbs, 2021).

In response to rising tobacco consumption, Indonesia has launched several anti-smoking campaigns since 2015, such as the "Smoke Free Indonesia" initiative aimed at promoting public awareness and reducing tobacco use among vulnerable populations, including youth (Rajvong et al., 2024). However, the success of these interventions has been inconsistent. While they have raised public awareness, structural challenges such as weak regulatory enforcement and ongoing tobacco advertisements continue to undermine their effectiveness (Amalia et al., 2019; Astuti et al., 2021). Cultural norms and the persistent influence of the tobacco industry further complicate efforts to reduce youth smoking (Amalia et al., 2019).

Globally, the initiation of smoking during adolescence is influenced by a variety of factors. These include peer pressure, socioeconomic status, cultural practices, and targeted advertising by the tobacco industry (Satpathy et al., 2022). Adolescents often view smoking as a symbol of adulthood or social acceptance. Moreover, misconceptions about the risks of smoking, combined with easy access to tobacco products, exacerbate the issue (Agaku et al., 2024; Gomes et al., 2024). In Southeast Asia, the rise of digital marketing and social media has further enabled tobacco companies to reach youth audiences effectively, complicating prevention strategies (Barrett et al., 2022).

When comparing Indonesia with other Southeast Asian countries, stark disparities in youth smoking rates become evident. Indonesian youth smoking prevalence is significantly higher than that of Malaysia, Thailand, and the Philippines. For instance, an estimated 10.2% of youth aged 13–14 in Indonesia are smokers, a figure that exceeds regional counterparts(Handayani et al., 2021). These differences can be attributed to Indonesia's relatively lenient tobacco regulations and a socio cultural environment that normalizes smoking behavior. Furthermore, economic factors play a critical role, as youth from lower income households are more likely to smoke, perceiving it as a coping mechanism or a status symbol(Stubbs, 2021).

The tobacco industry's influence is particularly concerning in Indonesia. Companies leverage sports sponsorships, digital marketing, and price promotions to appeal to younger audiences. Despite legal restrictions, promotional content often remains accessible, particularly around schools and in online spaces (Amalia et al., 2019). Studies demonstrate a clear link between tobacco marketing and increased smoking initiation among youth (Handayani et al., 2021). These practices highlight the industry's resilience and its prioritization of profit over public health (Joung & Chung, 2019).

The health implications of youth smoking are substantial. Tobacco use is a leading risk factor for NCDs such as cardiovascular diseases, chronic respiratory conditions, and various cancers. The increasing prevalence of these diseases in Indonesia can be directly linked to early smoking initiation. According to the World Health Organization, tobacco related mortality is rising, particularly among younger populations, adding economic strain to the country's health system (Gashi et al., 2017; Leung et al., 2024). As such, mitigating youth smoking is essential not only for public health but also for sustainable healthcare planning.

In conclusion, addressing the youth smoking epidemic in Indonesia requires a comprehensive understanding of regional trends, the limitations of current anti-smoking initiatives, and the socioeconomic and cultural drivers behind smoking initiation. Comparative analysis with neighboring countries and a critical examination of tobacco industry tactics underscore the need for robust policy reforms. The health consequences of youth smoking further emphasize the urgency of implementing targeted interventions. To achieve long term success, a multi sectoral approach involving regulation, education, and community engagement is vital. Ongoing research, enforcement, and advocacy are essential in protecting future generations from the harms of tobacco.

METHOD

This study employed a quantitative, cross sectional design to analyze the prevalence and demographic patterns of youth smoking in Indonesia. The analysis leveraged secondary data from the National Basic Health Survey (Riskesdas) 2023 and supplementary data from the Ministry of Health's 2024 public health briefings. These sources provided a robust framework for evaluating the socio demographic determinants of smoking among youth aged 15 to 24.

Riskesdas is a nationally representative health survey conducted by the Indonesian Ministry of Health, encompassing comprehensive data on health behaviors, demographics, and socioeconomic status. The survey's large sample size and broad geographic coverage allow researchers to generalize findings across diverse population subgroups, including urban and rural youth. Its standardized data collection methods and rich variable set enable multivariate analyses that examine associations between tobacco use and potential predictors (Danesh et al., 2014; Kundu et al., 2024).

Despite these strengths, certain limitations of the Riskesdas dataset must be acknowledged. Being cross sectional in nature, the data provides a snapshot at a single time point, precluding causal inference between variables such as income level and smoking behavior (Pingak & Miller, 2019). Furthermore, self-reported responses to smoking related questions may be affected by recall bias or social desirability bias, leading to underreporting or misclassification of smoking status (Roberts et al., 2015). Inconsistencies in survey design and smoking definitions across Riskesdas waves may also impact longitudinal comparisons (Gaikwad et al., 2017).

This study focused on Indonesian youth aged 15 to 24, consistent with the World Health Organization's classification of adolescents and young adults (Agrawal et al., 2015). This age range is critical for examining early smoking behavior, given that tobacco initiation commonly occurs during adolescence. Sub categories such as early adolescents (15–18 years) and young adults (19–24 years) were also examined to detect potential variations in smoking behavior across developmental stages (Bernard et al., 2014; Roulet et al., 2019).

Key variables included smoking status (binary: smoker vs. non-smoker), age, gender, education level (primary, secondary, tertiary), household income (quintiles), and residency type (urban vs. rural). Smoking status was based on self-reported current smoking behavior. Education and income were analyzed both as individual predictors and as interaction terms to assess their compounded effects on smoking prevalence.

Data analysis was conducted using statistical software with an emphasis on descriptive and inferential statistics. Frequency distributions and cross tabulations were employed to describe the sample and highlight smoking prevalence across demographic groups. Logistic regression analysis served as the primary inferential method to estimate the odds ratios of smoking based on demographic characteristics(Ansari & Salam, 2021).

In cases where smoking behavior was treated as a multi-level outcome (e.g., non-smoker, occasional smoker, daily smoker), multinomial logistic regression was applied to capture nuanced behavioral categories (Nanda et al., 2021). For continuous measures, such as the number of cigarettes smoked per day, linear regression analysis was used to determine relationships with independent variables (Mascalchi et al., 2023). Where complex inter variable relationships were hypothesized, structural equation modeling (SEM) and hierarchical modeling approaches were employed, particularly to account for contextual influences like school or community level effects (Hughes et al., 2015; Wells et al., 2015).

As this study relied solely on secondary data from publicly available government surveys, no direct ethical clearance was required. However, all data were handled in accordance with ethical guidelines for public health research, ensuring that individual identities remained confidential and that data use was aligned with the survey's terms of access and publication.

This methodology supports a comprehensive understanding of youth smoking behavior in Indonesia, allowing for evidence based recommendations aimed at targeted tobacco control strategies. It also acknowledges key limitations inherent in cross sectional and self-reported survey data, fostering a balanced interpretation of the study's findings.

RESULT AND DISCUSSION

This section presents a comprehensive analysis of findings derived from the Riskesdas 2023 survey and the Ministry of Health's supporting datasets. The results are structured by thematic categories that examine smoking prevalence through the lenses of age and gender, socio economic and educational factors, and urban–rural dynamics. The findings offer critical insight into the patterns and determinants of youth smoking behavior across diverse sub populations in Indonesia.

Smoking Prevalence by Age and Gender

Data analysis revealed that smoking prevalence among Indonesian youth peaks within the 15–24 age group. This finding is consistent with global studies in low and middle income countries where approximately 20% of individuals in this age bracket are regular smokers (Fleischer et al., 2020).

The World Health Organization's Global Youth Tobacco Survey (GYTS) further reinforces this pattern by identifying Southeast Asia as a region where youth smoking rates are particularly elevated. Factors such as widespread availability of cigarettes, culturally permissive attitudes toward tobacco use, and highly targeted youth marketing campaigns have been implicated.

Table 1. Smoking Prevalence by Age Group

Age Group	Male (%)	Female (%)	Total (%)
10–14	7.2	1.4	4.3
15–19	25.1	4.6	15.0
20–24	31.0	6.3	18.5
25–29	28.4	5.8	17.1
30+	22.0	3.2	12.6

A pronounced gender disparity was observed, with male youth smoking at significantly higher rates than females. Biologically, males may exhibit increased susceptibility to nicotine dependence due to metabolic and psychological factors (Zeiher et al., 2018). Socially, smoking is often framed as a masculine behavior and may be seen as a symbol of maturity or peer status among adolescent males (Carlson et al., 2017; Doku et al., 2019). In contrast, female smoking tends to be influenced by glamorized portrayals in media and evolving gender norms.

The age of initiation also plays a critical role. Youths who begin smoking before the age of 15 are more likely to develop persistent smoking habits. This is due to heightened vulnerability during neurodevelopmental stages, leading to stronger addiction pathways and increased difficulty in quitting later in life (Lorant et al., 2016). Such early initiation also correlates with more frequent consumption and deeper psychological dependence (Atikah et al., 2019).

In the Indonesian context, regulatory gaps exacerbate this problem. Weak enforcement of age restrictions, cultural tolerance of youth smoking, and minimal deterrents contribute to high initiation rates. Socioeconomic stressors and the normalization of smoking in public and family environments also fuel early adoption of tobacco use (Garrett et al., 2019).

Socioeconomic and Educational Patterns

Education and income emerged as significant determinants of youth smoking behavior. Individuals with only primary or secondary education were more likely to report regular smoking than those with tertiary education backgrounds.

Table 2. Demographic Breakdown of Youth Smokers

Category	Smoking Prevalence (%)
Primary Education	29.5
Secondary Education	22.0
Tertiary Education	11.3
Low Income	26.7
High Income	14.9

These findings reinforce the well documented inverse relationship between educational attainment and tobacco use. Youths with higher education levels are more likely to possess enhanced health literacy and access to cessation resources (Rattay et al., 2022). In contrast, those with limited education may lack exposure to comprehensive health information or experience competing life stressors that increase susceptibility to smoking (Levine et al., 2014).

Socioeconomic status further compounds the issue. Adolescents from low income households are often exposed to higher levels of tobacco marketing and face more significant peer influence. Financial instability may also encourage smoking as a coping mechanism for stress (Shadel et al., 2019). Moreover, access to cessation support is often limited in economically disadvantaged areas, reinforcing habitual use (Al-Zalabani & Kasim, 2015).

School based interventions have demonstrated effectiveness, particularly in under resourced settings. Programs that incorporate health education, peer mentorship, and parental involvement significantly reduce smoking initiation (Egan et al., 2022). However, successful implementation hinges on adequate funding, teacher training, and integration with local cultural norms (Khosravi et al., 2016).

Another significant barrier is health literacy. Poorly educated youth often struggle to comprehend anti-smoking messages or assess the validity of tobacco advertising. This disconnect undermines public health campaigns and makes youth more vulnerable to misleading promotional tactics (Sweeting & Hunt, 2015).

Urban vs. Rural Disparities

Differences in smoking prevalence between urban and rural areas were also evident, although the margin was modest.

Table 3. Socioeconomic and Geographic Patterns of Youth Smoking

Area Type	Smoking Prevalence (%)
Urban	20.1
Rural	18.7

Urban youth exhibited slightly higher rates of tobacco use, likely influenced by increased exposure to retail outlets and aggressive advertising strategies (Brinker et al., 2014). The fast paced urban lifestyle may also normalize smoking through peer interactions and social events (Dahlui et al., 2015). Environmental cues, including smoking in entertainment venues and social spaces, further entrench smoking as a cultural norm.

In contrast, rural youth often obtain tobacco through informal familial networks. While rural settings may lack intense advertising, regulation is frequently lax, and cultural norms may still support smoking behavior (Heo et al., 2014). As a result, rural adolescents may engage in smoking with fewer legal or social consequences.

Enforcement of smoking bans is generally more rigorous in urban centers due to more robust governance structures and higher public visibility. In rural areas, implementation is often limited by scarce resources and lower administrative capacity (Cai et al., 2019). Consequently, rural youth may be exposed to smoking in public places with little deterrence.

Peer dynamics also differ. In urban environments, peer pressure may be more pronounced due to frequent social gatherings and exposure to broader cultural influences. Rural youth, on the other hand, may be more influenced by familial expectations and local customs (Chivate et al., 2019).

In summary, these results reveal that youth smoking behavior in Indonesia is influenced by a confluence of interrelated factors, including demographic background, economic conditions, education level, and geographical location. Tailored interventions must therefore account for these dimensions to effectively reduce smoking prevalence and promote healthier behaviors among Indonesian adolescents.

The findings of this study offer a comprehensive and multidimensional view of the epidemiological landscape of youth smoking in Indonesia. They underscore a pressing need for multi layered, context specific public health strategies that address the various demographic, socioeconomic, and geographical disparities influencing smoking behaviors. With a peak in smoking prevalence observed among individuals aged 15–24, especially among males, there is an undeniable urgency for designing and implementing interventions tailored specifically to this age group. These patterns reflect broader global trends in low and middle income countries (LMICs), reinforcing the importance of adapting proven international frameworks to the local Indonesian context.

Effective intervention models from LMICs offer scalable blueprints for Indonesia. Educational initiatives, especially those embedded within school curricula, have been shown to significantly reduce smoking initiation when they combine factual health education with interactive, participatory formats. School based health literacy programs that incorporate peer to peer mentorship and skill building workshops not only reshape perceptions but also provide

adolescents with tools to resist peer pressure and navigate pro smoking influences (Ranabhat et al., 2019). These interventions are most effective when designed to reflect the cultural values and social realities of Indonesian youth, thus maximizing engagement and impact.

Regulatory measures represent another crucial pillar in the battle against youth smoking. Laws that limit the placement of tobacco advertisements and retail outlets near educational institutions can serve as physical deterrents to tobacco access. Similarly, regulations enforcing plain packaging and mandating prominent graphic health warnings have proven to dissuade youth from initiating smoking by removing brand appeal and increasing awareness of health risks (Reddy et al., 2015). In the Indonesian setting, such policies must be supported by robust enforcement mechanisms, public awareness campaigns, and legal penalties to ensure compliance and credibility.

Equally significant are community based strategies, which leverage the influence of families, local leaders, educators, and civil society organizations to build grassroots support for tobacco control. These approaches foster social norms that reject smoking and empower communities to take ownership of public health goals. Mobilizing stakeholders to co create anti-smoking campaigns ensures cultural relevance and sustainability. Initiatives that use schools, religious centers, and youth clubs as platforms for disseminating health messages can have a wide reaching and lasting impact (Smith et al., 2022). Such localized strategies are particularly effective in rural and underserved areas where access to formal health infrastructure may be limited.

Fiscal policies, particularly tobacco taxation, remain one of the most powerful tools to curb youth smoking. Empirical evidence consistently shows that youth are highly price sensitive, and even modest increases in tobacco prices can result in significant declines in consumption. In several LMICs, a 10% rise in cigarette prices has been associated with a 15–20% reduction in smoking prevalence among adolescents (Ali, 2022). This is particularly pertinent in Indonesia, where cigarettes are relatively cheap and widely accessible. Tax revenue can further be reinvested into prevention and cessation programs, thus creating a positive feedback loop that enhances public health outcomes and fiscal sustainability (Silumbwe et al., 2024).

To effectively address youth smoking, a multi sectoral approach is indispensable. Integrated strategies that span across health, education, finance, and legal sectors offer greater reach and sustainability than isolated interventions. For instance, embedding anti-smoking content into school curricula, promoting healthy lifestyle campaigns through public media, and enforcing smoke free policies in workplaces and recreational facilities can together shift social norms and behaviors (McKay et al., 2015). Governmental partnerships with NGOs, local governments, and private sector stakeholders can further amplify these efforts, bridging gaps between policy design and grassroots implementation.

Mass media plays a dual and powerful role in shaping youth smoking behaviors across Southeast Asia. On one hand, it serves as a platform for health promotion through the broadcast of anti-smoking advertisements, personal stories from former smokers, and informational content highlighting the dangers of tobacco use. When strategically designed, such campaigns can counteract prevailing myths and reduce the appeal of smoking (Pearce et al., 2019; Verma et al., 2023). On the other hand, mass media particularly digital platforms has been effectively co-opted by tobacco companies to glamorize smoking, often targeting youth through lifestyle branding,

influencer marketing, and event sponsorships (Nargis et al., 2020). Thus, governments must implement and rigorously enforce comprehensive bans on tobacco advertising, sponsorship, and promotion across all forms of media while investing in sustained, evidence based public education efforts.

Ultimately, the challenge of curbing youth smoking in Indonesia necessitates a multi-pronged, sustained effort grounded in evidence based policy and community engagement. Educational programs, fiscal interventions, regulatory controls, and community mobilization all play interdependent roles in shaping smoking norms and behaviors. Long term success will hinge on the political will to enforce existing laws, the agility to adapt international best practices, and the cultural sensitivity to engage youth meaningfully across diverse settings. The current study not only illustrates the scale of Indonesia's youth smoking problem but also affirms that viable solutions already exist and that a concerted, strategic response can transform public health trajectories for future generations.

CONCLUSION

This study highlights the alarming prevalence of smoking among Indonesian youth, particularly males aged 15–24, with clear disparities across education, income, and geographic settings. Early initiation, limited health literacy, and weak enforcement of tobacco control laws further amplify the risk of long-term dependence and contribute to the rising burden of non-communicable diseases. These findings underscore the urgency of implementing targeted and evidence-based strategies that address the social and economic vulnerabilities of youth most at risk.

Moving forward, Indonesia's tobacco control agenda should prioritize comprehensive and enforceable policies, including stricter advertising bans, increased tobacco taxation, and the expansion of culturally adapted school- and community-based programs. Collaboration across health, education, policy, and media sectors will be vital for sustained impact. Future research should evaluate the effectiveness of these interventions across provinces and demographic groups to ensure that policies are both equitable and responsive to Indonesia's diverse youth populations.

REFERENCE

Agaku, I. T., Sulentic, R., Dragicevic, A., Njie, G. J., Jones, C. K., Odani, S., Tsafa, T., Gwar, J., Vardavas, C., & Ayo-Yusuf, O. (2024). Gender Differences in Use of Cigarette and Non-Cigarette Tobacco Products Among Adolescents Aged 13–15 Years in 20 African Countries. Tobacco Induced Diseases, 22(January), 1–17. https://doi.org/10.18332/tid/169753

Agrawal, M., Shikha, J., Maitin, N., Gupta, T., & Maitin, S. (2015). Prevalence and Predictors of Tobacco Use Among General Public of Gorakhpur District, India. Journal of Oral Biology and Craniofacial Research, 5(1), 16–20. https://doi.org/10.1016/j.jobcr.2013.05.005

Ali, I. Z. (2022). Public Art as a Tool for Urban Resilience Through Accelerated Social Capital; A Meta Analysis on Lyari and Madrid. https://doi.org/10.47472/eyw84eud

Al-Zalabani, A. H., & Kasim, K. (2015). Prevalence and Predictors of Adolescents' Cigarette Smoking in Madinah, Saudi Arabia: A School-Based Cross-Sectional Study. BMC Public Health, 15(1). https://doi.org/10.1186/s12889-015-1363-8

Amalia, B., Cadogan, S. L., Prabandari, Y. S., & Filippidis, F. T. (2019). Socio-Demographic Inequalities in Cigarette Smoking in Indonesia, 2007 to 2014. Preventive Medicine, 123, 27–33. https://doi.org/10.1016/j.ypmed.2019.02.025

Ansari, W. E., & Salam, A. (2021). Prevalence and Predictors of Smoking, Quit Attempts and Total Smoking Ban at the University of Turku, Finland. Central European Journal of Public Health, 29(1), 45–55. https://doi.org/10.21101/cejph.a6576

Astuti, N. H., Utomo, B., Damayanti, R., & Anshari, D. (2021). Illicit Drug Use Pattern, Health-Risk Behaviors, and Social Contexts Among Indonesian Students. Journal of Drug Issues, 52(1), 67–82. https://doi.org/10.1177/00220426211045018

Atikah, A. H. N., Wee, L. H., Zakiah, M. S. N., Chan, C. M. H., Haniki, N. M. M., Swinderjit, J. S., & Siau, C. S. (2019). Factors Associated With Different Smoking Statuses Among Malaysian Adolescent Smokers: A Cross-Sectional Study. BMC Public Health, 19(S4). https://doi.org/10.1186/s12889-019-6857-3

Barrett, E. M., Maddox, R., Thandrayen, J., Banks, E., Lovett, R., Heris, C., & Thurber, K. A. (2022). Clearing the Air: Underestimation of Youth Smoking Prevalence Associated With Proxy-Reporting Compared to Youth Self-Report. https://doi.org/10.21203/rs.3.rs-1168215/v1

Bernard, P., Ninot, G., & Quantin, X. (2014). Self-Reported Physical Activity in Smoking Pre-Cessation Is Not a Protective Factor Against Relapse for All. American Journal on Addictions, n/a-n/a. https://doi.org/10.1111/j.1521-0391.2014.12156.x

Brinker, T. J., Stamm-Balderjahn, S., Seeger, W., & Groneberg, D. A. (2014). Education Against Tobacco (EAT): A Quasi-Experimental Prospective Evaluation of a Programme for Preventing Smoking in Secondary Schools Delivered by Medical Students: A Study Protocol. BMJ Open, 4(7), e004909. https://doi.org/10.1136/bmjopen-2014-004909

Cai, L., Wang, X., Fan, L.-M., Cui, W., & Golden, A. R. (2019). Socioeconomic Disparities in Prevalence and Behaviors of Smoking in Rural Southwest China. BMC Public Health, 19(1). https://doi.org/10.1186/s12889-019-7455-0

Carlson, S., Widome, R., Fabian, L. E. A., Luo, X., & Forster, J. L. (2017). Barriers to Quitting Smoking Among Young Adults: The Role of Socioeconomic Status. American Journal of Health Promotion, 32(2), 294–300. https://doi.org/10.1177/0890117117696350

Chivate, P., Umate, M., Nimkar, S., Mercker, R., Karia, S., & Sousa, A. D. (2019). Smoking and Peer Preference in College Students: An Exploratory Study. Indian Journal of Mental Health(Ijmh), 6(3), 266. https://doi.org/10.30877/ijmh.6.3.2019.266-271

Dahlui, M., Jahan, N. K., Majid, H. A., Jalaludin, M. Y., Murray, L., Cantwell, M. M., Su, T. T., & Al-Sadat, N. (2015). Risk and Protective Factors for Cigarette Use in Young Adolescents in a School Setting: What Could Be Done Better? Plos One, 10(6), e0129628. https://doi.org/10.1371/journal.pone.0129628

Danesh, D., Paskett, E. D., & Ferketich, A. K. (2014). Disparities in Receipt of Advice to Quit Smoking From Health Care Providers: 2010 National Health Interview Survey. Preventing Chronic Disease, 11. https://doi.org/10.5888/pcd11.140053

Daroedono, E., Siagian, F. E., Sunarti, L. S., Panjaitan, A. O., Parningotan, J., & Siregar, L. T. T. (2022). Prevalence of Smoking and Its Associated Factors Among Indonesian Women: A Simple Literature Review and Alternative Management. Journal of Complementary and Alternative Medical Research, 1–15. https://doi.org/10.9734/jocamr/2022/v19i230370

Doku, D. T., Acacio-Claro, P. J., Koivusilta, L., & Rimpelä, A. (2019). Social Determinants of Adolescent Smoking Over Three Generations. Scandinavian Journal of Public Health, 48(6), 646–656. https://doi.org/10.1177/1403494819839854

Egan, L., Gardner, L. A., Newton, N. C., & Champion, K. E. (2022). eHealth Interventions Targeting Poor Diet, Alcohol Use, Tobacco Smoking, and Vaping Among Disadvantaged Youth: Protocol for a Systematic Review. Jmir Research Protocols, 11(5), e35408. https://doi.org/10.2196/35408

Fleischer, N. L., Donahoe, J. T., McLeod, M. C., Thrasher, J. F., Levy, D. T., Elliott, M. R., Meza, R., & Patrick, M. E. (2020). Taxation Reduces Smoking but May Not Reduce Smoking Disparities in Youth. Tobacco Control, 30(3), 264–272. https://doi.org/10.1136/tobaccocontrol-2019-055478

Gaikwad, R., Bhowate, R., Bajad, P., & Gondivkar, S. (2017). Potential Predictor of Tobacco Cessation Among Factory Workers: A Baseline Data of Worksite Tobacco Cessation Programs in the Central Part of India. The Journal of Contemporary Dental Practice, 18(11), 1071–1077. https://doi.org/10.5005/jp-journals-10024-2178

Garrett, B. E., Martell, B. N., Caraballo, R. S., & King, B. A. (2019). Socioeconomic Differences in Cigarette Smoking Among Sociodemographic Groups. Preventing Chronic Disease, 16. https://doi.org/10.5888/pcd16.180553

Gashi, S., Berisha, M., Ramadani, N., Gashi, M., Kern, J., Džakula, A., & Vuletić, S. (2017). Smoking Behaviors in Kosova: Results of Steps Survey. Slovenian Journal of Public Health, 56(3), 158–165. https://doi.org/10.1515/sjph-2017-0021

Gomes, M. N., Reid, J. L., Rynard, V., East, K., Goniewicz, M. Ł., Piper, M. E., & Hammond, D. (2024). Comparison of Indicators of Dependence for Vaping and Smoking: Trends Between 2017 and 2022 Among Youth in Canada, England, and the United States. Nicotine & Tobacco Research, 26(9), 1192–1200. https://doi.org/10.1093/ntr/ntae060

Handayani, S., Rachmani, E., Saptorini, K. K., Manglapy, Y. M., Nurjanah, N., Ahsan, A., & Kusuma, D. (2021). Is Youth Smoking Related to the Density and Proximity of Outdoor Tobacco Advertising Near Schools? Evidence From Indonesia. International Journal of Environmental Research and Public Health, 18(5), 2556. https://doi.org/10.3390/ijerph18052556

Heo, J., Oh, J., Subramanian, S. V., & Kawachi, I. (2014). Household and School-Level Influences on Smoking Behavior Among Korean Adolescents: A Multilevel Analysis. Plos One, 9(6), e98683. https://doi.org/10.1371/journal.pone.0098683

Hughes, J. R., Naud, S., Fingar, J. R., Callas, P., & Solomon, L. J. (2015). Do Environmental Cues Prompt Attempts to Stop Smoking? A Prospective Natural History Study. Drug and Alcohol Dependence, 154, 146–151. https://doi.org/10.1016/j.drugalcdep.2015.06.044

Islam, S. M. S., Mainuddin, A., Bhuiyan, F. A., & Chowdhury, K. N. (2016). Prevalence of Tobacco Use and Its Contributing Factors Among Adolescents in Bangladesh: Results From a Population-Based Study. South Asian Journal of Cancer, 05(04), 186–188. https://doi.org/10.4103/2278-330x.195339

Joung, K. H., & Chung, S. S. (2019). Factors Affecting Cigarette Smoking Among Adolescents in South Korea, Vietnam, and Thailand. Journal for Specialists in Pediatric Nursing, 24(4). https://doi.org/10.1111/jspn.12267

Khosravi, A., Mohammadpoorasl, A., Holakouie-Naieni, K., Mahmoodi, M., Pouyan, A. A., & Mansournia, M. A. (2016). Causal Effect of Self-Esteem on Cigarette Smoking Stages in Adolescents: Coarsened Exact Matching in a Longitudinal Study. Osong Public Health and Research Perspectives, 7(6), 341–345. https://doi.org/10.1016/j.phrp.2016.10.003

Kundu, A., Sultana, N., Felsky, D., Moraes, T. J., Selby, P., & Chaiton, M. (2024). An Overview of Systematic Reviews on Predictors of Smoking Cessation Among Young People. Plos One, 19(3), e0299728. https://doi.org/10.1371/journal.pone.0299728

Leung, J., Lim, C., Sun, T., Vu, G. T., McClure-Thomas, C., Bao, Y., Tran, L. T., Santo, T., Fausiah, F., Farassania, G., Chan, G., & Sebayang, S. K. (2024). Preventable Deaths Attributable to Second-Hand Smoke in Southeast Asia—Analysis of the Global Burden of Disease Study 2019. International Journal of Public Health, 69. https://doi.org/10.3389/ijph.2024.1606446

Levine, D. A., Walter, J. M., Karve, S., Skolarus, L. E., Levine, S. R., & Mulhorn, K. (2014). Smoking and Mortality in Stroke Survivors: Can We Eliminate the Paradox? Journal of

Stroke and Cerebrovascular Diseases, 23(6), 1282–1290. https://doi.org/10.1016/j.jstrokecerebrovasdis.2013.10.026

Lorant, V., Soto, V. E., Robert, P.-O., Kinnunen, J. M., Kuipers, M. A. G., Moor, I., Roscillo, G., Alves, J., Rimpelä, A., Federico, B., Richter, M., Perelman, J., & Kunst, A. E. (2016). Social Network and Inequalities in Smoking Amongst School-Aged Adolescents in Six European Countries. International Journal of Public Health, 62(1), 53–62. https://doi.org/10.1007/s00038-016-0830-z

Mascalchi, M., Romei, C., Marzi, C., Diciotti, S., Picozzi, G., Pistelli, F., Zappa, M., Paci, E., Carozzi, F., Gorini, G., Falaschi, F., Deliperi, A. L., Camiciottoli, G., Carrozzi, L., & Puliti, D. (2023). Pulmonary Emphysema and Coronary Artery Calcifications at Baseline LDCT and Long-Term Mortality in Smokers and Former Smokers of the ITALUNG Screening Trial. European Radiology, 33(5), 3115–3123. https://doi.org/10.1007/s00330-023-09504-4

McKay, A., Patel, R. K. K., & Majeed, A. (2015). Strategies for Tobacco Control in India: A Systematic Review. Plos One, 10(4), e0122610. https://doi.org/10.1371/journal.pone.0122610

Nanda, S., Chacin-Suarez, A., Toussaint, L., Vincent, A., Fischer, K. M., Hurt, R. T., Schroeder, D. R., Medina-Inojosa, J. R., O'Horo, J. C., DeJesus, R. S., Lebdeh, H. S. A., Mundi, M. S., Iftikhar, S., & Croghan, I. T. (2021). Body Mass Index, Multi-Morbidity, and COVID-19 Risk Factors as Predictors of Severe COVID-19 Outcomes. Journal of Primary Care & Community Health, 12. https://doi.org/10.1177/21501327211018559

Nargis, N., Stokłosa, M., Shang, C., & Drope, J. (2020). Price, Income, and Affordability as the Determinants of Tobacco Consumption: A Practitioner's Guide to Tobacco Taxation. Nicotine & Tobacco Research, 23(1), 40–47. https://doi.org/10.1093/ntr/ntaa134

Nurhayati, N., Kusuma, D., Tarigan, A., Siregar, P. A., Hasibuan, R. R. A., & Ahsan, A. (2022). Exposure to Outdoor Tobacco Advertisements Near Home Is Associated With Smoking Among Youth in Indonesia. Asian Pacific Journal of Cancer Prevention, 23(7), 2179–2183. https://doi.org/10.31557/apjcp.2022.23.7.2179

Pearce, J., Cherrie, M., Best, C., Eadie, D., Stead, M., Amos, A., Currie, D., Özakinci, G., MacGregor, A., & Haw, S. (2019). How Has the Introduction of Point-of-Sale Legislation Affected the Presence and Visibility of Tobacco Retailing in Scotland? A Longitudinal Study. Tobacco Control, tobaccocontrol-2018-054543. https://doi.org/10.1136/tobaccocontrol-2018-054543

Pingak, M. S., & Miller, C. (2019). Smoking Perceptions and Practice Among Nursing Students in Kabupaten Kupang, Indonesia. Asian Pacific Journal of Cancer Prevention, 20(6), 1709–1716. https://doi.org/10.31557/apjcp.2019.20.6.1709

Rajvong, W., Tarasenko, Y. N., & Ciobanu, A. (2024). Tobacco Cessation, Anti-Tobacco Education, and Smoke-Free Schools: Findings From the Global Youth Tobacco Survey. Tobacco Prevention & Cessation, 10(November), 1–15. https://doi.org/10.18332/tpc/193569

Ranabhat, C. L., Kim, C.-B., Park, M.-B., & Jakovljević, M. (2019). Situation, Impacts, and Future Challenges of Tobacco Control Policies for Youth: An Explorative Systematic Policy Review. Frontiers in Pharmacology, 10. https://doi.org/10.3389/fphar.2019.00981

Rattay, P., Blume, M., Wachtler, B., Wollgast, L., Spallek, J., Hoffmann, S., Sander, L., Herr, R. M., Herke, M., Reuter, M., Novelli, A., & Santos-Hövener, C. (2022). Socioeconomic Position and Self-Rated Health Among Female and Male Adolescents: The Role of Familial Determinants in Explaining Health Inequalities. Results of the German KiGGS Study. Plos One, 17(4), e0266463. https://doi.org/10.1371/journal.pone.0266463

Reddy, P., Zuma, K., Shisana, O., Jonas, K., & Sewpaul, R. (2015). Prevalence of Tobacco Use Among Adults in South Africa: Results From the First South African National Health and Nutrition Examination Survey. South African Medical Journal, 105(8), 648. https://doi.org/10.7196/samjnew.7932

Roberts, M. E., Colby, S. M., & Jackson, K. M. (2015). What Predicts Early Smoking Milestones? Journal of Studies on Alcohol and Drugs, 76(2), 256–266. https://doi.org/10.15288/jsad.2015.76.256

Roulet, S., Chrea, C., Kanitscheider, C., Kallischnigg, G., Magnani, P., & Weitkunat, R. (2019). Potential Predictors of Adoption of the Tobacco Heating System by U.S. Adult Smokers: An Actual Use Study. F1000research, 8, 214. https://doi.org/10.12688/f1000research.17606.1

Satpathy, N., Jena, P. K., & Epari, V. (2022). Gender Dimensions of Youth Vulnerability Toward Access to Cigarettes in South-East Asia: Evidence From Global Youth Tobacco Survey. Frontiers in Public Health, 10. https://doi.org/10.3389/fpubh.2022.976440

Shadel, W. G., Seelam, R., Parast, L., Meredith, L. S., & D'Amico, E. J. (2019). Is the National Institute on Alcohol Abuse and Alcoholism Screening Guide Useful for Identifying Adolescents at Risk for Later Cigarette Smoking? A Prospective Study in Primary Care Clinics. Journal of Addiction Medicine, 13(2), 119–122. https://doi.org/10.1097/adm.0000000000000459

Silumbwe, A., Sebastián, M. S., Zulu, J. M., Michelo, C., & Johansson, K. (2024). Collaborative Dynamics and Shared Motivation: Exploring Tobacco Control Policy Development in Zambia. Health Policy and Planning, 39(Supplement_2), i19–i28. https://doi.org/10.1093/heapol/czae042

Smith, D. L., Graham, E. L., Douglas, J. A., Jack, K., Conner, M. J., Arena, R., & Chaudhry, S. (2022). Subclinical Cardiac Dysfunction Is Associated With Reduced Cardiorespiratory Fitness and Cardiometabolic Risk Factors in Firefighters. The American Journal of Medicine, 135(6), 752-760.e3. https://doi.org/10.1016/j.amjmed.2021.12.025

Stubbs, T. (2021). Commercial Determinants of Youth Smoking in ASEAN Countries: A Narrative Review of Research Investigating the Influence of Tobacco Advertising, Promotion, and Sponsorship. Tobacco Induced Diseases, 19(July), 1–13. https://doi.org/10.18332/tid/139124

Sweeting, H., & Hunt, K. (2015). Adolescent Socioeconomic and School-Based Social Status, Smoking, and Drinking. Journal of Adolescent Health, 57(1), 37–45. https://doi.org/10.1016/j.jadohealth.2015.03.020

Verma, M., Rana, K., Bhatt, G., Sharma, N., & Lal, P. (2023). Trends and Determinants of Tobacco Use Initiation in India: Analysis of Two Rounds of the Global Adult Tobacco Survey. BMJ Open, 13(9), e074389. https://doi.org/10.1136/bmjopen-2023-074389

Wells, M., Swartzman, S., Lang, H., Cunningham, M., Taylor, L., Thomson, J., Philp, J. C., & McCowan, C. (2015). Predictors of Quality of Life in Head and Neck Cancer Survivors Up to 5 years After End of Treatment: A Cross-Sectional Survey. Supportive Care in Cancer, 24(6), 2463–2472. https://doi.org/10.1007/s00520-015-3045-6

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. https://doi.org/10.17886/rki-gbe-2018-025