



**INTERNASIONAL CONFERENCE ON
MULTIDISCIPLINARY APPROACHES IN HEALTH SCIENCE**

VOLUME 3, No 1. Tahun 2025 , ISSN 3032-4408 (Online)
<https://ejournal.poltekkes-denpasar.ac.id/index.php/icmahs>

Overview of Adolescents' Knowledge Regarding the Dangers of Smoking on Oral Health and Oral Cancer

A.A. Gede Agung, SKM, M.Kes¹, Dewa Ayu Bintang Juliantari², I Gusti Ngurah Agung Adi Winata³
¹Department of dental hygiene, Poltekkes Kemenkes Denpasar

Article history

Posted : 2025-08-30
Reviewed : 2025-10-10
Received : 2025-12-13

ABSTRACT

Smoking is a harmful habit that affects both general and oral health, including increasing the risk of oral cancer. Adolescents are particularly vulnerable to initiating smoking due to peer influence, social environment, and misconceptions about social status. This study aimed to describe adolescents' knowledge regarding the dangers of smoking on dental and oral health. A descriptive survey was conducted among 32 adolescents, selected through random sampling. Data were collected using a validated questionnaire and analyzed descriptively. The results showed that 93.75% of respondents had good knowledge, 6.25% had moderate knowledge, and none had poor knowledge, with a mean score of 95.47 (good category). However, four respondents (12.5%) reported having started smoking less than one year ago, indicating that knowledge alone does not prevent the initiation of smoking. These findings emphasize the need for continuous health education and preventive programs in schools and communities. Effective strategies should involve teachers, parents, and health professionals, as well as the use of social media and community-based approaches to engage adolescents. Regular monitoring of smoking behavior and the creation of smoke-free environments at home and school are also recommended, as high knowledge is expected to encourage adolescents to avoid smoking for the sake of their health. In conclusion, most adolescents demonstrated good knowledge of the dangers of smoking, yet preventive interventions remain essential to reduce smoking behavior and improve oral health outcomes.

Keywords: Smoking, Oral Cancer, Dental health, Adolescents, Knowledge



INTERNASIONAL CONFERENCE ON MULTIDISCIPLINARY APPROACHES IN HEALTH SCIENCE

VOLUME 3, No 1. Tahun 2025 , ISSN 3032-4408 (Online)
<https://ejournal.poltekkes-denpasar.ac.id/index.php/icmahs>

INTRODUCTION

Smoking is a serious public health problem that affects various aspects of human health, including oral and dental health. Although the dangers of smoking for the lungs and heart are widely known, its impact on oral health is still not fully understood by many people. This lack of awareness is especially evident among adolescents, who are at a stage of forming habits and are easily influenced by peers and social environments. As a result, oral health consequences of smoking—such as gum disease, tooth decay, halitosis, tooth discoloration, and increased risk of oral cancer—tend to receive less attention.

Cigarette smoke contains more than 7,000 harmful chemicals that can damage oral tissues. Nicotine and tar contribute to gum inflammation, reduce immune response, weaken enamel, and increase susceptibility to infection. Severe conditions such as periodontitis and oral cancer are also strongly linked to smoking. These effects not only threaten physical health but also affect adolescents psychologically, as tooth discoloration and bad breath can reduce self-confidence and influence social interactions. Passive smokers experience similar risks, making smoking a broader community health issue.

Indonesia faces a particularly alarming situation. National surveys such as Riskesdas show that smoking prevalence among adolescents continues to rise. Public places near schools, terminals, and residential areas often lack strict smoking control, exposing adolescents to smoking behaviors daily. Peer influence, family habits, cigarette advertising, and social norms further encourage early smoking initiation. Once adolescents start smoking, nicotine addiction and social reinforcement make quitting difficult.

Despite these risks, awareness of the specific impact of smoking on oral and dental health remains low. Most public health campaigns and research in Indonesia focus on systemic diseases such as lung cancer or heart problems. Little attention is given to oral manifestations, even though these issues are highly relevant to adolescents and can serve as effective entry points for



INTERNASIONAL CONFERENCE ON MULTIDISCIPLINARY APPROACHES IN HEALTH SCIENCE

VOLUME 3, No 1. Tahun 2025 , ISSN 3032-4408 (Online)
<https://ejournal.poltekkes-denpasar.ac.id/index.php/icmahs>

prevention. International studies also show that many adolescents understand the general dangers of smoking but fail to recognize the severity of its impact on oral health, including oral cancer.

This situation indicates a critical gap in knowledge and education. Existing tobacco control policies, although present, are not sufficiently enforced, and school-based prevention programs often do not integrate oral health information. Yet, research shows that interventions combining education, peer support, and practical skills can significantly reduce smoking initiation. Integrating oral health consequences into these programs may increase their effectiveness, as adolescents tend to be more responsive to issues that directly affect their appearance and social acceptance.

Based on these conditions, the main problem identified is the low level of adolescent knowledge about the dangers of smoking on oral and dental health, despite the high prevalence of adolescent smoking and the severe oral health consequences associated with tobacco use. This knowledge gap contributes to continued smoking behavior and highlights the need for targeted educational programs that emphasize oral health impacts, especially in school settings

METHOD

DESIGN OF THE STUDY

This study employed a descriptive survey design. The aim was to describe adolescents' knowledge regarding the dangers of smoking on oral and dental health without comparing it to other variables. This approach was chosen to address the gap in understanding the level of knowledge among seventh-grade students and its relationship to early smoking behavior.

PLACE AND TIME

The research was conducted at SMPN 3 Gianyar, Bali, in May 2025. This location was selected due to its accessibility and the presence of a representative population of seventh-grade students.



INTERNASIONAL CONFERENCE ON MULTIDISCIPLINARY APPROACHES IN HEALTH SCIENCE

VOLUME 3, No 1. Tahun 2025 , ISSN 3032-4408 (Online)
<https://ejournal.poltekkes-denpasar.ac.id/index.php/icmahs>

POPULATION AND SAMPLE

The population consisted of all seventh-grade students at SMPN 3 Gianyar. The sample comprised 32 students from class VII A, including 17 males and 15 females, selected using random sampling. Inclusion criteria were students who were present during the study and willing to participate. Exclusion criteria included students who were absent or refused to participate.

INSTRUMENTS

Data were collected using a structured and validated multiple-choice questionnaire consisting of 20 questions. The questions were grouped into four domains: (1) general knowledge about smoking, (2) impact on oral and dental health, (3) risk of oral cancer, and (4) prevention efforts. Each correct answer was scored 5, while incorrect answers were scored 0. The questionnaire was reviewed by two experts in dental public health to ensure content validity, and a pilot test with 10 students outside the study sample resulted in a Cronbach's Alpha of 0.82, indicating good reliability.

DATA COLLECTION PROCEDURE

Before data collection, informed consent forms were distributed to the students. The questionnaire was then administered in the classroom, and students completed it independently within 20–30 minutes under the supervision of the researcher and one trained enumerator. Completed questionnaires were checked for completeness and coded prior to analysis.

DATA ANALYSIS

The collected data were analyzed descriptively using frequency distributions and mean scores. Knowledge levels were categorized as good (76–100), moderate (56–75), and poor (<56). The analysis aimed to identify gaps between adolescents' knowledge and their smoking behavior. Results were presented in tables and figures to provide a clear visualization of knowledge levels and behavior patterns.

Corresponding author : Dewayubintang19@gmail.com

Overview of Adolescents' Knowledge Regarding the Dangers of Smoking on Oral Health and Oral Cancer'



**INTERNASIONAL CONFERENCE ON
MULTIDISCIPLINARY APPROACHES IN HEALTH SCIENCE**

VOLUME 3, No 1. Tahun 2025 , ISSN 3032-4408 (Online)
<https://ejournal.poltekkes-denpasar.ac.id/index.php/icmahs>

RESEARCH ETHICS

This study followed research ethics principles, including obtaining informed consent, ensuring anonymity, and maintaining confidentiality. Participation was voluntary, and respondents' identities were protected throughout the study.

RESULTS

A total of 32 students participated in this study, consisting of 17 males (53%) and 15 females (47%)..

Table 1. Distribution of Adolescents' Knowledge Levels on the Dangers of Smoking

No.	Variable	Frequency (f)	Presentation (%)
1.	Good (76 – 100)	30	93,75
2.	Moderate (56 – 75)	2	6,25
3.	Poor < 56	0	0
Amount		32	100,0

Table 1 shows that most respondents (93.75%) had good knowledge regarding the dangers of smoking, while only 6.25% had moderate knowledge, and none had poor knowledge.

Table 2. The Average Score of Adolescents' Knowledge Levels Regarding the Dangers of Smoking on Oral and Dental Health, with the Criteria: Good, Moderate, and Poor.

Knowledge Level Criteria	Frequency (number of individuals)	Knowledge Score
Good	30	2.905
Moderate	2	150
Poor	0	0
Total	32	3.055
Average		95,47

Table 2 It shows that the adolescents' knowledge about the dangers of smoking is 95.47, categorized as Good



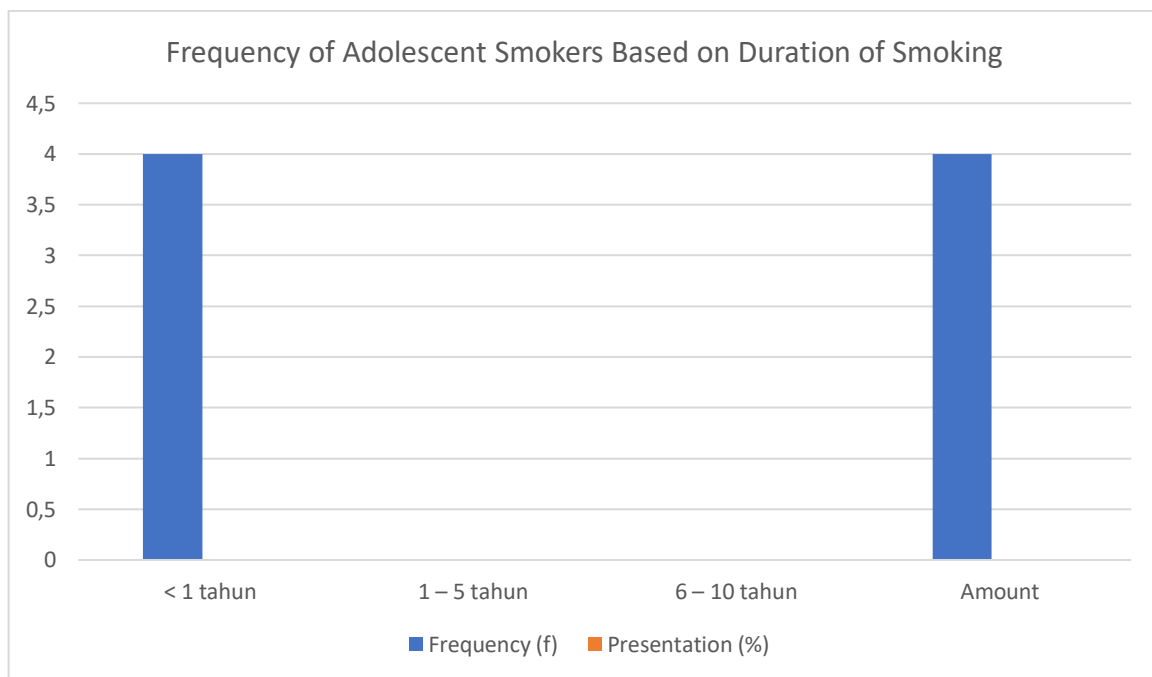
**INTERNASIONAL CONFERENCE ON
MULTIDISCIPLINARY APPROACHES IN HEALTH SCIENCE**

VOLUME 3, No 1. Tahun 2025 , ISSN 3032-4408 (Online)
<https://ejournal.poltekkes-denpasar.ac.id/index.php/icmahs>

Table 3. Frequency of Adolescent Smokers Based on Duration of Smoking

No.	Variable	Frequency (f)	Presentation (%)
1.	< 1 tahun	4	12,5
2.	1 – 5 tahun	0	0
3.	6 – 10 tahun	0	0
Amount		4	12,5

Table 3 shows that four respondents (12.5%) reported smoking for less than one year, while none reported smoking longer than one year.



Picture 1. Results Graph



**INTERNASIONAL CONFERENCE ON
MULTIDISCIPLINARY APPROACHES IN HEALTH SCIENCE**

VOLUME 3, No 1. Tahun 2025 , ISSN 3032-4408 (Online)
<https://ejournal.poltekkes-denpasar.ac.id/index.php/icmahs>

DISCUSSION

The findings of this study showed that the majority of adolescents (93.75%) had good knowledge regarding the dangers of smoking on oral and dental health, with a mean score of 95.47. This result indicates that most students are already aware of the harmful effects of smoking. Similar findings were reported by Hulu and Zai (2021), who found that adolescents generally recognize the risks of smoking but may still underestimate its impact on oral health.

Despite this high level of knowledge, 12.5% of respondents admitted to having smoked for less than one year. This highlights the well-documented gap between knowledge and behavior, where awareness alone is insufficient to prevent smoking initiation. The Theory of Planned Behavior suggests that social norms, peer influence, and perceived behavioral control strongly influence adolescents' smoking behavior (Ajzen, 2020). In this study, it is possible that peer pressure or curiosity outweighed the preventive role of knowledge.

The findings also align with the Global Youth Tobacco Survey (GYTS, 2022), which reported that many adolescents worldwide start smoking despite health education campaigns. Social acceptance, accessibility of cigarettes, and weak enforcement of tobacco regulations remain major contributing factors. Therefore, effective prevention strategies should not only focus on knowledge improvement but also address behavioral, social, and environmental determinants.

School-based health education has been proven effective in increasing awareness and reducing smoking initiation (Thomas et al., 2019). Integrating oral health topics into these programs could be particularly impactful, as adolescents are often more concerned with appearance-related consequences such as tooth discoloration, halitosis, and gum disease. This strategy may complement general smoking prevention messages that typically emphasize systemic health risks such as lung cancer and cardiovascular disease.

The novelty of this study lies in its emphasis on adolescents' knowledge of the oral health impacts of smoking, including oral cancer. While many previous studies in Indonesia focused on



**INTERNASIONAL CONFERENCE ON
MULTIDISCIPLINARY APPROACHES IN HEALTH SCIENCE**

VOLUME 3, No 1. Tahun 2025 , ISSN 3032-4408 (Online)
<https://ejournal.poltekkes-denpasar.ac.id/index.php/icmahs>

general health consequences (Suryani et al., 2019), fewer explored the specific risks related to oral health. The results of this study provide evidence that although adolescents are knowledgeable, supportive environments involving teachers, parents, and peers are still necessary to translate knowledge into healthy behavior.

In summary, the results demonstrate the need for continuous and integrated preventive efforts. These should include school-based education, parental involvement, stricter regulations on cigarette access, and the use of engaging digital media campaigns tailored to adolescents. Such a multi-level approach will be more effective in reducing smoking initiation among adolescents than knowledge-based interventions alone.

CONCLUSION(S)

This study concluded that the majority of adolescents (93.75%) demonstrated good knowledge about the dangers of smoking on oral and dental health, with an average score of 95.47. However, 12.5% of respondents reported having started smoking, showing that knowledge alone is not sufficient to prevent smoking behavior. These findings highlight the importance of continuous health education and preventive programs to strengthen awareness and promote healthy lifestyles among adolescents.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the conduct of this research. All processes, including data collection, analysis, and reporting, were carried out independently without any external influence.



INTERNASIONAL CONFERENCE ON MULTIDISCIPLINARY APPROACHES IN HEALTH SCIENCE

VOLUME 3, No 1. Tahun 2025 , ISSN 3032-4408 (Online)
<https://ejournal.poltekkes-denpasar.ac.id/index.php/icmahs>

Acknowledgment

The authors would like to express sincere gratitude to SMPN 3 Gianyar for granting permission to conduct this study and to all students who participated as respondents. Appreciation is also extended to the parents, teachers, and colleagues who provided moral and technical support throughout the research process. Finally, the authors thank the Department of Dental Health, Poltekkes Kemenkes Denpasar, for academic guidance and assistance in completing this study

REFERENCES

- Ajzen, I. (2020). *The theory of planned behavior: Frequently asked questions*. Human Behavior and Emerging Technologies, 2(4), 314–324.
- American Dental Association. (2022). *Dampak merokok terhadap kesehatan gigi dan mulut*. American Dental Association.
- Bagaitkar, J., Demuth, D. R., & Scott, D. A. (2008). Tobacco smoke and oral bacterial flora: Mechanisms of dental and periodontal diseases. *Critical Reviews in Oral Biology & Medicine*, 19(3), 198–209.
- Cameng, S., & Arfin, A. (2020). Prediksi jumlah perokok di Indonesia hingga tahun 2025. *Jurnal Kesehatan Masyarakat*, 15(2), 45–53.
- Centers for Disease Control and Prevention. (2021). *Factors influencing adolescent smoking initiation*. U.S. Department of Health and Human Services.
- Hulu, F., & Zai, A. (2021). Faktor-faktor yang memengaruhi perilaku merokok pada remaja. *Jurnal Kesehatan Masyarakat Indonesia*, 16(1), 22–30.
- International Agency for Research on Cancer. (2021). *Tobacco smoking and cancer risks*. World Health Organization.
- Kementerian Kesehatan Republik Indonesia. (2020). *Riset Kesehatan Dasar (Riskesdas) 2018*. Badan Penelitian dan Pengembangan Kesehatan.
- Le, T. T., Vu, T. T., & Nguyen, T. H. (2021). Adolescent knowledge and attitudes toward smoking and oral health in Vietnam. *BMC Public Health*, 21(1), 1349.
- Leonardi-Bee, J., Jere, M. L., & Britton, J. (2011). Exposure to parental and sibling smoking and the risk of smoking uptake in childhood and adolescence: A systematic review and meta-analysis. *Thorax*, 66(10), 847–855.
- Mirawati, M., Sartika, D., & Rahayu, P. (2018). Pengaruh budaya merokok di kalangan remaja. *Jurnal Ilmu Kesehatan*, 9(2), 101–110.
- National Institute of Dental and Craniofacial Research. (2021). *Smoking and oral health*. National Institutes of Health.

Corresponding author : Dewayubintang19@gmail.com

Overview of Adolescents' Knowledge Regarding the Dangers of Smoking on Oral Health and Oral Cancer'



**INTERNASIONAL CONFERENCE ON
MULTIDISCIPLINARY APPROACHES IN HEALTH SCIENCE**

VOLUME 3, No 1. Tahun 2025 , ISSN 3032-4408 (Online)
<https://ejournal.poltekkes-denpasar.ac.id/index.php/icmahs>

- Pham, T. H., Nguyen, D. H., & Tran, T. L. (2019). Knowledge and attitudes of adolescents toward smoking and oral health in Thailand. *Asian Pacific Journal of Cancer Prevention*, 20(5), 1463–1470.
- Preshaw, P. M., Alba, A. L., Herrera, D., Jepsen, S., Konstantinidis, A., Makrilakis, K., & Taylor, R. (2012). Periodontitis and diabetes: A two-way relationship. *Diabetologia*, 55(1), 21–31.
- Putra, I. M., & Yuliana, R. (2017). Hubungan pengetahuan dan sikap dengan perilaku merokok pada remaja. *Jurnal Promkes*, 5(2), 123–131.
- Suryani, E., Hidayat, A., & Nurhidayah, S. (2019). Pengetahuan dan perilaku merokok remaja di Indonesia: Studi literatur. *Jurnal Keperawatan Indonesia*, 22(3), 167–175.
- Thomas, R. E., McLellan, J., & Perera, R. (2019). School-based programmes for preventing smoking. *Cochrane Database of Systematic Reviews*, 2019(10), CD001293.
- Trisaputro, N. (2019). Tren merokok dan gaya hidup di kalangan remaja laki-laki. *Jurnal Psikologi Sosial*, 17(1), 12–20.
- U.S. Surgeon General. (2014). *The health consequences of smoking: 50 years of progress*. U.S. Department of Health and Human Services.
- World Health Organization. (2019). *WHO report on the global tobacco epidemic*. World Health Organization.
- World Health Organization. (2021). *Tobacco and oral health*. World Health Organization.
- World Health Organization. (2023). *Global report on trends in prevalence of tobacco use 2000–2025* (5th ed.). World Health Organization.