

Factors Influencing Tobacco Use in Chinese Teenagers

Shengnan Zhao*

Tanguan Middle School, Pukou District 211802, Nanjing City, Jiangsu, China

*: All correspondence should be sent to: Shengnan Zhao

Author's Contact: Mr. Shengnan Zhao, E-mail: zhaoshengnan201809@126.com

DOI: <https://doi.org/10.15354/si.24.re1075>

Funding: No funding source declared.

COI: The author declares no competing interest.

AI Declaration: The author affirms that artificial intelligence did not contribute to the process of preparing the work.

***The Report on Chinese Adolescent Tobacco Use 2023* announces a year-on-year decline in the prevalence of smoking in Chinese teenagers. Nevertheless, the hazards of tobacco products to the physical and mental health of this population remain a concerning issue. This study is an encapsulation of factors influencing the smoking behavior of Chinese adolescents based on a review of relevant literature. Personal characteristics such as gender, age, psychological traits, lifestyle, and perceptions of tobacco use, along with environmental factors like the family environment, circle of friends, and school climate, can all potentially influence a teenager's smoking behavior. A thorough examination of these factors can provide implications for advancing the regulation of teenager tobacco use and improving the work on adolescent health protection.**

Keywords: Adolescent Smoking Behavior; Teen Tobacco Use; Influencing Factors

Science Insights, 2024 October 31; Vol. 45, No. 4, pp.1585-1591.

© 2024 Insights Publisher. All rights reserved.



Creative Commons Non Commercial CC BY-NC: This article is distributed under the terms of the [Creative Commons Attribution-NonCommercial 4.0 License](https://creativecommons.org/licenses/by-nc/4.0/) which permits non-commercial use, reproduction and distribution of the work without further permission provided the original work is attributed by the Insights Publisher.

Introduction

THE HAZARDS of tobacco use are one of the leading health issues concerning the global community. The burning of tobacco can produce a variety of harmful chemicals, including nicotine. Long-term smoking may lead to mouth, nose, throat, trachea, and lung illnesses, or even multi-organ conditions, posing severe health risks to the smoker (Ge & Gao, 2015). Compared to adults, adolescents can physically suffer more from smoking as they are going through a fundamental stage of organic development (Miao, 2017). On top of its physical damage, smoking also has negative effects on adolescent mental health, according to the existing literature. As per

Patton's (1996) study, regular adolescent smokers are twice as likely to report high levels of depression and anxiety as those occasional smokers. Additionally, smoking may negatively impact the academic performance of teenagers. Zhao et al.'s (2012) research findings show that smoking one cigarette per day in adolescence can lower the student's mathematics scores by about 0.08 standard deviations and that smoking can degrade their motivation to go to school, where smoking is forbidden, and reduce the returns to education in adolescents.

In the last two decades or so, the Chinese government has advanced a series of measures to protect teenagers from the damage of tobacco. The Minors Protection Law of China and

Table 1. Factors Influencing Smoking Behavior of Chinese Teenagers.

Types of Factors	Risk Factors	Protective Factors
Personal Characteristics		
Gender	Male	Female
Age	Higher grades	Lower grades
Psychological qualities	Low life satisfaction; Scoring low in the dimensions of openness and agreeableness in the Big Five Personality Inventory in stressful situations; Depression (with a greater impact on girls); Social anxiety; Idle tendency.	High life satisfaction; Scoring high in the dimensions of openness and agreeableness in the Big Five Personality Inventory in stressful situations;
Lifestyle	Misbehavior (e.g., alcohol abuse, fighting); Unhealthy eating habits; Overuse of the internet;	Physical exercise (working on boys);
Attitudes to smoking	Lack of the awareness of the hazards of passive smoking; Seeing smoking as a facilitator of social interaction; Seeing smoking as relaxing in social settings; Seeing smoking cessation as difficult.	Awareness of the hazards of passive smoking; Perceiving smoking as an image-degrading behavior Perceiving smoking as a stressor in social settings; Seeing smoking cessation as difficult.
Environmental Factors		
Home environment	At least one parent smoking; Parents' positive attitudes to their own smoking habits; Low SES (low household incomes, low parental occupational status and education levels); Having a lot of pocket money; Lack of parent-child communication;	Parental warnings against smoking High SES (high household incomes, high parental occupational status and education levels); Normal family structure (non-single parent family, non-restructured family, living with parents); Good parent-child relationships;
Circle of friends	Having smoker friends; Invitations to smoke from peers Unhealthy peer relationships; Making friends with juvenile delinquents.	Having no smoker friends; Healthy peer relationships;
School environment	Frequently witnessing teachers and other staff smoke in the school; Enrolment in the vocational secondary school; Negative school climates.	Upbeat school climate;
Social environment	High exposure to tobacco ads and smoking images; Frequent exposure to passive smoking in public places; Easy access to tobacco products.	Low social acceptance of smoking;

the Tobacco Monopoly Law of China both stipulate the prohibition of the sale of tobacco products to minors. In 2019, the Chinese government released the “*Healthy China Action Plan (2019-2030)*,” highlighting tobacco use control as one of its chief actions. The paper aims to reduce the smoking rate among individuals aged 15 and above to 20% by 2030 and mandates the inclusion of businesses selling tobacco products to minors and advertising cigarettes on the national integrity system's "black-list" for punishment in line with relevant laws and regulations (State Council of China, 2019). Despite the prevention and control measures taken by the government and other stakeholders in response to the tremendous hazards of smoking, tobacco use in teenagers remains a pronounced issue, constituting a major threat to their physical and mental health.

The Status Quo of Tobacco Use in Chinese Teenagers

On May 31, 2024, the 37th World No Tobacco Day, the National Health Commission of China and other departments (2024) released The Report on Chinese Adolescent Tobacco Use 2023, an outcome report for a cross-sectional survey of smoking behavior of junior and senior secondary school students in China. The survey involved over 260,000 students from 912 junior

secondary schools, 590 general high schools, and 274 vocational high schools in 310 county regions of 31 provinces, with a response rate of 95.7%. According to the report, China had a 4.2% smoking rate in secondary school students in 2023, a 1.7% decrease from the 5.9% in 2019, with a significantly higher rate in boys (6.4%) than in girls (1.8%). Yet, there was no significant difference in the prevalence of smoking between rural and urban students. Data from the report showed that, among the students who smoked within the 30 days prior to the survey, 3.5% consumed more than 20 cigarettes per day, and that 2.4% of the students surveyed used electronic cigarettes in 2023, a 1.2% decrease from 2021. In addition, 60% of those who have used electronic cigarettes in the prior 30 days adopted electronic cigarettes with non-tobacco flavors, despite the governmental regulations that prohibit the sale of these types of electronic cigarettes.

Furthermore, the rate of experimental smoking in secondary school students was 13.7% in 2023, a 3% decrease from 2021. Specifically, the rate in junior secondary school students was 11.2%, and that in their senior secondary counterparts was 17.1%. More boys (19.1%) have tried smoking than girls (7.8%). There was no significant difference in experimental smoking between rural and urban students. It is noteworthy that 66.8% of

the initial smoking experiments reportedly took place in the group aged 13 and below; in other words, nearly half of them occurred in the primary education phase.

The report also reveals a considerable drop in the incidence of on-campus smoking, with 35.4% of students surveyed seeing someone else smoking in the school in the past 30 days, a 4.5% decrease from 2021. Nonetheless, the incidence of smoking in homes remained stable. Additionally, the data show that only 35.6% of secondary school students knew that smoking is difficult to cease once it begins and that only 27.5% of them knew that electronic cigarettes could lead to addictive smoking, revealing the awareness of the hazards of smoking in Chinese teenagers remained low despite the decreased prevalence rate of smoking in them in 2023 from the previous years.

To sum up, The Report on Chinese Adolescent Tobacco Use 2023 suggests ongoing threats of tobacco to the health and growth of adolescents. While more potent tobacco control policies are crucial, a thorough exploration of factors that possibly influence adolescent smoking behavior is beneficial for the implementation of more effective tobacco control for this population.

Factors Influencing Smoking Behavior of Chinese Teenagers

Drawing on research findings in the existing literature, this study encapsulates factors connected with the smoking behavior of Chinese adolescents. **Table 1** represents the categorization of these factors and a division between risk and protective factors.

Personal Factors

Prior research findings suggest associations between personal factors, including sex, age, psychological qualities, lifestyle, perceptions of smoking behavior, and tobacco use in Chinese teenagers. Many surveys find that the smoking rate in male secondary school students is significantly higher than that in their female counterparts, indicating that being a male student itself is a risk factor for smoking behavior (Tang & Zheng, 2015; Feng et al., 2020). According to Ji et al. (2023), this phenomenon is somewhat related to the traditional sexual culture in China, where men's smoking behaviors are better accepted than women's. In the meantime, the smoking rate climbs as the grade advances (Sun et al., 2015). This may be because older teenagers have higher exposure to smoking environments than children and become more eager to try smoking (Wei et al., 2022) or because adolescents in higher grades need to ease their academic pressures by smoking (Ji et al., 2023), which is evidenced by Guo and Rabazhuma's (2022) research finding that the increased pressures from the college entrance examination among 12th graders is an additional reason for their tobacco use.

Furthermore, the psychological state and character traits of the teenager can impact their smoking decision. First off, adolescents with higher satisfaction with their living environments are less likely to try smoking (Shi et al., 2022). Second, teenagers exhibiting open and agreeable character traits, such as outgoing tendency, receptiveness to new things, and being compassionate, polite, and tolerant, in stressful situations have a lower possibility of developing the habit of smoking (Feng et al., 2016; Feng & Peng, 2017). Third, the smoking rate is higher in

adolescents with depressive symptoms, who tend to treat smoking as an effective device for lowering their depression levels (Feng et al., 2020). Meanwhile, female students with depression disorders are more likely to resort to smoking than their male counterparts (Li et al., 2019). This may be because girls are more susceptible to negative emotions and less capable of properly managing them due to their different reaction patterns to stimuli and distinctive hormone levels (Xie, 2022). Fourth, there is a higher likelihood of becoming a smoker in the teenagers who are subject to social anxiety, such as fear of negative evaluations from others, uneasiness in social settings, and avoidance of social life (Feng et al., 2020). Fifth, adolescents with the tendency of idleness are more likely to try smoking (Song et al., 2022) as they often have difficulty integrating into the current environment or engaging themselves in meaningful activities.

Associations between lifestyle and smoking behavior in teenagers are also identified in the literature. As per Shi et al. (2022), there is a negative relation between physical exercise and tobacco use in boy students after demographic, cognitive, and psychological variables being controlled for, whereas physical exercise has no significant impact on the smoking tendency of girl students. Xu et al.'s study (2023) finds that adolescents with unhealthy eating habits and certain behavioral deviations, such as alcohol abuse and fighting, are more likely to become smokers. Feng et al.'s (2020) research findings reveal a significantly positive correlation between internet overuse and smoking intensity among adolescents. The frequency of their smoking may substantially increase when their internet dependence exacerbates, threatening their normal time management and interpersonal relationships.

In addition, the adolescents' attitudes towards smoking have a remarkable influence on their smoking decision. Fan et al. (2023) argued that a lack of awareness of the hazards of passive smoking was a risk factor in teenagers, heightening the likelihood of their becoming smokers in the future. Teenagers who perceive smoking as a behavior that damages their public images are less likely to smoke (Chen et al., 2015), whereas those who see smoking as a facilitator of social interaction may more easily develop the habit of smoking (Xiong et al., 2015). Also, adolescents who feel uneasy to smoke in social settings are less likely to experiment with smoking or become regular smokers (Jin et al., 2023). Interestingly though, perceiving smoking cessation as difficult could be both a risk factor (Fan et al., 2023) and protective factor in adolescents (Tang & Zheng, 2015). For regularly smoking teenagers, knowing that smoking cessation is not easy may hamper their decision to give up smoking, and, at the same time, for their non-smoker counterparts, it significantly diminishes their intention of initiating smoking.

Environmental Factors

Aside from personal characteristics, environmental factors also significantly impact adolescent smoking behavior. First, in the familial context, factors like parental smoking and home social and economic status (SES) are closely related to the teenager's smoking practice. An adult family member as a smoker per se is a risk factor for the teenager's tobacco use (Jiang et al., 2022); with more than two smokers in the home, the probability of the

adolescent becoming a smoker will markedly increase (Gong et al., 2021). When the teenager becomes curious about smoking, parental smoking behaviors are a catalyst for the onset of their smoking (Xie et al., 2022). The positive attitudes of adult family members towards tobacco use encourage the initiation and persistence of smoking in the children (Dai et al., 2021), whereas parental warnings against smoking can help prevent them from becoming smokers (Xiong et al., 2015). The family SES, represented by household economic status, parental education levels, and parental occupation status, has an impact on the child's smoking decision; teenagers from low SES families are more likely to develop the habit of smoking (Feng et al., 2020). On top of the family SES, the family structure can also influence the smoking behavior of the teenager; adolescents from normal families (i.e., non-single-parent families, non-restructured families, families with parent-child co-living) are less likely to become smokers (Tang & Zheng, 2015). The quality of parent-child communication is an effective predictor of the child's smoking behavior (Xie et al., 2018); Good parent-child relationships play a vital role in shaping healthy behavior of the child, diminishing the likelihood of their initiating smoking. In addition, a few studies find that the more pocket money given by their parents, the more likely that the teenager will try smoking (Sun et al., 2015; Chen et al., 2015; Ji et al., 2023).

Second, the teenager's circle of friends has tremendous influence on their smoking behavior. Having smoker peers who share cigarettes with friends is a serious risk factor for smoking initiation of the adolescent (Jiang et al., 2022). As adolescents in puberty are more susceptible to peer influence, making friends with smokers can naturally increase their chances to use tobacco products. Also, teenage smokers can develop a strong attachment with each other, which reinforces their intention of persisting with smoking (Fan et al., 2023). Furthermore, making friends with peers with delinquent conduct contributes to the teenager's tobacco use (Lin et al., 2018); hence, developing healthy peer relationships can potentially protect the adolescent from the hazards of smoking (Feng et al., 2020).

Third, the teenager's smoking tendency is linked to the school environment. Sun et al. (2015) argued that there was a positive correlation between the teen's smoking behaviors and the frequency of their witnessing teachers and other staff smoke on the campus. School characteristics and climates can also affect the teenager's intention of smoking. According to Jin et al.'s (2023) study, certain types of schools have higher smoking rates in students, such as vocational secondary schools. This is because these schools pay inadequate attention to student health management including the construction of a smoking-free campus and provision of health education courses. As per Lin et al.'s (2018) research finding, an upbeat school climate significantly negatively predicts the prevalence of smoking in students. Also, positive school climates help reduce on-campus smoking behaviors by reducing the chances for the students to develop connections with juvenile delinquents.

Fourth, among social environment-related factors, tobacco advertising and smoking images in the media have the greatest power to boost tobacco use in teenagers (Guo & Rabazhuma). Although tobacco advertising is legally prohibited, the ubiquitous internet, the fresh channel for tobacco advertisements,

makes its regulation difficult. Online media-based dissemination of tobacco-related information takes more diverse and covert forms, including forums, videos, celebrity endorsements, fun tips, advertorials, emojis, assessments, etc., which have exceptionally misleading effects on minors (Dai et al., 2021). In addition, witnessing smoking behaviors in public places and being frequently exposed to passive smoking are also risk factors for adolescent smoking tendency. In Chinese social settings, it is common for relatives and friends to share cigarettes with each other as a sign of showing respect, which is unfavorable for the development of legitimate perceptions of smoking in teenagers (Sun et al., 2015). Furthermore, easy access to tobacco products has largely fueled the spread of smoking in teenagers. As per Tang's and Zheng's survey (2015), almost none of the teenagers who attempted to buy cigarettes have had the experience of being rejected by the vendors because of their underage status. Despite these negative factors, there are still some positive social factors that suppress the adoption of smoking in teenagers. The low popular acceptance of smoking based on social behavioral norms is a discouragement to the teenager's smoking initiation (Wei et al., 2022).

Discussion

The plurality of factors affecting tobacco use in adolescents manifests the complexity of the issue of teenage smoking. Yet, they provide multi-faceted implications for the development of effective coping strategies. First off, a deeper examination of personal factors is needed. For example, the gender difference in teenager smoking behavior deserves more attention. It is necessary to deploy different smoking prevention education materials for boys and girls. Despite the lower smoking rate in girls shown by current data, the risk of tobacco use in them should not be disregarded. Compared with their male counterparts, female teenagers are more likely to smoke when driven by negative emotions. Also, it should be noted that the teens' limited capacity for emotional modulation makes them more susceptible to the temptation to smoke and renders their smoking cessation more difficult. When they encounter stressful events that elicit negative emotions, they may feel the need to do something to distract their attention from them and maintain a sense of control over their lives, including conducting certain risky and stimulating acts, such as smoking (Xie, 2022). Therefore, to protect teenagers from the damage of smoking, it is important to give them relevant mental health education to guide them to properly address negative emotions, aside from the education on the hazards of tobacco use. Yao's and Wang's (2022) study found that psychodrama therapy is effective in improving the psychological state of adolescent smokers and reducing their consumption of cigarettes. In addition, it should be stressed that the teens' attitudes towards the effects of smoking impact their motivation for smoking (Xie & Li, 2022). The smoking rate is significantly higher among teenagers who believe that the benefits of smoking outweigh its harm (Wei et al., 2022). This finding underlines the importance of strengthening the smoking prevention publicity to develop scientific knowledge of tobacco in adolescents.

Furthermore, the roles of environmental factors in influencing the teens' smoking tendency deserve more thorough research. The predictive power of the school environment and

home SES for the adolescent's smoking behaviors justifies advanced intervention and prevention efforts in this regard. Also, the peer effect is deemed a vital factor for the adolescent's smoking decision (Tang & Zheng, 2015). According to the social network theory, individuals, including adolescents, are inclined to select peers who share common values and behavioral patterns in building their social networks. In a circle of friends, non-smoker adolescents have less intention of trying to smoke because of the positive role model of their non-smoker peers; conversely, smoking adolescents may heighten their tobacco dependence amid their interaction with smoking peers (Dai et al., 2021). This finding highlights the importance of guiding teenagers to develop a decent social circle. In the meantime, the attitudes of the family, school, and society toward smoking have a significant impact on adolescent smoking behavior. There is a popular consensus that the implementation of tobacco control in teenagers warrants joint efforts from families, schools, and communities. The smoking-free community and school could be realized via legalization and regulations; yet, popularizing the smoking-free family is less easy, necessitating more diverse explorations. Additionally, social media can possibly become display platforms for tobacco products and smoking behaviors

and may influence the teenagers' perceptions of smoking and smoking decisions through advertising and forwarding, among other means. Therefore, to minimize the teenagers' exposure to illegitimate information on smoking, it is imperative to explore more effective measures for managing the negative impact of social media on popular tobacco use.

Conclusion

Teenage smoking as a product of social and psychological factors has its own characteristics. Adolescent smokers, who typically have shorter years of smoking practice and lower smoking dependence, can give up smoking more smoothly with a lower likelihood of relapse (Ji et al., 2023). As a result, they are often among the most targeted groups in tobacco control efforts at all levels. This study is a summary of factors relating to teenager smoking behavior based on the existing literature, focusing on the connections of personal characteristics and environmental factors with tobacco use in Chinese adolescents. These factors should be included as important considerations by various stakeholders in their research or practice of adolescent tobacco use prevention and control. ■

References

- Chen, M., Bian, J., & Chen, J. (2015). Adolescent smoking in Fujian Province and influencing factors. *Strait Journal of Preventive Medicine*, 21(6), 20-22. Available at: https://kns.cnki.net/kcms2/article/abstract?v=ZOnxTxd1G4K5DKzPC0JJqADHDzu4oi6wnzi8YLr1uaarRk4yv7_KlYu3nsQVd3yd4m5T4tAhnjj1PfGk5n4mkhXZV_t9zV0L40uHCiyLm7YUkQwYHjGsGKqAyoCRl8ImJbou2bZ5OFW00kzrDpNV0NguaQGzeWFh1DhBjmcuK0Gespf9ZEs3fA==&uniplatform=NZKPT&language=CHS
- Dai, L., Tan, Y., & Zhu, J. (2021). Social networks and their impact on adolescent smoking behavior in the era of new media. *Modern Preventive Medicine*, 48(2), 288-291. Available at: https://kns.cnki.net/kcms2/article/abstract?v=ZOnxTxd1G4I9y1DjVgshsKORmviTgPI_iEFu4C2qyhRtPtWhNqN08-h0upFHRCZI-qxdaaKRcTA-NIDCaniY3EiUmzFPEehk2RjmZaQLTF48MTcjVbldMzJlJ5Xg2HMYIUFBcbdfmYDVuYh7Tc0OLYMNBR7kXUegBzDH0Gy-qXG_7nB9_eQ==&uniplatform=NZKPT&language=CHS
- Fan, J., Qu, C., & Shen, X. (2023). Factors influencing smoking behavior among adolescents in Jiangsu Province: An analysis based on the structural equation model. *Chinese Journal of Disease Control and Prevention*, 27(5), 611-615. DOI: <https://doi.org/10.16462/j.cnki.zhjbkz.2023.05.020>
- Feng, Y., Li, H., & Chen, M. (2020). The impacts of negative emotions and internet overuse on smoking behavior among adolescents from different social classes. *Chinese Journal of Public Health*, 36(11), 1595-1598. DOI: <https://doi.org/10.11847/zggqws1122027>
- Feng, Y., & Peng, Y. (2017). The relationship between stress and smoking behavior in adolescents: The moderating effects of personality traits and gender. *Studies of Psychology and Behavior*, 15(5), 697-701. Available at: https://kns.cnki.net/kcms2/article/abstract?v=ZOnxTxd1G4Kga23MGLHPE1Y5QVfPRX-PPKNKBSPvNwK_tTviRNRp1qvywy3Mb4f2n8BAEijX8Wel1X_dh_aJVP18I_dSADm03-WUuv5Psa0kQ8ugEyTu9XM0Opf-L8tEtq5mMTyaEKmdlBk6oMOLKiY1kOyye0Un933Q7A22t4wrFKmaYQvf0CA==&uniplatform=NZKPT&language=CHS
- Feng, Y., Yu, Z., & Li, L. (2016). The impact of pressures, personality traits, and social support on adolescent smoking behavior. *Chinese Journal of Public Health*, 32(5), 580-583. DOI: <https://doi.org/10.11847/zggqws2016-32-05-04>
- Ge, H., & Gao, M. (2015). The harm of smoking and passive smoking to the immune system of the adolescent. *China Modern Medicine*, 22(25):142-144+147. Available at: https://kns.cnki.net/kcms2/article/abstract?v=ZOnxTxd1G4IGCx0p0u-PTMDLYpOgD2zFbrmgVZjWZKFBUbXhr4jpCeXhMZJ4qlq8_J8lasVnC9Z0nKXH2

[OzlwG5m_uN4CmCeZcnBu_ibDmWgx2FTu84SsbRnSx8qhv0atsciP8uoGDVRFUwhYHVNR2JllwwcyQJ60y0aiq_QWJUohw_M3pJCA==&uniplatform=NZKPT&language=CHS](https://doi.org/10.16835/j.cnki.1000-9817.2022.09.013)

- Guo, S. & Rabazhuma, R. (2022). Smoking behavior of Tibetan adolescents in 2019 and relevant influencing factors. *Chinese Journal of School Health*, 43(9), 1333-1336+1341. DOI: <https://doi.org/10.16835/j.cnki.1000-9817.2022.09.013>
- Gong, J., Liu, F., Xiao, Q., Yuan, H., & Ji, Y. (2021). Experimental smoking in adolescents in Jiading District, Shanghai and influencing factors. *Shanghai Journal of Preventive Medicine*, 33(4), 302-305+310. DOI: <https://doi.org/10.19428/j.cnki.sjpm.2021.19881>
- Ji, Y., Yang, T., Yang, R., & Liu, Q. (2023). The association of life satisfaction with tobacco use in rural adolescents from Zizhong County, Sichuan Province. *Shanghai Journal of Preventive Medicine*, 35(10), 956-962. DOI: <https://doi.org/10.19428/j.cnki.sjpm.2023.22792>
- Jiang, H., Wu, S., Zhang, Y., Song, X., Xiao, M., Zhang, X., & Zhao, J. (2022). Adolescent smoking in Fengtai District, Beijing and influencing factors. *Anhui Journal of Preventive Medicine*, 28(3), 242-246. DOI: <https://doi.org/10.19837/j.cnki.ahyf.2022.03.017>
- Jin, J., Dai, J., & Yi, J. (2023). Factors linked to smoking behavior among adolescents in Chongqing City: An analysis based on the hierarchical linear model. *Chinese Journal of School Health*, 44(12), 1809-1813. DOI: <https://doi.org/10.16835/j.cnki.1000-9817.2023.12.011>
- Li, J., He, Y., Xu, G., Yu, J., Shi, R., & Zhu, J. (2019). The impact of depression on smoking behavior and future smoking tendency among adolescents in Shanghai City. *Journal of Shanghai Jiaotong University (Medical Edition)*, 39(2), 182-186. DOI: <https://doi.org/10.3969/j.issn.1674-8115.2019.02.014>
- Lin, S., Yang, L., Chen, J., & Wei, C. (2018). School climates, intentional self-regulation, and adolescent smoking behavior: The mediating effect of delinquent peers. *Educational Measurement and Evaluation*, 2018(5), 57-64. DOI: <https://doi.org/10.16518/j.cnki.emae.2018.05.010>
- Miao, W. (2017). The hazards of smoking to adolescent health. *Journal of Clinical Medical Literature (Electronic)*, 4(47), 9306. DOI: <https://doi.org/110.16281/j.cnki.jocml.2017.47.148>
- National Health Commission of China. (2024). The Report on Adolescent Tobacco Use in China 2023 released on the 37th World No Tobacco Day. Available at: <https://baijiahao.baidu.com/s?id=1800558513204123484&wfr=spider&for=pc>
- Patton, G. C., Hibbert, M., Rosier, M. J., Carlin, J. B., Caust, J., & Bowes, G. (1996). Is smoking associated with depression and anxiety in teenagers? *American Journal of Public Health*, 86(2), 225-230. DOI: <https://doi.org/10.2105/ajph.86.2.225>
- Shi, P., Tang, Y., & Sun, J. (2022). The relationship between physical exercise and smoking behavior among adolescents aged 16-18. *Chinese Journal of School Health*, 43(7), 986-989. DOI: <https://doi.org/10.16835/j.cnki.1000-9817.2022.07.07>
- Song, L., Ma, D., Liu, Y., Xu, Y. & Gao, T. (2022). Cross-lagged analysis of the association between idleness and smoking and drinking behavior in adolescents. *Chinese Journal of School Health*, 43(6), 876-879. DOI: <https://doi.org/10.16835/j.cnki.1000-9817.2022.06.019>
- State Council of China. (2019). Healthy China Action Plan (2019-2030). Available at: <http://www.nhc.gov.cn/guihuaxxs/s3585u/201907/e9275fb95d5b4295be8308415d4cd1b2/files/470339610aee4a7887d0810b4c00c9bd.pdf>
- Sun, P., Wang, W., Zhou, G., & Li, J. (2015). Factors influencing smoking behavior of adolescents in Henan Province. *Journal of Zhengzhou University (Medical Edition)*, 50(6), 834-838. DOI: <https://doi.org/10.13705/j.issn.1671-6825.2015.06.026>
- Tang, W. & Zheng, X. (2015). Adolescent smoking behavior in Ningxia Province in 2014 and influencing factors. *Modern Preventive Medicine*, 42(15), 2741-2743. Available at: https://kns.cnki.net/kcms2/article/abstract?v=ZOnXtd1G4KUL3Y0rtxLJ_6n614BN6qzPn9hxDosNfCyDje1SC8BB-itY6RsKdH_vVco1GFQUKbTgnmFg1_1uS9DCmbLJgEOThb7qDwZKiuRkqlogx3EM1cDHebBAYjh5J3zSjcCfBUAqc5_XRFFn_Mss00LJAD09zgLAXXcRLIID-iXGuEefA==&uniplatform=NZKPT&language=CHS
- Wei, X., He, Y., & Zhu, J. (2022). Factors influencing future smoking tendencies of adolescents from Shanghai City. *Health Education and Health Promotion*, 17(6), 551-554+595. DOI: <https://doi.org/10.16117/j.cnki.31-1974/r.202206551>
- Xie, Q., Chen, X., & Liu, C. (2018). Parent-child communication and adolescent smoking behavior: The mediating effect of depression and its gender differences. *Chinese Journal of Clinical Psychology*, 26(6), 1204-1207. DOI: <https://doi.org/10.16128/j.cnki.1005-3611.2018.06.033>
- Xie, W. (2022). The impact of depression on smoking behavior in adolescents: The mediating effect of sensation seeking and its gender differences. *Journal of Zhoukou Normal University*, 39(2), 99-103. DOI: <https://doi.org/10.13450/j.cnki.jzknu.2022.02.020>
- Xie, W., Ding, S., & Sheng, W. (2022). The impact of parental smoking behavior on adolescent experimental smoking: The mediating effect of curiosity about smoking and the moderating effect of gender. *Journal of Shijiazhuang University*, 24(6), 117-122. DOI: <https://doi.org/10.13573/j.cnki.sjzxyxb.2022.06.001>
- Xie, W., Li, H., Wang, Y., & Zuo, X. (2022). The relationship between smoking decisional balance and experimental smoking in adolescents: The mediating effect of sensation seeking. *Journal of Jining Medical University*, 45(4), 261-264. DOI: <https://doi.org/10.3969/j.issn.1000-9760.2022.04.008>
- Xiong, J., Yang, H., Luo, N., Zhu, P., & Ruan, J. (2015). Smoking behavior among adolescents in Shenzhen City and influencing factors. *Chinese Journal of Health Education*, 31(9), 833-836. DOI: <https://doi.org/10.16168/j.cnki.issn.1002-9982.2015>

[.09.005](#)

Xu, X., Zhang, M., Ye, Q., Song, G., Yu, M. & Wang, Z. (2023). The status quo of smoking and factors influencing experimental smoking among adolescents from Dalian City. *Chinese Journal of School Doctors*, 37(7):500-503. Available at: https://kns.cnki.net/kcms2/article/abstract?v=ZOnxTxd1G4JoQxcFDsyKPIG9m01gVB5Tdth5xMzS_9spZjBSy2Ah99fHo8hXGbEzVY6umlt1qdcsc2yzg5LJ1bGCn2o3iQcOLuBhmZxv8yWk0zMUlfc0ZC3xzEhx_HDBfrc4JNvtgTC1q0RyMPjhlyGhb9EG921zINkI9yVfRszAy7OAquqGLA==&uniplatform=NZKPT&lan

[guage=CHS](#)

Yao, J. & Wang, J. (2022). The role of psychodrama in Improving mental health and reducing smoking behaviors in adolescents. *Psychological Monthly*, 17(12), 27-29. DOI: <https://doi.org/10.19738/j.cnki.psy.2022.12.008>

Zhao, M., Konishi, Y., & Glewwe, P. (2012). Does smoking affect schooling? Evidence from teenagers in rural China. *Journal of Health Economics*, 31(4), 584-598. DOI: <http://dx.doi.org/10.1016/j.jhealeco.2012.04.005>

Received: July 27, 2024 | Revised: August 28, 2024 | Accepted: September 15, 2024
