



The Relationship Between Peer Influence and E-Cigarette use Among Students

Herfina. S ¹, Nur Inayah Ismaniar ^{2,*}, Mujtahidah ²

¹ Student of Departement of Health Administration, Faculty of Sport and Health and Sciences, Universitas Negeri Makassar, Indonesia

² Departement of Health Administration, Faculty of Sport and Health Sciences, Universitas Negeri Makassar, Indonesia

*Email (corresponding author): nur.inayah.ismaniar@unm.ac.id

Abstract. E-cigarette use is a growing trend among students and has attracted attention due to its health impacts. This behavior is influenced not only by individual factors but also by social factors, particularly peer groups, including social interactions, peer habits, and group solidarity. The purpose of this study was to determine the relationship between social interactions, peer habits, and group solidarity with e-cigarette use among students at the Faculty of Sport and Health Sciences, Universitas Negeri Makassar (FIKK UNM). The research method used was a quantitative study with an observational analytical design using a cross-sectional study approach. The population in this study was all 1,446 students from the 2023 intake of FIKK UNM, with a sample size of 330 respondents obtained using the Slovin formula. Data were collected using a questionnaire and analyzed using the chi-square test in SPSS. The results showed that the majority of respondents (199 respondents (60.3%) did not use e-cigarettes, while 131 (39.7%) did use e-cigarettes. The results of the bivariate analysis showed a relationship between social interaction and e-cigarette use ($p = 0.001$), a relationship between peer habits and e-cigarette use ($p = 0.001$), and a relationship between group solidarity and e-cigarette use ($p = 0.001$). The conclusion of this study indicates that peers play a significant role in e-cigarette use in students. This influence occurs through social interaction, similar processes to friends' habits, and the drive to maintain group solidarity. Therefore, prevention efforts are needed that focus not only on the individual but also on the student's social environment. These findings contribute to the achievement of SDG 3 (Good Health and Well-Being) and SDG 4 (Quality Education) by highlighting the importance of community-based interventions within academic institutions to promote healthier behaviors among the younger generation.

Keywords: E – Cigarette; Peers; Behaviour; Adolescents; Students

1. Introduction

Based on the 2021 Global Adult Tobacco Survey (GATS), the proportion of e-cigarette users aged 15–19 years increased from 0.3% in 2011 to 3% in 2021 (Paramashanti et al., 2025), with prevalence reaching 19.2% (Trisnowati & Promkes, 2024). According to the Indonesian Personal Vaporizer Association (APVI), the number of vape users in Indonesia exceeded 1.2 million in 2018 (Monika Melina et al., 2022). Although often perceived as an alternative to quitting conventional smoking, vaping behavior may also pose various health risks.

The increasing trend of e-cigarette use in Indonesia cannot be separated from the growth in the number of stores selling these products each year (Widiantari et al., 2024). Rokok elektronik dapat dengan ditemukan dan dijual bebas terutama di kedai – kedai vape atau melalui penjualan online yang dapat diakses oleh semua kalangan, termasuk anak dan remaja (BPOM, 2017). Another cause of the rapid development of e-cigarettes is the absence

of regulations that specifically govern these products. Indonesia has even become the only country in Asia that has not ratified the WHO Framework Convention on Tobacco Control (FCTC) (Crosby et al., 2019). As a result, control is limited only to certain aspects of tobacco advertising, promotion, and sponsorship (TAPS), while e-cigarettes are not included in the regulation. The only national policy related to e-cigarettes is the imposition of a 57% excise tax on e-liquid (Astuti et al., 2020).

Among adolescents, smoking behavior is not only influenced by peers and the environment, but also by exposure to e-cigarette advertisements (Wang et al., 2022). Aggressive marketing on social media, particularly Instagram (58%) and Facebook (39%) (Vital Strategies, 2022), has become a real threat to them. If e-cigarettes are used with the aim of quitting conventional smoking, this approach remains questionable (Ashour, 2023). Until now, there has been no evidence that can confirm that e-cigarettes are safe or effective in reducing the harmful effects of tobacco.

In addition to environmental influences, teenagers' interest in e-cigarettes also stems from the variety of flavors and the nature of the vapor produced (Abadi et al., 2021). The environments where teenagers spend their daily lives further reinforce this behavior (Villanueva-Blasco et al., 2025). Generally, vape users are male, including college students. E-cigarettes are devices that convert a chemical liquid into vapor using a battery-powered heating element, with cartridges containing nicotine liquid as the main ingredient (Toledo et al., 2025).

Smoking habits have serious impacts on health, especially among young people such as university students. The phenomenon of smoking has now become a trend in the student environment, including at the Faculty of Sport and Health Sciences, Universitas Negeri Makassar (FIKK UNM). Based on research by Sri Rahmayani, it was recorded that 53.9% of students exhibited smoking behavior, while 35 students (46.1%) did not smoke, with the majority of smokers being male students who are frequently seen in campus areas, particularly around the canteen and parking lots (Sri Rahmayani, 2024). It is also possible that the number of e-cigarette users will be even higher, given that e-cigarettes have become a trend among adolescents. Therefore, research on the relationship between peer groups and e-cigarette use behavior among university students is important to conduct, as the student years represent a character-forming period shaped largely through peer interactions.

Unlike prior research that has broadly explored peer influence on tobacco and e-cigarette consumption among general adolescent populations, this study addresses a distinct gap by concentrating on health sciences and sports sciences undergraduates – a group expected to demonstrate heightened awareness of health risks. Furthermore, rather than treating peer influence as a single construct, this study simultaneously investigates three specific peer-related dimensions – social interaction, peer habits, and group solidarity – to determine which dimension serves as the strongest predictor of e-cigarette use behavior.

2. Methods

This study was a quantitative study with an observational analytic design using a cross-sectional study approach. The study population included all 2023 students of the Faculty of Sports Science and Health, Universitas Negeri Makassar

(FIKK UNM), from six study programs with a total population of 1,446 students. Based on the sample size calculation, the minimum sample obtained was 314 respondents. To anticipate the possibility of outlier data, the sample size was increased by 5%, resulting in a total sample of 330 respondents used in this study.

Data collection was carried out using a questionnaire method, namely through the distribution of written questions or statements to respondents indirectly. The collected data were then processed using the Statistical Package for the Social Sciences (SPSS) software.

Data analysis in this study included univariate and bivariate analyses. Univariate analysis was used to describe the characteristics of respondents based on age, gender, and smoking status. Meanwhile, bivariate analysis was conducted using the Chi-Square test, which is one of the nonparametric comparative methods used to examine the relationship between two variables with categorical data scales. The decision-making criteria were determined based on the significance value (p-value), namely if $p < 0.05$, then H_0 was rejected and H_1 was accepted, indicating a relationship between peers and e-cigarette use behavior among students. Conversely, if $p > 0.05$, then H_0 was accepted and H_1 was rejected, indicating that there was no relationship between peers and e-cigarette use behavior among students.

3. Results and Discussion

The population in this study consisted of students from the fields of sports and health sciences. Sports and health science students were not selected proportionally because the number of students in each department also differed. The characteristics of the respondents are presented as follows:

Table 1. Characteristics of FIKK UNM Student Respondents (n=330)

Variable	Frequency (n)	Percentage (%)
Distribution of Respondents (Department)		
Health Administration	60	18,2
Nutrition	60	18,2
Physical Therapy	31	9,4
Physical Education, Health, and Recreation	129	39,1
Sport Science	23	7
Sports Coaching Education	27	8,2
Smoking Status		
Conventional Cigarette+ E-Cigarette	279	84,5
E-Cigarette	51	15,5
Sex		
Male		

Variable	Frequency (n)	Percentage (%)
Female	205	62,1
	125	37,9

Table 1 shows that the largest number of respondents came from the Physical Education, Health, and Recreation department, with 129 respondents or 39.1%. The smoking status of FIKK UNM students also showed the presence of smoking status using two types of products simultaneously, commonly referred to as dual users of conventional cigarettes and e-cigarettes. The use of both products simultaneously became the highest number in the FIKK UNM environment, namely 279 respondents or 84.5%.

Dual user status is based on the behavior of wanting to quit conventional cigarettes, thus using e-cigarettes as a substitute. However, the use of e-cigarettes does not completely stop the consumption of conventional cigarettes, or both products are used simultaneously. Dual users have not been able to completely quit conventional cigarettes because e-cigarettes have not been able to imitate the taste and experience of conventional smoking. In addition, reducing smoking without quitting is considered sufficiently "successful" and makes users feel more accepted in the social environment, where conventional cigarette users look down on e-cigarette users (Coleman et al., 2022).

This study is in line with research conducted among university students in Yogyakarta by Ni Komang Sriwisani S and Retna Siwi Padmawati (2023), which found that the reason for becoming dual users of both products was because conventional smokers experienced anxiety or fear of not trying new products, known as FOMO (Fear of Missing Out), but were unable to return to using only conventional cigarettes due to nicotine addiction and the availability of various flavors (Ni Komang Sriwisani S & Retna Siwi Padmawati, 2023).

Table 2. Distribution of Peer Variables and E-Cigarette Use among Students (n=330)

Variable	Frequency (n)	Percentage (%)
Social Interaction		
Adequate	73	22,1
Poor	257	77,9
Peer Habits		
Adequate	214	64,8
Poor	116	35,2
Group Solidarity		
Adequate	67	
Poor	263	20,3
		79,7
E-Cigarette Use		
High	199	
Low	131	60,3
		39,7

Table 2 presents the results of the univariate analysis of the peer variable, which is indicated by social interaction, peer habits, and group solidarity. The results showed that the highest interaction was found in poor social interaction, with 253 respondents or 77.9%. In peer habits, the highest value was found in the adequate category, with 214 respondents or 64.8%. Meanwhile, in group solidarity, the highest category was poor solidarity, with 263 respondents or 79.7%. The highest e-cigarette use in this study was high e-cigarette use, with 199 respondents or 60.3%.

This study shows that adolescents with university student status have high e-cigarette use behavior. Adolescents at the university level are generally between 17–22 years old. This age group is categorized as the age of initiation or beginning to use e-cigarettes, which ranges from 10–19 years old (Villanueva-Blasco et al., 2025b). This age represents the developmental phase from late adolescence to early adulthood, characterized by a high intensity of social interaction, particularly with peer groups (Costello et al., 2024).

Table 3. Results of Bivariate Analysis of the Relationship between Peer Variables and E-Cigarette Use among Students (n=330)

Variable	E-Cigarette Use						
	High		Low		Total		P Value
	n	%	n	%	n	%	
Social Interaction							
Adequate	28	38.4	45	33.5	73	22.12	0.001
Poor	171	66.5	86	61.6	257	7.8	
Peer Habits							
Adequate	90	42.1	124	57.9	214	64.84	0.001
Poor	109	94	7	6	116	35.16	
Group Solidarity							
Good	26	38.8	41	61.2	67	20.3	0.001
Poor	173	65.8	90	34.2	263	79.7	

Table 3 presents the results of the bivariate analysis regarding the relationship between peer variables and e-cigarette use behavior among students. The distribution of respondents showed that the highest proportion of e-cigarette use was found among students who were in peer environments with less supportive characteristics, namely in the category of poor social interaction with 171 respondents (66.5%) and poor group solidarity with 173 respondents (65.8%). In addition, among respondents with adequate peer habits, relatively high e-cigarette use behavior was still found, namely 124 respondents (57.9%). These findings indicate that characteristics and habits within peer groups, including smoking behavior within the group, contribute to the high use of e-cigarettes among students.

The results of the analysis using the Chi-Square test showed a p-value of 0.001 ($p < 0.05$), which means that there was a significant relationship between peer variables and e-cigarette use behavior among students. Thus, it can be concluded that peer influence in this context is more directed toward the existence of smoking norms and habits within the group that encourage individuals to also use e-cigarettes, rather than merely due to distant social

relationships. This indicates that the presence of peers who engage in smoking behavior is an important factor in shaping similar behavior among students through mechanisms of social imitation and group pressure.

Interaction with peers is an important process in the formation of individual behavior (Zhiyuan, 2026). Santrock states that adolescents tend to have a high need to be accepted within their social groups, so they attempt to adjust themselves to prevailing norms (John W. Santrock, 2019). In addition, in the Health Belief Model (HBM), social interaction can serve as cues to action, namely external factors that encourage individuals to engage in a behavior (Jones et al., 2014). When students frequently interact with friends who use e-cigarettes, such interactions become triggers for the desire to try and eventually adopt the behavior (Assari et al., 2025).

Some adolescents try new products because their social environment has tried the products first. Adolescents are afraid of being left behind in something new or being considered outdated (Lajnef, 2023). E-cigarettes are new products in the tobacco product market that stimulate adolescents' curiosity to try them (Margolis et al., 2016). Although they still use conventional tobacco products, this does not prevent them from also using e-cigarettes. Some smokers use e-cigarettes as a reason to quit conventional cigarettes (Kasza et al., 2021), namun bagi remaja dengan usia yang masih semangat dalam mencoba sesuatu yang baru, sehingga alasan untuk berhenti bukan sebagai pilihan utama. Dalam situasi tersebut remaja malah terjebak pada ke-dua produk tembakau tersebut akibat kecanduan nikotin yang dimiliki.

Adolescents who are different from their peers within a friendship group are at risk of experiencing social pressure, including bullying or social exclusion, which encourages them to adjust to the norms prevailing within the group. In this context, conformity becomes an important mechanism, where adolescents tend to follow dominant behaviors in order to be socially accepted. Therefore, behavioral differences, including smoking habits, can become triggers for adolescents to change their behavior in order to align with the group.

This condition becomes stronger in groups with high interaction intensity. Adolescents who still use conventional cigarettes in groups where the majority use e-cigarettes may feel excluded or inconsistent with the group's identity. As a result, they are encouraged to switch to e-cigarettes as a form of social adaptation and an effort to maintain membership within the friendship group. This shows that peer influence is not only passive, but also active in shaping behavior through social pressure and the need for acceptance.

This study is in line with research conducted by Rahm Harry Putri (2024) which showed that peer habits have a significant influence on e-cigarette smoking behavior among adolescents, particularly due to the process of self-adjustment within groups (Rahmani Harry Putri et al., 2025). In addition, this study is also consistent with research conducted by Umami Fahria (2025) which showed that the social environment, including group solidarity, influences e-cigarette use behavior. Under such conditions, individuals tend to maintain harmonious relationships by participating in activities carried out together (Umami Fahria et al., 2025).

The characteristics of respondents in this study are unique because they come from the fields of health and sports sciences, which are closely associated with healthy lifestyles, physical fitness, and disease prevention. Health students generally possess knowledge regarding the dangers of smoking and the importance of healthy behavior, while sports students are strongly related to physical performance and endurance that can be negatively

affected by cigarette and e-cigarette use. However, the findings of this study indicate that e-cigarette use among FIKK UNM students remains relatively high, including the presence of dual users who consume both conventional cigarettes and e-cigarettes simultaneously. This condition suggests that health knowledge alone has not been sufficient to prevent e-cigarette use behavior among adolescents and young adults. At the university stage, individuals are in a developmental phase characterized by a strong need for social acceptance, causing peer influence to often become stronger than awareness of health risks.

In the environment of health and sports students, e-cigarette use is also influenced by the perception that e-cigarettes are more modern, safer, and more socially acceptable than conventional cigarettes. Flavor variations, attractive product designs, and the high intensity of social interaction within the campus environment further strengthen the normalization of e-cigarette use within peer groups. In addition, the dominance of male respondents in this study may also contribute to the high prevalence of e-cigarette use, as smoking behavior among males is often associated with social solidarity, masculinity, and group activities. These findings indicate that e-cigarette use behavior among health and sports students is influenced not only by knowledge factors, but also by social pressure, processes of self-adjustment, and the need for acceptance within peer groups.

The primary limitation of this study is its cross-sectional design, which only allows for the identification of associations rather than causal relationships between peer influence and e-cigarette use. Therefore, it cannot be determined whether peer influence leads to e-cigarette use or whether students who use e-cigarettes are more likely to associate with peers who exhibit similar behaviors. This study contributes to the achievement of SDG 3.4 by highlighting the importance of preventing e-cigarette use among young people to reduce future non-communicable disease risks, and supports SDG 4.7 by emphasizing the role of educational institutions and peer-based interventions in promoting health literacy and sustainable healthy behaviors among students.

Conclusion

This study concludes that there is a significant relationship between peer variables and e-cigarette use behavior among students at the Faculty of Sport and Health Sciences, Universitas Negeri Makassar (FIKK UNM). Peer influence through social interaction, peer habits, and group solidarity plays an important role in encouraging students to use e-cigarettes. Students who interact more frequently with peers who smoke or use e-cigarettes tend to adopt similar behaviors due to social imitation, conformity, and the need for acceptance within peer groups. In addition, the high prevalence of dual users indicates that e-cigarettes are not fully used as a smoking cessation tool, but rather as an additional tobacco product influenced by social and environmental factors. Therefore, efforts to prevent e-cigarette use among adolescents and university students should focus not only on individual awareness but also on strengthening healthy peer environments and social support systems.

Conflicts of Interest

The authors declare no conflict of interest.

References

- Abadi, M. H., Lipperman-Kreda, S., Shamblen, S. R., Thompson, K., Grube, J. W., Leventhal, A. M., Luseno, W., & Aramburu, C. (2021). The impact of flavored ENDS use among adolescents on daily use occasions and number of puffs, and next day intentions and willingness to vape. *Addictive Behaviors*, 114, 106773. <https://doi.org/10.1016/J.ADDBEH.2020.106773>
- Ashour, A. M. (2023). Use of Vaping as a Smoking Cessation Aid: A Review of Clinical Trials. *Journal of Multidisciplinary Healthcare*, 16, 2137. <https://doi.org/10.2147/JMDH.S419945>
- Assari, S., Mohammadi, M., Pashmchi, M., Aghaeimeybodi, F., & Pallera, J. A. (2025). I Am My Peers: How Social Ties Influence E-Cigarette Attitudes, Policy Support, and Use. *Open Journal of Psychology*, 5(1), 24. <https://doi.org/10.31586/OJP.2025.6043>
- Astuti, P. A. S., Assunta, M., & Freeman, B. (2020). Why is tobacco control progress in Indonesia stalled? - a qualitative analysis of interviews with tobacco control experts. *BMC Public Health*, 20(1), 527. <https://doi.org/10.1186/S12889-020-08640-6>
- BPOM. (2017). *Kajian Rokok Elektrik di Indonesia: Edisi Kedua*. BPOM.
- Coleman, S. R. M., Piper, M. E., Byron, M. J., & Bold, K. W. (2022). Dual Use of Combustible Cigarettes and E-cigarettes: a Narrative Review of Current Evidence. *Current Addiction Reports*, 9(4), 353. <https://doi.org/10.1007/S40429-022-00448-1>
- Costello, M. A., Pettit, C., Hellwig, A. F., Hunt, G. L., Bailey, N. A., & Allen, J. P. (2024). Adolescent Social Learning Within Supportive Friendships: Self-Disclosure and Relationship Quality from Adolescence to Adulthood. *Journal of Research on Adolescence : The Official Journal of the Society for Research on Adolescence*, 34(3), 805. <https://doi.org/10.1111/JORA.12947>
- Crosby, A., Dunn, J. L., Aditjondro, E., & Rachfiansyah. (2019). Tobacco Control Is a Wicked Problem: Situating Design Responses in Yogyakarta and Banjarmasin. *She Ji: The Journal of Design, Economics, and Innovation*, 5(4), 261–284. <https://doi.org/10.1016/J.SHEJI.2019.09.001>
- John W. Santrock. (2019). *Children*. Library of Congress Cataloging-in-Publication Data. <https://www.mheducation.com/unitas/highered/sample-chapters/9781260073935.pdf>
- Jones, C. L., Jensen, J. D., Scherr, C. L., Brown, N. R., Christy, K., & Weaver, J. (2014). The Health Belief Model as an Explanatory Framework in Communication Research: Exploring Parallel, Serial, and Moderated Mediation. *Health Communication*, 30(6), 566. <https://doi.org/10.1080/10410236.2013.873363>
- Kasza, K. A., Edwards, K. C., Kimmel, H. L., Anesetti-Rothermel, A., Cummings, K. M., Niaura, R. S., Sharma, A., Ellis, E. M., Jackson, R., Blanco, C., Silveira, M. L., Hatsukami, D. K., & Hyland, A. (2021). Association of e-Cigarette Use with Discontinuation of Cigarette Smoking among Adult Smokers Who Were Initially Never Planning to Quit. *JAMA Network Open*, 4(12). <https://doi.org/10.1001/jamanetworkopen.2021.40880>
- Lajnef, K. (2023). The effect of social media influencers' on teenagers Behavior: an empirical study using cognitive map technique. *Current Psychology (New Brunswick, N.j.)*, 42(22), 1. <https://doi.org/10.1007/S12144-023-04273-1>
- Margolis, K. A., Nguyen, A. B., Slavitt, W. I., & King, B. A. (2016). E-cigarette Curiosity among U.S. Middle and High School Students: Findings from the 2014 National Youth Tobacco Survey. *Preventive Medicine*, 89, 1. <https://doi.org/10.1016/J.YPMED.2016.05.001>

- Monika Melina, Heni Susanti, Yuhanif Yusuf, Admiral, & Friska Anggraini. (2022). Analysis of Factors Influencing Adolescent Using Electric Cigarettes (Vape) In Indonesia. *ICMI*, 3. <https://www.conference.unja.ac.id/ICMI/>
- Ni Komang Sriwisani S, & Retna Siwi Padmawati. (2023). *Studi Fenomenologi Perilaku Pengguna Ganda Rokok (Dual User) pada Mahasiswa di Daerah Istimewa Yogyakarta [UGM]*. <https://etd.repository.ugm.ac.id/penelitian/detail/229283>
- Paramashanti, B. A., Kurniasih, D. A. A., Nugraheni, W. P., Faisal, D. R., Puspita, T., & Rachmat, B. (2025). Determinants of Electronic Cigarette Use in Indonesia: Results from the 2021 Global Adult Tobacco Survey. *WHO South-East Asia Journal of Public Health*, 14(1), 25–31. https://doi.org/10.4103/WHO-SEAJPH.WHO-SEAJPH_34_25
- Rahmani Harry Putri, Weslei Daeli, & Siti Kamillah. (2025). Hubungan Interaksi Sosial Teman Sebaya Dan Pengawasan Orang Tua Terhadap Perilaku Merokok Elektrik (Vape) Pada Remaja Kelas XII Di SMKN 1 Bojongpicung Tahun 2024. *Jiic: Jurnal Intelek Insan Cendekia*, 2(3). <https://jicnusanantara.com/index.php/jiic/article/view/2769/2937>
- Sri Rahmayani. (2024). *HUBUNGAN ANTARA PENGETAHUAN, SIKAP DAN TEMAN SEBAYA DENGAN PERILAKU MEROKOK PADA MAHASISWA FIKK UNM [Universitas Negeri Makassar]*. <https://lib.unm.ac.id/layanan/karya-ilmiah/hubungan-antara-pengetahuan-sikap-dan-teman-sebaya-dengan-perilaku-merokok-pada-mahasiswa-fikk-unm>
- Toledo, E. F. V., Simões, I. F., Farias, M. T. de, Minho, L. A. C., Conceição, J. de L., Santos, W. N. L. dos, Mesquita, P. R. R. de, & Júnior, A. de F. S. (2025). A Comprehensive Review of the Harmful Compounds in Electronic Cigarettes. *Toxics* 2025, Vol. 13, Page 268, 13(4), 268. <https://doi.org/10.3390/TOXICS13040268>
- Trisnowati, H., & Promkes, H. Y. J. (2024). Predisposing, Enabling, and Reinforcing Factors of E-cigarette Use among Junior High School Students in Yogyakarta, Indonesia. *The Indonesian Journal of Health Promotion and Health Education*, 12(2), 15–24. <https://doi.org/10.20473/jpk.V12.I2SP.2024.15-24>
- Ummi Fahria, Sunandar Said, & Pratiwi Ramlan. (2025). Pengaruh Lingkungan Sosial Terhadap Perilaku Penggunaan Rokok Elektrik (VAPE) Pada Siswa Di SMKN 5 Sidenreng Rappang. *JUKEJ: Jurnal Kesehatan Jompa*, 4(1). <https://jurnal.jomparnd.com/index.php/jkj/article/view/1460/1112>
- Villanueva-Blasco, V. J., Belda-Ferri, L., & Vázquez-Martínez, A. (2025). A systematic review on risk factors and reasons for e-cigarette use in adolescents. *Tobacco Induced Diseases*, 23(January), 1–25. <https://doi.org/10.18332/TID/196679>
- Vital Strategies. (2022). *Vape Tricks di Indonesia: Jerat Rokok Elektrik di Media Sosial pada Anak Muda* Definitions.
- Wang, Y., Duan, Z., Weaver, S. R., Self-Brown, S. R., Ashley, D. L., Emery, S. L., & Huang, J. (2022). Association of e-Cigarette Advertising, Parental Influence, and Peer Influence With US Adolescent e-Cigarette Use. *JAMA Network Open*, 5(9), e2233938. <https://doi.org/10.1001/JAMANETWORKOPEN.2022.33938>
- Widiantari, N. K., Kurniasari, N. M. D., Trapika, G. M. G. S. C., & Astuti, P. A. S. (2024). Vape store density and proximity to schools in Denpasar, Bali, Indonesia. *Tobacco Control*, 33(e2), e262–e265. <https://doi.org/10.1136/TC-2023-058037>

Zhiyuan, Q. (2026). The relationship between peer interaction and subjective well-being among orphans: a meta-analysis. *Children and Youth Services Review*, 184, 108870. <https://doi.org/10.1016/J.CHILDYOUTH.2026.108870>

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