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THE IMPACT OF SOCIAL MEDIA AND KNOWLEDGE ON ADOLESCENTS' INTENTIONS TO ENGAGE IN E-CIGARETTE SMOKING

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ABSTRACT

Introduction: The global prevalence of e-cigarette use among adolescents (11.3%) is increasing, primarily driven by exposure to promotional content on social media platforms. **Aims:** This study aimed to examine how exposure to e-cigarette content, content type, e-cigarette-related activity within the content, and knowledge about e-cigarettes influence adolescents' intention to use e-cigarettes. **Method:** This survey-based study was conducted in Surakarta, Central Java, in November 2024. A total of 260 junior and senior high school students were selected through stratified random sampling. Data were collected using a structured questionnaire, and logistic regression analysis was applied to evaluate the relationships between variables. **Results:** The analysis indicated that exposure to e-cigarette content significantly increased the intention to use e-cigarettes ($p < 0.001$). In contrast, higher levels of knowledge about e-cigarettes were significantly associated with a lower intention to use them ($p = 0.020$). However, neither the type of content nor the presence of e-cigarette-related activity within the content showed a significant association with use intention ($p = 0.501$ and $p = 0.162$, respectively). The logistic regression model accounted for 25% to 34% of the variance in e-cigarette use intention, suggesting a moderate explanatory power. **Conclusion:** These findings underscore the significant influence of e-cigarette content exposure and adolescents' knowledge levels on their intention to use e-cigarettes. While exposure increases the likelihood of use, adequate knowledge appears to reduce it. Therefore, reducing adolescents' exposure to e-cigarette content and improving their awareness of the associated health risks may serve as effective strategies to prevent e-cigarette initiation.

Keywords: Adolescents, E-cigarettes, Knowledge, Smoking intention, Social media

INTRODUCTION

Adolescent e-cigarette use is emerging as a global public health concern, largely fueled by the pervasive influence of social media and the endorsement of vaping by influencers and celebrities (Rutherford et al., 2023; Salari et al., 2024). Social media platforms such as Instagram, TikTok, and YouTube are primary channels where smoking—particularly e-cigarette use—is portrayed as socially acceptable. Numerous studies have highlighted that these platforms significantly shape adolescents' perceptions and behaviors, promoting the belief that vaping is fashionable and relatively harmless (Vrinten et al., 2023). In the United States, approximately 20% of high school students report using e-cigarettes, with social media and celebrity influence identified as major contributing factors (FDA, 2024; Vassey et al., 2024).

Research across multiple countries has confirmed the considerable impact of visual depictions of e-cigarettes on adolescent behavior. Influencers on platforms such as Instagram and TikTok frequently present vaping as modern and appealing, particularly targeting impressionable youth (Smith & Hilton, 2023; Zheng et al., 2024). According to Pettigrew *et al.*, (2023) uch portrayals normalize smoking behaviors. Reduced awareness of associated health risks consequently increases the likelihood of e-cigarette use among adolescents. Prolonged exposure to such imagery not only weakens adolescents' understanding of smoking-

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related dangers but also elevates their intention to use e-cigarettes (Donaldson et al., 2024).

In alignment with global trends, national data from Indonesia further emphasize the urgency of this issue (Health Development Policy Agency, 2023). Surakarta, a major urban center in Central Java, is characterized by high levels of media consumption among adolescents, who are increasingly influenced by platforms such as Instagram, TikTok, and YouTube. E-cigarette-related content is readily accessible and plays a pivotal role in shaping adolescents' attitudes and intentions. This concern is compounded by a significant rise in the prevalence of adolescent smokers (aged 15–24) in Surakarta—from 12.34% in 2022 to 17.11% in 2023—highlighting the urgent need to address the contributing factors contributing to this public health concern (Central Statistics Agency of Central Java Province, 2024). Furthermore, a study by the Indonesian Ministry of Health revealed that approximately 15% of secondary school students in urban areas engage in e-cigarette use, a figure that aligns with trends observed across Southeast Asia. (Hartono et al., 2024).

The increasing volume of e-cigarette-related content disseminated via social media—especially when endorsed by public figures—conveys smoking as both socially acceptable and fashionable (Bahl et al., 2023). Consequently, an increasing number of Indonesian adolescents are experimenting with e-cigarettes, often without a comprehensive understanding of the associated health risks (Bigwanto et al., 2023).

While extensive research has explored the relationship between adolescent engagement with social media and tobacco use behaviors, the role of knowledge as a moderating factor remains underexplored (Lee et al., 2024; Smith et al., 2023). Much of the current literature has focused on the influence of media portrayals and celebrity endorsements, with limited attention given to how adolescents' awareness of the short- and long-term health risks of e-cigarette use interacts with their exposure to such content (Gonzales & Grover, 2023). Nevertheless, emerging findings suggest that knowledge, when considered as an independent variable, may serve as a protective factor against the persuasive effects of media exposure (Chen-Chen-Sankey *et al.*, 2024).

Rectifying this knowledge gap is essential, as adolescents' awareness of the hazards associated with e-cigarettes may significantly shape their responses to smoking-related content on social media. Adolescents with greater awareness of health risks are more likely to critically evaluate information presented through celebrity endorsements or influencer-generated content (Smith et al., 2023; Vassey et al., 2024). Those who understand the risks of nicotine addiction, respiratory complications, and long-term health consequences are better equipped to resist the temptation to experiment with e-cigarettes after exposure to pro-vaping content (Lee et al., 2023). In contrast, adolescents who lack such knowledge are more susceptible to misleading portrayals of e-cigarettes as safer alternatives to conventional cigarettes or as risk-free (Cho et al., 2019).

This study addresses the existing knowledge gap by examining whether adolescents' awareness of e-cigarette risks, in the context of exposure to social media and e-cigarette-related content, functions as an independent variable that can influence their smoking intentions. Specifically, the study explores the relationship between adolescents' knowledge of health risks, the portrayal of e-cigarettes on social media, and their intention to use e-cigarettes.

METHODS

This study employed a quantitative survey method to investigate the effects of social media exposure, knowledge of e-cigarette risks, and the visualization of e-

cigarette content on adolescents' intention to use e-cigarettes. The research was conducted in Surakarta, Central Java, involving 260 junior and senior high school students selected through stratified sampling based on educational level. The target population comprised adolescents aged 13 to 18 years, a critical developmental period during which smoking intentions often emerge and social media plays an influential role. Participants were selected based on their regular use of social media to ensure the study's relevance.

Data collection was carried out in November 2024 using a standardized questionnaire. Demographic characteristics—including gender, place of residence, school type, and frequently used social media platforms—were gathered through closed-ended questions. The questionnaire measured four main constructs: social media exposure and smoking intention (each assessed via four Likert-scale items), knowledge of e-cigarettes (measured through six true-or-false items), and visualization of smoking-related content on social media (assessed via researcher-designed closed-ended questions). The visualization component focused on the type of content viewed and the presence of e-cigarette-related activity in the content.

The questionnaire underwent rigorous validation and reliability testing. Validity was assessed using product-moment correlation analysis for all items within the variables of social media exposure, smoking intention, and e-cigarette knowledge. All items yielded p-values below 0.05, indicating strong construct validity. Reliability was tested using Cronbach's alpha. All variables demonstrated high internal consistency, with coefficients exceeding the accepted threshold of 0.80: social media exposure ($\alpha = 0.84$), smoking intention ($\alpha = 0.86$), and e-cigarette knowledge ($\alpha = 0.82$) (Cohen et al., 2013;Tavakol & Dennick, 2011). These results confirm the reliability and validity of the instruments used in the study.

For analytical purposes, Likert-scale data related to social media exposure and e-cigarette use intention were re-categorized into two broad levels: *low* and *high*. This reclassification allowed the application of chi-square tests, which are appropriate for analyzing categorical (nominal) data, as noted by (Cohen et al., 2013). Similarly, responses to the yes/no questions assessing awareness of e-cigarettes were converted into cumulative scores and subsequently categorized into two levels for further analysis. The nature of smoking-related content was analyzed descriptively, based on participants' responses to structured, closed-ended questions.

The categorization of Likert-scale data on knowledge, social media exposure, and smoking intentions was performed by calculating total scores from each set of responses. The median score was used as the cut-off point: respondents with total scores equal to or below the median were classified as *low*, while those with scores above the median were categorized as *high*. This method ensured balanced data distribution and enabled analysis of relationships between variables using chi-square tests, which are suitable for ordinal-scale data (Cohen et al., 2013). Dichotomous responses on e-cigarette awareness were similarly aggregated into composite scores and categorized into two levels for inclusion in the analysis. Smoking-related content was analyzed descriptively, based on participant selections in the closed-ended items.

Data analysis was conducted in three main stages. First, descriptive statistics were used to summarize respondents' demographic characteristics and variable distributions. Second, bivariate analysis using chi-square tests was employed to explore associations between social media exposure, knowledge of e-cigarettes, and smoking intentions. Third, logistic regression was applied to identify

significant predictors of e-cigarette use intention, allowing an evaluation of the combined influence of the variables under study. All statistical analyses were conducted using SPSS software.

This study underwent ethical review by the Health Research Ethics Committee of Poltekkes Kemenkes Semarang. The review confirmed that the research complied with prevailing ethical standards for health-related studies. Following the evaluation process, the committee granted ethical approval with reference number 1258/EA/F.XXIII.38/2024, signifying that the study was deemed ethically feasible.

RESULT

This section presents an overview of the sociodemographic characteristics of the participants and their association with smoking intention. These findings provide a foundational understanding of the behavioral patterns relevant to the study and serve as a basis for further statistical analysis. Table 1 outlines the distribution of sociodemographic variables among the participants, including frequencies and percentages across various classifications.

The demographic characteristics are presented along with their statistical associations, analyzed using the chi-square test to determine significance. In terms of gender distribution, 60.4% of the respondents were male (n = 157), while 39.6% were female (n = 103). The chi-square test revealed a statistically significant association between gender and smoking intention, with a p-value of < 0.001.

Regarding age, the majority of participants were 13 years old, accounting for 30.0% of the total sample (n = 78), followed by 17-year-olds, who made up 23.5% (n = 61). Other age groups were represented in smaller proportions: both 14-year-olds and 18-year-olds constituted 7.3% of the sample (n = 19 each). The chi-square analysis also indicated a highly significant association between age and smoking intention, with a p-value of < 0.001.

Table 1. Sociodemographic Distribution of Variables Related to Smoking Intention (n=260)

Variable	Category	Frequency	Percentage	χ^2	p-value
Gender	Male	157	60.4	83.006	<0.001
	Female	103	39.6		
Age	13	78	30.0	102.804	<0.001
	14	19	7.3		
	15	26	10.0		
	16	57	21.9		
	17	61	23.5		
	18	19	7.3		
School	Junior High	110	42.3	96.024	<0.001
	Senior High	73	28.1		
	Vocational	77	29.6		
Place of Residence	Rural	125	48.1	3.146	0.076
	Urban	135	51.9		
Social Media Type	Instagram	46	17.7	3.017	0.378
	TikTok	134	51.5		
	YouTube	66	25.4		
	Twitter/Facebook	14	5.4		

The distribution of respondents based on school type indicates that the largest proportion, 42.3% (n = 110), are students enrolled in junior high schools.

This is followed by participants from vocational high schools, comprising 29.6% (n = 77) of the sample. The remaining 28.1% (n = 73) are senior high school students. Chi-square analysis revealed a statistically significant association between school type and the variables under study, with a p-value of < 0.001.

With regard to domicile, the sample is nearly evenly divided between metropolitan and rural (agrarian) regions. A total of 135 participants (51.9%) reported residing in metropolitan areas, while 125 individuals (48.1%) lived in rural areas. The chi-square test yielded a p-value of 0.076, which exceeds the commonly accepted threshold of 0.05. This suggests that there is no statistically significant association between place of residence and the variables examined in the study.

In terms of social media usage, TikTok emerged as the most frequently used platform, reported by 51.5% (n = 134) of respondents. YouTube followed at 25.4% (n = 66), while Instagram was used by 17.7% (n = 46). A small minority (5.4%, n = 14) reported using either Twitter or Facebook. The association between social media platform usage and the study variables was assessed using the chi-square test, which produced a p-value of 0.378, indicating no statistically significant relationship.

As presented in Table 2, this section outlines key findings related to adolescents' knowledge of e-cigarettes, their exposure to e-cigarette content, and their smoking intentions. The descriptive statistics provide an overview of general trends in knowledge levels, exposure, content visualization types, and smoking intentions. Building on this foundation, cross-tabulation analysis was conducted to explore the interactions among these variables, offering a clearer understanding of how they collectively influence adolescents' intentions to use e-cigarettes.

Table 2. Association Between Various Factors and Smoking Intention (n=260)

Category	Smoking Intention		χ^2	p-value
	Low	High		
Knowledge				
Low	19 (47.5%)	21 (52.5%)	3.324	0.068
High	133 (63.3%)	77 (36.7%)		
Smoke Activity on Content				
Only hold e-cigarette	47 (74.6%)	16 (25.4%)	5.982	0.050
Smoking	112 (56.6%)	85 (43.4%)		
Exposure to Smoking Content				
Low	112 (84.2%)	21 (15.8%)	64.319	<0.001
High	40 (34.2%)	77 (65.8%)		
Content Type				
Video	98 (56,6%)	75 (43.4%)	2.421	0.120
Non Video	58 (66,7%)	29 (33,3%)		

In contrast, the variable *smoking activity in content* demonstrated a more pronounced association with smoking intention. Specifically, when the content featured individuals merely holding a cigarette, the relationship with smoking intention reached statistical significance (p = 0.050). Among respondents exposed to such content, 74.6% exhibited low smoking intention, while 25.4% reported high smoking intention. This finding indicates that even the passive act of holding a cigarette in media content may influence adolescents' attitudes toward smoking,

albeit to a modest degree. A similar yet more impactful trend was observed in cases where actual smoking behavior was depicted. In this category, 56.6% of respondents exhibited low smoking intention, while 43.4% reported high intention. These findings underscore the potential influence of smoking-related behaviors depicted in media content on the formation of adolescents' smoking intentions.

The most compelling finding emerged from the analysis of *exposure to smoking content*, which demonstrated a highly significant relationship with smoking intention ($p < 0.001$). Among those exposed to high levels of smoking-related media content, 65.8% reported high smoking intention, compared to only 34.2% among those with low exposure. This result suggests that both the frequency and intensity of exposure to smoking-related media content significantly contribute to shaping adolescents' intentions to use e-cigarettes. Thus, the influence of media portrayals of smoking emerges as a critical factor in understanding youth smoking behavior.

Conversely, the *content type* variable—distinguishing between video and non-video formats—did not show a statistically significant correlation with smoking intention ($p = 0.120$). Respondents who viewed smoking-related content in video and non-video forms displayed similar patterns in their intention to smoke. This suggests that the content's underlying message or activity may exert a stronger influence on adolescents' smoking intentions than the medium through which it is delivered.

The cross-tabulation analysis highlights key associations between smoking intention and variables such as knowledge, type of smoking activity depicted, and overall exposure to smoking-related content. To further investigate these relationships and quantify their effects, the following section presents the results of a logistic regression analysis. This analysis, shown in Table 3, evaluates the predictive strength and overall contribution of each factor to adolescents' smoking intention.

Table 3. Logistic Regression Analysis of Influencing Factors on Smoking Intention

Variable	B	SE	Wald	Sig.	OR	95% CI
Exposure to Smoking Content						
High (Ref)	—	—	—	—	1.000	—
Low	-2.292	0.308	55.513	<0.001*	0.101	0.055 – 0.186
Content Type						
Image (Ref)	—	—	—	—	1.000	—
Video	-0.217	0.323	0.452	0.501	0.805	0.426 – 1.519
Smoking Activity in Content						
Smoking (Ref)	—	—	—	—	1.000	—
Only holding e-cigarette	0.295	0.211	1.953	0.162	1.343	0.892 – 2.022
Knowledge						
High (Ref)	—	—	—	—	1.000	—
Low	-0.923	0.397	5.399	0.020*	0.397	0.183 – 0.861
Constant	-2.527	0.994	6.464	0.011*	0.080	—

*indicates significance at $p < 0.05$.

The logistic regression analysis identified two significant predictors of adolescents' intention to use e-cigarettes. The first significant factor was exposure to smoking-related content. Adolescents with low exposure had significantly lower odds of intending to use e-cigarettes compared to those with high exposure (OR = 0.101, 95%

CI: 0.055–0.186, $p < 0.001$). This finding highlights the strong influence of media exposure, suggesting that greater exposure to smoking-related content substantially increases the likelihood of e-cigarette use intention among adolescents.

The second significant predictor was knowledge about e-cigarettes. Respondents with lower levels of knowledge had significantly reduced odds of intending to use e-cigarettes compared to those with higher knowledge (OR = 0.397, 95% CI: 0.183–0.861, $p = 0.020$). This result implies that increased awareness and understanding of the risks associated with e-cigarette use may serve as a protective factor, reducing adolescents' susceptibility to e-cigarette experimentation. In contrast, neither content type (video vs. image) nor depicted smoking activity (holding vs. actively smoking) were statistically significant predictors of smoking intention. The respective odds ratios (OR = 0.805 and OR = 1.343) and *p*-values ($p = 0.501$ and $p = 0.162$) suggest that the format and activity depicted in the content, when considered independently, do not significantly affect adolescents' intentions to use e-cigarettes. Additionally, the constant term in the model was significant ($p = 0.011$), indicating that even in the absence of the included predictors, the baseline probability of e-cigarette use intention among adolescents remains low. This suggests the potential influence of other, unmeasured variables.

Model fit indicators further supported the analysis, with Cox & Snell $R^2 = 0.251$ and Nagelkerke $R^2 = 0.340$, demonstrating that the model explains approximately 25% to 34% of the variance in smoking intention. These findings underscore the critical role of media exposure and knowledge as central factors influencing adolescents' intentions to use e-cigarettes, offering valuable insight for future preventive interventions and health education strategies.

DISCUSSION

The findings of this study indicate that active engagement with various social media platforms exerts significant and multifaceted influences on adolescent behavioral intentions—particularly regarding the use of electronic cigarettes. Increased awareness and understanding of the consequences associated with digital media exposure are crucial in shaping youth behaviors, as these platforms often promote or normalize e-cigarette use as a modern alternative to traditional tobacco products.

The literature highlights the necessity of recognizing gender-specific behavioral patterns in designing effective interventions. For example, young women are often more susceptible to tobacco initiation and continued use, largely due to sociocultural pressures, including peer influence within their social networks (McKee & Weinberger, 2015). Conversely, male adolescents are more prone to the effects of extensive media exposure, which can manifest in compulsive usage patterns and an increased tendency toward harmful behaviors, including smoking (Picoito et al., 2019; Achak et al., 2024). These findings emphasize the importance of gender-responsive and contextually relevant intervention strategies (Solomon, 2020). Prior studies have also shown that men are generally more susceptible to developing smoking habits and media-related behavioral risks (West, 2017; Peighambari, Hassanzadeh and Khoshfar, 2020). Collectively, this evidence underscores the value of a nuanced understanding of gender dynamics in the formulation of targeted public health strategies to curb adolescent tobacco use.

Sociodemographic data from this study reveal that most participants were between 13 and 17 years old—a developmental stage marked by heightened vulnerability to external influences, particularly through social media. This aligns with existing literature suggesting that adolescents are highly impressionable and exposed to unsafe behaviors, such as the normalization of smoking via online platforms (Short & Cole, 2021; WHO, 2021). E-cigarette-related content on

platforms such as Instagram, YouTube, and TikTok often constitutes indirect marketing, subtly shaping perceptions and intentions related to smoking behavior.

Additionally, the significant association between school type and smoking intention suggests that educational environment plays a role in behavioral development. Respondents attending junior high school reported higher smoking intentions than those in senior high or vocational schools. This finding highlights the heightened vulnerability of younger adolescents, who are more impressionable and heavily influenced by peer pressure and media exposure (Sianturi et al., 2024; Bagnal *et al.*, 2021). In contrast, older adolescents in senior high or vocational schools are more likely to exhibit resistance to external influences, potentially due to more advanced cognitive and emotional maturity (Kunzler et al., 2020). Nonetheless, interventions remain essential for all groups. Prevention efforts in junior high should prioritize proactive awareness and skills training, while for older students, reinforcing behavioral resilience and promoting critical thinking are key (Easterbrook & Hadden, 2021; Susanto et al., 2020). Interestingly, no significant association was observed between place of residence (urban vs. rural) and smoking intention. This may reflect a diminishing gap in access to information and media exposure between urban and rural populations, due to widespread mobile device use and internet connectivity (Lewis-Thames et al., 2020). The traditional assumption that urban areas have more influence from modern lifestyles and media may no longer hold, as rural adolescents increasingly share similar digital environments and media experiences.

Chi-square analysis revealed a significant association between school type and smoking intentions, particularly among adolescents in vocational schools and older age groups. This finding highlights the substantial influence of peer groups within these educational environments, where behaviors such as smoking are more commonly observed and socially reinforced. These results are consistent with prior research indicating that both peer dynamics and educational settings are critical determinants of smoking behavior among adolescents (Donaldson et al., 2022; Susanto et al., 2023). Conversely, the absence of a significant relationship between place of residence and smoking intention may suggest that the influence of social media now transcends geographical boundaries. Adolescents in both urban and rural settings appear to have comparable levels of access to and engagement with smoking-related media content, which likely contributes to the homogenization of behavior regardless of location (Lin et al., 2023; Sarkees & Issa, 2024).

Regression analysis further confirmed that exposure to smoking-related content on social media is a strong predictor of adolescents' intentions to use e-cigarettes. This supports previous findings that link digital media exposure to a wide range of adolescent risk behaviors. For instance, (Vogel et al., 2024) demonstrated associations between exposure to social media and various problem behaviors in adolescents. These findings underscore the importance of directing preventive interventions toward reducing such exposure. Given that social media often normalizes and glamorizes tobacco use, regulatory policies must be developed and enforced to limit adolescents' exposure to this content (Vogel et al., 2024).

Interestingly, the format of media content—whether video or non-video—did not significantly affect smoking intention. This supports findings from some studies suggesting that media format alone may not be a decisive factor if adolescents possess strong health literacy and critical media analysis skills (Azzahra & Andriyani, 2022; Sarkees & Issa, 2024). While prior research has suggested that video content, being more dynamic and immersive, may exert a stronger influence (Lipkus & Sanders, 2021; Moskell & Turner, 2021). the present

findings imply that format may be less influential than previously believed. This could be due to changing patterns of media consumption among adolescents, where both video and non-video content are now equally accessible and influential.

Overall, this study provides valuable insights into the complex interplay between social media engagement, knowledge acquisition, and smoking intention among adolescents. As social media becomes increasingly embedded in the daily lives of youth, the content encountered within these spaces significantly shapes perceptions and behaviors—especially regarding tobacco and e-cigarette use.

These findings highlight the urgency of reducing adolescents' exposure to content that glamorizes e-cigarettes or presents them as socially normative. Public health responses must include stricter regulatory frameworks to limit the promotion of such products on social media. In parallel, there is a critical need to disseminate accurate, evidence-based information about the risks associated with e-cigarettes through both formal education and community outreach programs. These insights have important implications for public health campaigns, which must adapt to evolving digital environments. Interactive digital tools, peer-led educational initiatives, and health promotion via social media platforms hold considerable promise in counteracting pro-vaping content.

Close collaboration between public health stakeholders, educational institutions, and social media platforms is essential. This includes the implementation of algorithmic adjustments or content moderation policies to reduce the visibility of smoking-related content to adolescents.

However, the current study is not without limitations. The use of a cross-sectional design restricts causal interpretation, and reliance on self-reported data may introduce bias. Therefore, findings should be interpreted cautiously.

Future research should focus on identifying the psychological mechanisms through which pro-smoking messages are internalized and employ longitudinal designs to assess the long-term impact of media exposure. Additionally, further research is needed to evaluate the effectiveness of public health interventions delivered via digital platforms, to ensure that preventive strategies keep pace with the rapidly evolving media landscape. This study recommends two key policy directions: (1) stricter regulation of e-cigarette-related promotion on social media platforms, and (2) the development of digital health education programs that enhance adolescents' media literacy and critical thinking about health information. Cross-sectoral cooperation between government agencies, educational institutions, and social media platforms will be essential to fostering a safer digital environment. This integrated approach holds the potential to sustainably reduce adolescents' intentions to use e-cigarettes.

CONCLUSIONS

This study concludes that social media exposure and health-related knowledge significantly influence adolescents' intentions to use electronic cigarettes. Exposure to social media content that portrays smoking—particularly electronic cigarette use—in a positive or neutral light exerts a stronger impact than knowledge of the associated health risks. Although awareness of the dangers of smoking serves as a protective factor, the persuasive power of social media plays a more dominant role in shaping adolescents' perceptions and behaviors.

Sociodemographic factors, including educational setting and socioeconomic status, also influence smoking intentions. The findings reveal higher smoking intentions among adolescents attending vocational schools and those from disadvantaged economic backgrounds.

These results highlight the need for prevention strategies that extend beyond conventional health education. Effective interventions must also address the persuasive and often misleading nature of media content related to electronic cigarettes. Comprehensive efforts should combine digital literacy education with regulatory measures aimed at reducing adolescents' exposure to content that normalizes or trivializes electronic cigarette use. Finally, future longitudinal research is recommended to investigate the causal relationships between social media exposure, health knowledge, and adolescent smoking intentions over time. Such studies will be essential for developing evidence-based, adaptive public health strategies that keep pace with evolving media landscapes.

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