

A close-up photograph of a person's hand holding a red e-cigarette. The person is exhaling a thick plume of white vapor. The background is blurred, showing other people in a public setting.

Emerging Nicotine Products: Perceptions and Nicotine Addiction

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**FEARLESSLY
FORWARD**



No conflict of interest to disclose

Emerging Nicotine Products:

First patent for a smokeless, non-tobacco cigarettes



E-cigarettes introduced to the European and US market. Ruyan as first e-cigarettes entered the US market



Swedish Match launches ZYN, one of the first mainstream nicotine pouches



To date, FDA has authorized four oral tobacco products that have met the necessary standard. As of Sept 2024, the FDA has not authorized any ZYN product for sale in the United States.

1967

2003

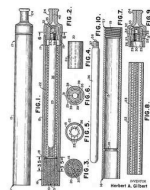
2006

2015

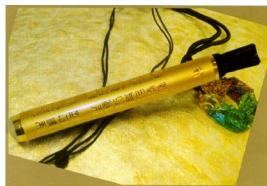
2014

2021

2024



Modern e-cigarette invented by Chinese pharmacist Hon Lik



JUUL Labs introduces JUUL in the US market, In 2019, Juul projected revenues of \$3.4 billion.



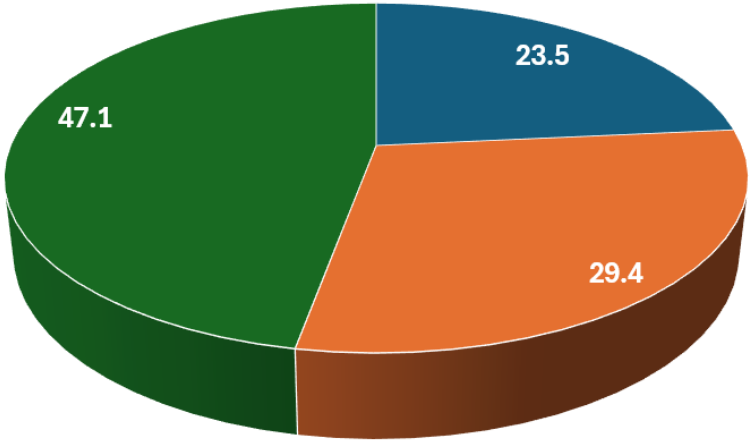
FDA authorizes marketing of certain e-cigarette products, while nicotine pouches remain unregulated at the federal level



FDA-authorized 34 E-cigarettes and e-liquids as of Oct 1st, 2024

Company name	n	%
Logic Technology Development LLC [Japan Tobacco]	8	23.5

■ Logic Technology Development LLC ■ NJOY LLC ■ R.J. Reynolds Vapor Company

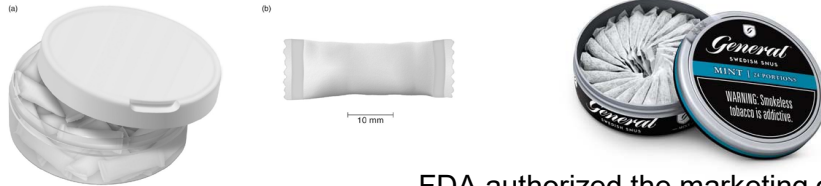


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Emerging Nicotine Products:

- Nicotine pouches are similar in appearance and use to traditional ‘snus’, a form of smokeless tobacco **placed between the gum and lip**, which is popular in Scandinavia.
- However, **unlike snus, nicotine pouches do not contain tobacco leaf**. As a result, they are often marketed as **“tobacco-free.”**
- A recent review found that the **“tobacco-free”** label is confusing to some and may lead people to **think nicotine pouches do not contain nicotine**.



FDA authorized the marketing of eight Swedish Match USA snus products as Modified Risk Tobacco Products (MRTPs) on October 22, 2019

The screenshot shows the top portion of an Oxford Academic article page. The header includes the Oxford Academic logo, navigation links for Journals and Books, and a sign-in button. The article title is "The Potential Impact of Oral Nicotine Pouches on Public Health: A Scoping Review". The authors listed are Nargiz Travis, MScPH, Kenneth E Warner, PhD, Maciej L Goniewicz, PhD, Hayoung Oh, MPH, Radhika Ranganathan, MScPH, Rafael Meza, PhD, Jamie Hartmann-Boyce, PhD, and David T Levy, PhD. The article was published on 17 June 2024. The page also features a "READ NOW" button and a sidebar with statistics: 3 citations, 7,765 views, and 363 altmetric mentions. The article abstract is partially visible, starting with "Oral nicotine pouches (ONPs) are a new class of nicotine products. This scoping review summarizes evidence on ONPs and explores their potential public health..."

e-Cigarettes come in many shapes, sizes, and types.



People vape with battery-operated devices used to inhale an aerosol, which can contain **nicotine, marijuana, flavorings, and other chemicals.**

Why children start vaping?

Illustration of youth smoking cigarettes in the past compared to vaping in recent years



Why children start vaping?

- In 1992, Eileen Goddard's commentary explored **why children started smoking**.
- Children cited smoking **by siblings and parents** as a major influence.
- **Fewer negative views about smoking** were another key reason.
- Today, similar reasons apply to vaping, with the addition of **appealing flavorings**.

British Journal of Addiction

 Free Access

Why children start smoking

Eileen Goddard

First published: January 1992 | <https://doi.org/10.1111/j.1360-0443.1992.tb01893.x> | Citations: 17

 PDF  TOOLS  SHARE

No abstract is available for this article.

Citing Literature 



Volume 87, Issue 1
January 1992
Pages 17-18

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Prevention of addiction among kids

- **Stricter age verification** and **retail restrictions** should be enforced for disposable e-cigarettes to limit youth access.
- **Educational campaigns** targeting youth should focus on the **risks of addiction** associated with vaping and the appeal of flavorings.
- **Pediatricians** should screen for e-cigarette use during routine visits and **educate both parents and children on the risks of vaping and nicotine addiction.**



Perceptions by communities



E-cigarettes Perceptions

In our most recent publication using longitudinal data from the PATH study, we found that compared with perceiving e-cigarettes as a lot of harm:

- Youth perceiving e-cigarettes as harmless were **twice as likely to start using them**
- Those viewing e-cigarettes as slightly harmful were **42% more likely to begin use**
- Perceiving some harm from e-cigarettes still **increased use chances by 30%**

Public Health 230 (2024) 52–58



Contents lists available at ScienceDirect
Public Health
journal homepage: www.elsevier.com/locate/puhe



Original Research

Longitudinal impact of perceived harm and addiction on e-cigarette initiation among tobacco-naïve youth: Population Assessment of Tobacco and Health study (Waves 1–5)

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ARTICLE INFO

Article history:
Received 28 September 2023
Received in revised form
11 February 2024
Accepted 20 February 2024
Available online 19 March 2024

Keywords:
E-cigarette initiation
ENDS
Harm perception
Tobacco naïve

ABSTRACT

Objectives: This study investigates the effect of e-cigarette-related harm and addiction perceptions on e-cigarette initiation among US tobacco-naïve adolescents.

Study design: This is a longitudinal study.

Methods: Using data from five waves (2013–2019) of the Population Assessment of Tobacco and Health Study, we created a longitudinal data set for 2775 youth aged 12–17 years who had no prior use of tobacco products at Wave 1. E-cigarette initiation was defined as transitioning from non-use at Wave 1 to ever use in subsequent waves. Kaplan–Meier survival and Cox proportional hazard regression models were used to assess the impact of harm and addiction perceptions on e-cigarette initiation.

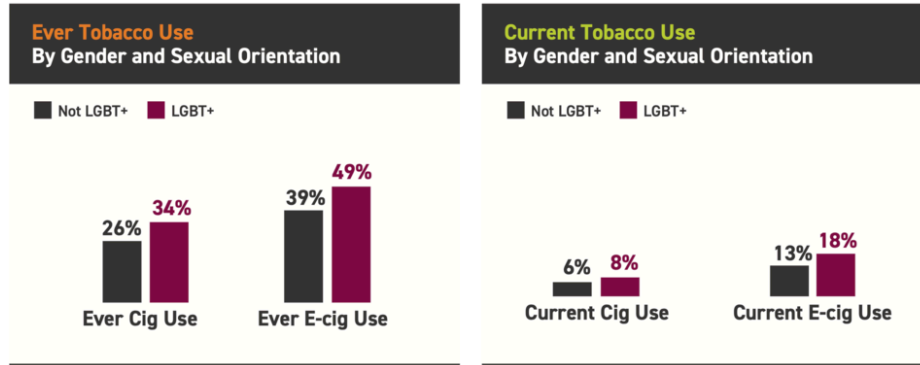
Results: Our analytic sample comprised 63.1% of youth who had never used tobacco products at Wave 1 and consequently initiated e-cigarette use in subsequent waves. Over time, fewer individuals perceived e-cigarettes as harmless (14.1%–2.1%), whereas more perceived them as likely to cause addiction (53.7%–76.6%). Compared with perceiving e-cigarettes as a lot of harm, those perceiving some harm (adjusted hazard ratio [aHR] = 1.30, 95% confidence interval [CI]: 1.12–1.52), little harm (aHR = 1.42, 95% CI: 1.20–1.68), or no harm (aHR = 2.09, 95% CI: 1.64–2.65) were more likely to initiate e-cigarette use. Demographic factors for initiation included being Black or Hispanic ethnicity (vs White), younger age (12–14 vs 15–17 years), and receiving over \$20 per week (vs \$0) in pocket money, with P-values <0.05. However, in adjusted results, addiction perceptions did not significantly impact e-cigarette initiation (P-values >0.05).

Conclusions: Among youth without prior tobacco/nicotine use, perceiving e-cigarettes as having low harm significantly predicted initiation over time. Effective prevention strategies, including targeted risk communication interventions, are essential for discouraging e-cigarette use among youth.

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US youth vaping by sexual identity

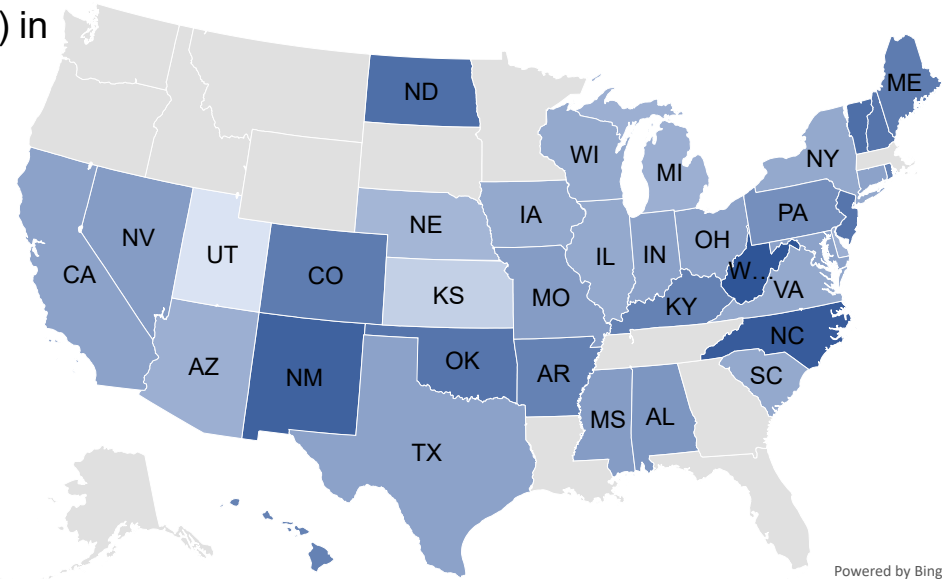
- Research shows higher tobacco use among LGBT+ individuals (15-31 yrs old) compared to heterosexuals
- This disparity is partly due to targeted marketing by the **tobacco industry over decades**



US youth vaping by sexual identity

The weighted prevalence of current vaping was predominant among LGBT (vs. cisgender heterosexual) in several US states(2019-2021) including

- **West Virginia** (41% vs. 30%; $p=.02$),
- **North Carolina** (40% vs. 29%; $p<.0001$),
- **New Mexico** (39% vs. 28%; $p<.0001$),
- **Ohio** (39% vs. 18%; $p=.0013$),
- **North Dakota** (35% vs. 26%; $p=.0014$),
- **Kentucky** (34% vs.17%; $p<.0001$)
- **Maryland** (26% vs. 18%, $p<.05$)



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E-cigarettes Perceptions: Vulnerable individuals

Research shows:

- LGBTQ+ youth generally perceive e-cigarettes as **less harmful than traditional cigarettes**
- Harm perceptions vary by sexual orientation, with **bisexuals reporting higher perceived risks**
- Factors like **sexual identity affirmation and stress** influence e-cigarette harm perceptions



Nicotine Pouches Harm Perceptions

Tosakoon and colleagues (2023) in their study of young adults found that

- Nicotine pouches were perceived **as less harmful and less addictive than cigarettes, e-cigarettes, and SLT**, and more socially acceptable than cigarettes and SLT.
- Young adults were exposed to **advertising, accessed nicotine pouches via various sources, and perceived these products favorably.**
- Marketing and use surveillance is needed **to monitor their impact on those likely to use them** (e.g. males, LGBTQ+, SLT users).



Impact of Social Media on Vaping

- There is a **highly interconnected network of engaging e-cigarette influencers (n=55) worldwide** who collaborated with over **600 e-cigarette brands in 2020**.
- The Asian and US influencers had five to six times more teenage followers compared with the European influencers. 75% of the influencers did not restrict youth access** to their promotional content on Instagram.
- Using **TikTok** several times per day was significantly associated with **e-cigarette ever-use, current (past 30 days) use and initiation among adolescents**.

The image displays a screenshot of a scientific article from Preventive Medicine Reports, published by Elsevier. The article title is "Frequency of social media use and exposure to tobacco or nicotine-related content in association with E-cigarette use among youth: A cross-sectional and longitudinal survey analysis". The authors listed are Julia Vassey, Arthur Galimov, Chris J. Kennedy, Erin A. Vogel, and Jennifer B. Unger. The article includes an abstract and keywords such as "Exposure to social media", "Social media", "Adolescents", "Survey", "E-cigarettes", and "Tobacco".

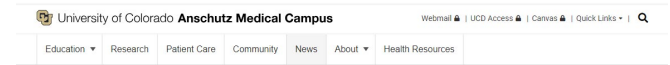
Below the article, three TikTok videos are shown. The first video features a woman with red hair and a black jacket, with the text "Make sure to" overlaid. The second video shows a man with a black cap and a red e-cigarette, with the text "one of these out in the smoking area" overlaid. The third video shows a woman with blonde hair and glasses, with the text "People who have a vape addiction" overlaid. A large TikTok logo is positioned in the bottom right corner of the video collage.

Impact of Social Media on Nicotine Pouch use

- **Alarming new nicotine trend** emerging on social media
- Potentially the **stealthiest and most dangerous** method yet
- **TikTok influencers actively targeting vulnerable teenagers**
- Promoting nicotine pouches as a **discreet nicotine delivery system**



+



Nicotine Trend Spreading on TikTok Packs a Potentially Dangerous Punch

Expert says pouch influencers are spreading false claims of product that presents serious health risks

5 minute read
by Laura Kelley | March 4, 2024



Influencers Are Spruiking Flavoured Nicotine Pouches On TikTok Now The Vape Crackdowns Have Hit



Marketing strategies

In the newest trend among disposable e-cigarettes, manufacturers are now adding high-tech elements such as Bluetooth capability, high-definition screens, and speakers to their e-cigarette products, with some versions including games similar to Pac-Man and Tetris.



Vaping devices with video games

- The vaping industry has now developed devices that also **function as fully playable video games**, raising further concerns.

SUBSTANCE USE & MISUSE
<https://doi.org/10.1080/10826084.2024.2392547>



COMMENT

OPEN ACCESS Check for updates

Vaping Devices with Video Games

Jennifer B. Unger , Julia Vassey, Daniel Wood Soto and Artur Galimov

Department of Population and Public Health Sciences, University of Southern California Keck School of Medicine

ABSTRACT

The United States Food and Drug Administration (FDA) and other agencies have warned e-cigarette to companies to stop selling vaping products that look like toys because these products could attract youth to nicotine use. The vaping industry has gone a step further, producing vaping devices that are fully functional video games. We have observed several new vaping devices that contain youth-oriented video games such as Pac-Man, Tetris, Mario, Q*bert, and virtual pets. Some of these games reward users for each puff of nicotine. The incorporation of video games into vaping devices raises public health concerns regarding the potential appeal to younger users and the potential to escalate nicotine use and dependence. It is crucial to address these devices through robust policy, educational initiatives, and enforcement of existing policies.

KEYWORDS

E-cigarettes; behavioral addictions; tobacco; nicotine; adolescents; gaming; video games

Examples

- The Craftbox V-Play 20K Disposable Vape, which features **fighter jet, Pac-Man, and Tetris-style games**.
- The Ursa Pocket Pod Kit by Lost Vape, which includes an **online casino game, a virtual pet fed by puffing, and a puff count competition that encourages more vaping**.
- Other devices, like the Randm 5200 and Qbert Arcade Mod, feature **iconic retro games or characters like Mario and Qbert**.

Randm 5200 vaping device with Nintendo games



Mobile vaping shops

- Mobile vape shops target youth **in areas like universities and nightlife, increasing e-cigarette exposure.**
- These vans **may bypass age restrictions** and proximity laws, facing less scrutiny than traditional stores.
- **Specific regulations** for mobile vape shops are **lacking**, creating gaps in licensing and enforcement.
- Vans near youth areas may raise **curiosity and increase susceptibility to vaping.**
- Stronger regulations and awareness are needed to **protect young people from nicotine addiction.**



Mobile vaping shops





Original Investigation | Public Health

Health Warnings on Instagram Advertisements for Synthetic Nicotine E-Cigarettes and Engagement

Jaxi Wu, PhD; Briana M. Trifiro, MA; Lysiane R. Ranker, PhD; Juan Manuel Origgí, MS; Emelia J. Benjamin, MD, ScM; Rose Marie Robertson, MD; Aruni Bhatnagar, PhD; Andrew C. Stokes, PhD; Ziming Xuan, ScD; Derry Wijaya, PhD; Bryan Plummer, PhD; Jennifer Cornacchione Ross, PhD; Jessica L. Fetterman, PhD; Traci Hong, PhD

Abstract

IMPORTANCE Synthetic nicotine is increasingly used in e-cigarette liquids along with flavors to appeal to youths. Regulatory loopholes have allowed tobacco manufacturers to use social media to target youths.

OBJECTIVE To analyze the extent to which synthetic nicotine e-cigarette brands have implemented US Food and Drug Administration (FDA) health warning requirements and to evaluate the association between health warnings and user engagement on Instagram.

DESIGN, SETTING, AND PARTICIPANTS In this cross-sectional study, posts from 25 brands were analyzed across a 14-month period (August 2021 to October 2022). A content analysis was paired with Warning Label Multi-Layer Image Identification, a computer vision algorithm designed to detect the presence of health warnings and whether the detected health warning complied with FDA guidelines by (1) appearing on the upper portion of the advertisement and (2) occupying at least 20% of the advertisement's area. Data analysis was performed from March to June 2024.

EXPOSURE Synthetic nicotine e-cigarette advertisement on Instagram.

MAIN OUTCOMES AND MEASURES The outcome variables were user engagement (number of likes and comments). Negative binomial regression analyses were used to evaluate the association between the presence and characteristics of health warnings and user engagement.

RESULTS Of a total of 2071 posts, only 263 (13%) complied with both FDA health warning requirements. Among 924 posts with health warnings, 732 (79%) displayed warnings in the upper

Key Points

Question Do synthetic nicotine brands adhere to the Food and Drug Administration (FDA) guidelines for tobacco marketing, and how is the presence of a health warning associated with user engagement on Instagram?

Findings In this cross-sectional study of 2071 Instagram posts for 25 synthetic nicotine brands, only 263 posts (13%) adhered to FDA health warning requirements. Posts advertising flavored products received more likes and comments, and those with health warnings received fewer comments, indicating that compliance with FDA guidelines reduces user engagement.

Meaning These findings suggest that enforcing FDA-compliant health warnings on social media posts of synthetic nicotine products may reduce youth engagement with tobacco marketing on social media.

09-13-2024 | TECH

87% of branded vape posts on Instagram violate FDA guidelines, research finds

An FDA requirement that health warnings accompany posts was ignored in almost all instances of vape marketing, according to a new study.





Public Health Horizon: Challenges & Opportunities

Opportunity: Help smokers to quit smoking combustible killers, mainly cigarettes

Challenge: Hooking more youth on nicotine

?????

But, a 2023 study shows: **many young oral nicotine pouch users also smoke and vape**

Philip Morris International (PMI), the owner of Zyn manufacturer Swedish Match, **will invest over \$800 million in new Zyn factories in the U.S. to meet the growing demand** for the flavored nicotine pouches.



Preventive Medicine Reports 34 (2023) 102239



Short communication

Patterns of oral nicotine pouch use among U.S. adolescents and young adults

Minal Patel, Elexis C. Kierstead^{1,*}, Jennifer Kreslake, Barbara A. Schillo

Truth Initiative Schroeder Institute, Washington, DC, USA

ARTICLE INFO

Keywords:

Nicotine
Tobacco
Youth tobacco use
Oral nicotine products
Tobacco prevention
Multiple tobacco product use

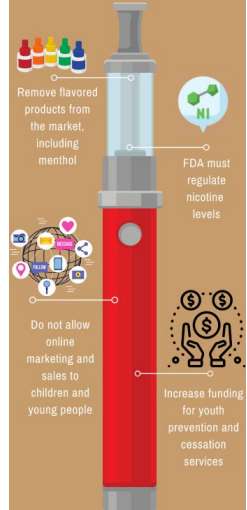
ABSTRACT

Oral nicotine pouches are gaining popularity, yet national-level research on youth and young adult use is still needed. We examined characteristics of those who use oral nicotine pouches and trends in use over time in a sample of U.S. youth and young adults. Data were obtained from a weekly, national, online, continuous tracking survey of approximately 315 unique participants (aged 15–24) per week. Bivariate analyses were conducted on those surveyed December 2021 to May 2022 ($n = 7,832$) summarizing demographic and tobacco product use characteristics of those currently using oral nicotine pouches, those who had ever used oral nicotine pouches, but not currently, and those who never used pouches. From December 2021 to May 2022, 16% of participants ever used nicotine pouches and 12% currently used the product. Participants who currently used oral nicotine pouches were more likely to report being aged 21+, male, and lower income. Seventy-three percent of those who currently used pouches and 33% of those who ever, but not currently, used pouches reported current cigarette smoking. Results suggest that many young people who smoke cigarettes are concurrently using oral nicotine pouches. We also examined current and ever use in respondents surveyed between September 2020 and May 2022 to assess trends over the two-year period ($n = 25,944$) and findings indicate stable oral nicotine product use rates over time among adolescents and young adults. Appropriate regulation is needed so nicotine naive individuals do not initiate use and those currently using tobacco do not use oral nicotine pouches concurrently with other products.

Public Health Horizon

- Flavored nicotine pouches (e.g., mint, fruit) and e-cigarettes are attractive to younger users, raising concerns about **addiction in youth**. Surveys have shown **increased experimentation and use of nicotine pouches among adolescents**.
- FDA must **Remove flavored** products from the market, including menthol.
- FDA must regulate **nicotine levels**.
- Should not allow **online marketing and sales** to children and young people.
- Increase **funding** for youth prevention and cessation services.

WAYS TO COMBAT E-CIGARETTE USE AMONG YOUTH





**Fearlessly Forward
To End
Tobacco Epidemic**



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Appendix





Two important
terminology

“Stealth” and “Zero” Vaping Certain ENDS devices

- **Stealth vaping** is using vapes discreetly, to avoid drawing attention from others. This is done by using e-cigarettes disguised as or within everyday items such as backpacks or smartwatches.

- **Zero vaping** is a type of stealth vaping where the user takes a hit but exhales no vapor. Instead, they hold the vapor in their mouth/lungs, similar to using an inhaler



Why children start and continue vaping?

- **Peer influence** ("A friend used them") remains a top reason for both initial and current vaping.
- **Curiosity** is a major initial reason but decreases as a current motivator.
- **Flavors, discreet use, and stress relief** continue to drive vaping behaviors.
- **Nicotine dependence** becomes a notable reason for sustained use.
- **Low cost**, and vaping as a way to **quit smoking** are less significant reasons overall.



Hidden Vapes

↳ <https://x.com/TODAYshow/status/1182263283342020608>



Impact of Social Media on Vaping

- Studies show that youth who reported engaging with one or more forms of online tobacco marketing were more likely to have **lower e-cigarette risk perception and to initiate tobacco products one year later.**
- Social media networks such as **X [former Twitter], YouTube, Snapchat, Facebook, and Instagram,** commonly used marketing strategies for e-cigarettes
- They also resulted in **more users and more intentions to use the products** among young people



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RESEARCH ARTICLE

The commercial promotion of electronic cigarettes on social media and its influence on positive perceptions of vaping and vaping behaviours in Anglophone countries: A scoping review

L. Chacon, G. Mitchell, S. Golder

Published: January 17, 2024 • <https://doi.org/10.1371/journal.pgph.0002736>

Article	Authors	Metrics	Comments	Media Coverage	Peer Review
✓					

Abstract

Introduction
Materials and methods
Results
Discussion
Conclusion
Supporting information
References

Abstract

There is ongoing scientific and policy debate about the role e-cigarettes play in tobacco control, with concerns centring around unknown long-term effects, and the potential industry co-option of harm reduction efforts, including marketing to youths. There is substantial evidence of the influence of conventional cigarette promotion on smoking behaviours in Anglophone countries, and the popularity of social networking sites, as well as the lack of marketing regulations on the commercial promotion of electronic cigarettes online, suggest an urgent need to explore this topic further. This scoping review aims to map the existing evidence related to the influence of e-cigarette commercial promotion on social media on positive perceptions of vaping and vaping behaviours in core Anglophone countries. Searches were conducted in CENTRAL, Cochrane Database of Systematic Reviews (CDSR), Embase, Eristamnikos, MEDLINE, PeerINFO and

Strategies to prevent

- Regulators must enforce strict bans on **vaping products that resemble toys or games and vapers that sell vaping devices, as these attract youth to nicotine use.**
- **Clinicians should educate youth** on the dangers of these devices that combine video games and vaping to curb nicotine addiction.
- **Enhanced public health messaging is needed** to address the appeal of these products, highlighting their addictive potential.
- **Clinicians and researchers should conduct studies on how these products affect youth behavior, perceptions, and sustained use and educate parents on their risks.**



Public Health Horizon

- **Nicotine pouches face minimal regulation** compared to traditional tobacco products, making it difficult to monitor ingredients and nicotine content.
- **Regulatory measure:** Enforce standardized regulations for ingredients and nicotine levels in nicotine pouches.
- **Aggressive marketing and weak age verification** allow easy access, especially at convenience stores and online.
- **Preventive measure:** Strengthen age verification systems and restrict marketing targeting young users.
- **Limited research exists on long-term health impacts**, including cardiovascular effects and addiction potential.
- **Preventive measure:** Fund research to assess long-term health risks and cessation potential for adult smokers.



Single opportunity: They can **help some smokers to quit cigarettes**. However, **await future studies**.