E-Cigarette Marketing on Social Media: A Scoping Review

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Abstract

Purpose of Review Given the rapidly evolving nature of e-cigarette marketing on social media, an up-to-date review of e-cigarette marketing on social media is needed. This study aims to identify recent (published between 2017 and 2021) e-cigarette promotional strategies and promotional themes on social media to inform tobacco regulatory policies on e-cigarette marketing.

Recent Findings Out of the 29 studies that had examined e-cigarette marketing on social media, the common promotional strategies were price promotion ($N=13$; 44.8%), featuring flavors ($N=13$; 44.8%), featuring product characteristics ($N=10$; 34.5%), using youth-appealing themes ($N=8$; 27.6%), celebrity/influencer marketing ($N=5$; 17.2%), building pro-vape communities and identities ($N=5$; 17.2%), and incentivizing friend tagging ($N=3$; 10.3%). Promotional themes included positive themes such as "safe," "healthy," "young," "independence," "natural," and "cool."

Summary This study provides the most recent scoping review on e-cigarette marketing practices on social media. Our study findings suggest that novel methods are used in e-cigarette marketing on social media.

Keywords E-cigarettes · Marketing · Social media · Tobacco

Introduction

Exposure to e-cigarette marketing is a putative risk factor for e-cigarette use, particularly among youth and young adults [1]. Given that e-cigarette use exposes young people to nicotine and other toxicants that may result in negative health outcomes [1], understanding e-cigarette marketing is important to inform tobacco regulatory policies to prevent or minimize exposure. Notably, e-cigarette marketing is particularly prevalent on social media [2]. Concerningly, a recent meta-analysis determined that youth who were exposed to tobacco-related content on social media, compared to those who were not, showed higher levels of tobacco use,

including e-cigarettes [20]. Social media is defined as "forms of electronic communication, such as websites for social networking and blogging, through which users create online communities to share information, ideas, personal messages, and other content (as videos) [3,4]." Since the first form of social media and the Internet became available in the early 1990s, social media has further developed and became popular in the 1990s–2000s with the appearance of Six Degree, MySpace, and LinkedIn [3]. Currently, numerous social media platforms exist, text-based (e.g., Twitter), communication-based (e.g., WhatsApp, WeChat), and image or video based (e.g., Instagram, YouTube, TikTok). The overall use of social media is increasing globally and is projected to reach 4.41 billion prospective social media users in 2025 [5–7]. This increase has been more dramatic among young people, and YouTube, Instagram, and TikTok are currently the most popular social media platforms among youth and young adults [8,9].

Concerningly, there is pro-e-cigarette content on social media. E-cigarettes are commonly featured as attractive, glamorous [10••,11], and safe to use [12,13]. Promotional content may use cartoon-based images [14••], celebrities [15], or vape tricks (i.e., using exhaled aerosol to create large clouds or different shapes, and often accompanied by music)

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[16], which are designed to appeal to young people and gain more attention and engagement from social media users [10••]. E-cigarettes are also frequently promoted on social media using various strategies such as price promotions, product giveaways, and reviews of various brands/devices and flavored e-liquids [17••]. Social media e-cigarette marketing may be more problematic than traditional marketing (e.g., TV, newspapers/magazines, billboards) of combustible cigarettes because of the use of novel promotional strategies. For example, one prevalent marketing tactic on social media is the use of "social media influencers" (defined as "models, bloggers, brand ambassadors with 1000 to over 1 million followers who post e-cigarette and e-liquid content on behalf of brands for monetary compensation or other non-monetary rewards [e.g., free e-cigarette supply in exchange for promotion] [18]." Social media influencers are difficult to identify since Federal Trade Commission-mandated sponsorship statements are rarely disclosed [19].

A 2017 review article examined 25 studies published from 2007 to 2017 and identified common e-cigarette marketing practices on social media [17••]. Three marketing practices were highlighted: (1) using hashtags to increase the reach of marketing posts, (2) providing frequent price promotions including giveaways, discounts, and coupons, and (3) featuring flavors in content. Promotional themes commonly depicted in social media marketing were (1) health, safety, and reduced harm (e.g., using e-cigarettes for smoking cessation) and (2) recreation (e.g., vape tricks). However, a follow-up review has not yet been conducted. Given that e-cigarette promotional strategies on social media [20] and the social media environment are changing rapidly, understanding the current e-cigarette marketing practices on social media is important to inform tobacco regulatory policies. Therefore, we aimed to provide an updated scoping review (publication years 2017–2021) to highlight the current e-cigarette marketing practices on social media to inform future directions for research, surveillance, and implementation of tobacco regulatory policies on e-cigarette marketing.

Methods

We followed the guidelines outlined by the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) [21,22] to conduct our scoping review. We used search terms identified in previous studies [17••,23,24], including e-cigarette-related terms (i.e., e-cigarette, electronic cigarette, ENDS, vape, vaping) and social media-related terms (i.e., social media, Facebook, Twitter, YouTube, Reddit, Snapchat, Instagram, TikTok, Tumblr, Vine, Pinterest, Google Plus, Twitch, Discord) on PubMed, Medline, PsycINFO, and EMBASE in June 2021.

To be included, articles had to be in English, be peer-reviewed, have e-cigarette content, examine e-cigarette marketing, analyze social media posts, and have collected data after 2017. Five articles included used social media data collected between 2012 and 2018. We included these articles since promotional strategies after 2017 were also discussed. See Fig. 1 for the number of articles included/excluded and the reasons for exclusion. To identify articles for inclusion, two independent reviewers first reviewed the titles and abstracts and excluded irrelevant articles; then, two independent reviewers reviewed the full-text articles to include for analysis. Any discrepancies between the coders were amended by a third coder.

We coded the included articles for social media platform examined, date of social media data collection, numbers of posts examined, and coding methods (e.g., human coding, machine learning). We developed a codebook using iterative processes of deductive and inductive approaches. We identified two main areas of marketing: product promotional strategies and promotional themes.

Product promotional strategies are activities designed to increase the sales, initiation, and sustained use of consumer products. Promotional themes are how e-cigarettes are portrayed in the marketing content to attract users. In terms of promotional strategies, we coded for price promotion (e.g., discounts, giveaways, multibuy offers, links to purchase e-cigarette products), using youth-appealing themes (e.g., cartoons, videogames), featuring flavors, featuring product images and characteristics (e.g., highlighting the ability to use e-cigarettes stealthily), celebrity/influencer marketing (e.g., tagging celebrity/influencers, promotional posts uploaded by celebrities/influencers), posts intended to build pro-vape communities and vaping identities (e.g., creating a "sense of belonging" as e-cigarette users using vape community- and identity-related hashtags, e.g., #vapefam, #juulgang, #vapenation, highlighting pro-vaping news articles and research findings), and incentivizing friend tagging (e.g., providing a discount on an e-cigarette product in exchange for tagging user's friend).

In terms of promotional themes, we coded whether the paper discussed the portrayal of e-cigarette use, such as "less harmful," "cool," "slick," "edgy," "sexy," "relaxing," "independence," "individuality," or "freedom." Two coders independently reviewed all the included articles and then compared their codes to resolve any discrepancies. All literature search, screening, and data extraction processes were conducted using Covidence.

Results

Characteristics of the Included Studies

We examined $N = 29$ studies in this scoping review. Please see Supplementary Table 1 for the full references of the

Fig. 1 Flowchart of study selection
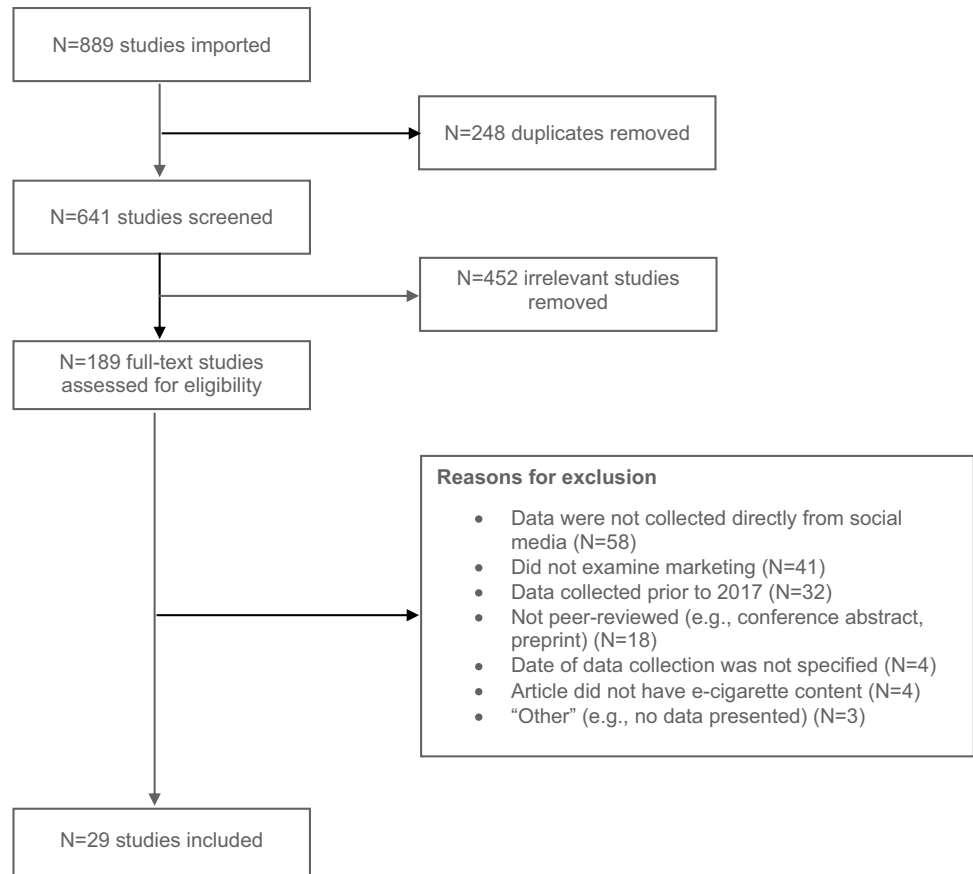
reviewed articles. Most articles examined data from Twitter (*N* = 15; 51.7%) and Instagram (*N* = 12; 41.4%). Other studies analyzed data from other social media platforms such as Facebook (*N* = 5; 17.2%), YouTube (*N* = 5; 17.2%), and others (i.e., Pinterest and Tumblr) (*N* = 1; 3.4%). In terms of coding methods, 21 (72.4%) studies used human coding (e.g., content analysis or thematic classification by human coders), four (13.8%) deployed advanced analytic methods such as random forest classification (i.e., "a classification and regression ensemble learning method" [25]), and machine learning models such as sentiment analysis (i.e., natural language processing to identify, extract, quantify affective states, and subjective information of texts) [26], and four (13.8%) studies combined both human and machine learning coding strategies.

Marketing Components

Promotional Strategies

Common promotional strategies included price promotion (e.g., discounts, giveaways, coupons, multibuy offer, providing a purchase link; described in *N* = 13; 44.8%) [10••,27••,28••,29••,30••,31••,32••,33••,34••,35••,36••,37••], featuring flavors (described in *N* = 13; 44.8%) [30••,

31••,32••,34••,35••,36••,37••,38••,39••,40••,41••,42••,43••], featuring product images and characteristics (e.g., stealth-mode e-cigarette devices that have no color illumination when inhaled; described in *N* = 10; 34.5%) [10••,33••,34••,38••,40••,44••,45••,46••,47••,48••], using youth-appealing themes (e.g., cartoons, video games; described in *N* = 8; 27.6%) [14••,34••,36••,37••,39••,46••,49••,50••], celebrity/influencer marketing (e.g., tagging celebrities/influencers, promotions posted by celebrities/influencers; described in *N* = 5; 17.2%) [10••,34••,36••,37••,39••], building or promoting pro-vape communities (e.g., creating a "sense of belonging" as e-cigarette users using vape community- and identity-related hashtags, e.g., #vapefam, #juulgang, #vapenation, and highlighting pro-vaping news articles and research findings; described in *N* = 5; 17.2%) [34••,36••,37••,51••,52••], and incentivizing friend-tagging (e.g., providing discount for e-cigarette products in exchange for tagging user's friend on the e-cigarette promotional post; described in *N* = 3; 10.3%) [36••,37••,47••] (Table 1).

Promotional Themes

Promotional themes included health claims that e-cigarettes are safer than combustible cigarettes [1].

E-cigarettes were also promoted as potential smoking cessation aids in those promotions. The studies also had e-cigarette marketing content and images that represented youth or popular culture. Marketing messages appealed to audience perceptions of e-cigarette use as "cool," slick," "edgy," "sexy," "relaxing," or evidence of one's "independence," "individuality," or "freedom" [10••,29 ••,30••,31••,32••,34••,36••,37••,41••,44••,46••,47•• ,49••]. Another notable appeal theme was highlighting e-cigarettes as "harmless," "natural," "nicotine-free," and "organic" [53••].

Discussion

This study provides the most recent scoping review on e-cigarette marketing on social media. Similar to the existing review study on this topic [17••], we also found promotional strategies for e-cigarettes on social media, including price promotions, content featuring flavors and product images and characteristics, and tagging influencers and celebrities on promotional posts. Common promotional themes also existed, including emphasizing themes of safety and harmlessness of e-cigarette use, use for smoking cessation, and that may particularly appeal to young people such as coolness, sexiness, and references to e-cigarettes as natural or organic. We also found newer promotional strategies, which included incentivizing friend tagging (e.g., providing a discount for e-cigarette products in exchange for tagging a user's friend on the e-cigarette promotional post) and strategies to build or create a sense of vaping communities and vaping identities. For instance, e-cigarette promotions on social media frequently used vape community- and identity-related hashtags (e.g., #vapefam, #juulgang, #vapenation) to create a "sense of belonging" as e-cigarette users.

Promotional Strategies

Regarding promotional strategies, price promotions such as coupons, discount offers, multibuys, and giveaways remain common. We also observed novel ways in which social media is used to directly communicate with e-cigarette users and potential users and increase the dissemination of marketing messages. One prominent promotional strategy is *incentivized friend tagging*, which combines price promotion, brand promotion, and customer engagement to help establish brand awareness and consumption [10••,36••,37••,47••,54]. For example, one example of a giveaway using incentivized friend tagging reads: "*GIVEA-WAY. 1. Tag your fav juul partner & have them tag you back. 2. You and your friend like the post. 3. Must follow* [removed for privacy] *to be eligible*." In this promotional strategy, individuals receive a free or discounted product and are incentivized to both share their experiences with the product and are given samples of the product to other individuals in their networks. When sharing information such as giveaways with others in their networks, individuals are also encouraged to tag (identify others by their social media names or handles) their social media network to create a sense of personalized groups with a common interest. Tagging friends in such product giveaways allows individuals to engage customers on behalf of various products and companies and draws attention to products and the people using those products. Ideal for social media platforms, companies use this promotional strategy to build excitement about and interest in their products [34••,36••,37••]. "Tagging" is a unique feature allowed on social media. This feature is particularly concerning, since it simultaneously enables direct communication with users/potential users and increases the dissemination of marketing messages.

Beyond tagging one's friends and social networks, *tagging celebrities and influencers* has also become commonplace [54]. The majority of people tagged in the marketing

Table 1 Promotional strategies identified in the review (N = 29)

	Number of studies, N	Percent (%)
Promotional strategies		
Price promotions (e.g., discount, giveaways, multibuy offers, providing purchase link)	13	44.8%
Featuring flavors	13	44.8%
Featuring product images and characteristics (e.g., stealth mode)	10	34.5%
Using youth-appealing themes (e.g., cartoons, video games)	8	27.6%
Celebrity/influencer marketing (e.g., tagging celebrities/influencers, promotions posted by celebrities/influencers)	5	17.2%
Building pro-vape communities and vaping identities (e.g., using vape community- and identity-related hashtags e.g., #vapefam, #juulgang, highlighting pro-vaping news articles and research findings)	5	17.2%
Incentivize friend tagging (e.g., providing a discount for e-cigarette products in exchange for tagging user's friend on the e-cigarette promotional post)	3	10.3%

articles could describe multiple categories of promotional strategies

of e-cigarettes are celebrities including artists, athletes, actors, models, musicians, and social media influencers [54,55]. Celebrity/influencer marketing may expose a wider range of populations to products based on interest in the celebrity/influencer (rather than the product), promote positive brand images, and potentially appeal to people who are more impressionable like youth [34••]. Celebrity or influencer tagging may accelerate the spread of marketing messages and provide a "halo effect" (e.g., a tendency in rating of brand or product to be influenced by general impression or attitude toward a person who is promoting it) [56] for e-cigarette use, which may be potentially misperceived by young people and facilitate e-cigarette use [38••]. Whether the celebrities/influencers are paid to promote the products is often unknown or unclear, since financial sponsorship disclosure is rare [57]. The layered and collective use of friend and celebrity tagging and posts, as well as cultivation of e-cigarette communities, helps to create "echo chambers" for specific products and reinforce positive attributes and images of e-cigarette use [58]. Once created, e-cigarette communities on social media become self-reinforcing, dominant sources of information about e-cigarettes that do not easily integrate changes in science about e-cigarettes or less positive information [58]. This "echo chamber" effect enhances favorable images of e-cigarette use while dismissing or ignoring unfavorable evidence about the potential harms of e-cigarettes [58]. Given the relatively cheap and swift marketing opportunities available in social media environments [59], it is of note that individual e-cigarette brands and the industry are deploying this "echo chamber" strategy as a way to quickly spread information about product innovations and develop product demand while also circumventing anachronistic surveillance and regulations designed to monitor marketing by brands and companies on other platforms and channels. Moreover, the individual nature of social media, user-controlled social media features such as tags and hashtags, and rarely disclosed financial information obscure the source of messages and funding streams by limiting identifiable sponsor information and skirting accountability for posted information so that misinformation can flourish.

Consistent with previous findings [17••], *featuring e-cigarette product flavors and product images and characteristics* is still common in social media marketing. Social media marketing exhibits various flavor selections, particularly using attention-catching images and colors that allude to flavors. The feature of flavors is concerning, because appealing flavors are the most common reason for e-cigarette use among young people [60]. There was also a feature of *nicotine-free claims* in e-liquid marketing on social media [49••]. Indeed, some e-liquids are formulated as flavored e-liquids without nicotine [61]. However, even vaping-flavored e-liquids without nicotine may be harmful due to exposure to other toxicants and chemicals [62,63].

Using youth-appealing themes is still common in e-cigarette promotion on social media. Cartoon-based images are frequently portrayed on e-liquid bottles and on social media posts. For example, JUUL used the *Buzz Lightyear* character from *Toy Story* with "#juulbuzz" and "#morningbuzz" hashtags in their public social media posts [37••]. The popular video game Fortnite has also been spotlighted in JUUL's e-cigarette marketing posts [37••]. The FDA, in 2020, issued a warning letter to major e-cigarette companies related to targeting youth, including featuring cartoon characters (e.g., SpongeBob SquarePants) in their marketing [64]. Continuous surveillance and regulation of e-cigarette social media marketing for images that are potentially appealing to youth are needed.

One notable new finding regarding product characteristics is the focus on the stealth use of e-cigarettes in social media marketing [45••]. For example, the search of e-cigarette marketing on Google identified marketing that promoted stealth vaping such as the device not illuminating during vaping, devices that look similar to pens, USB drives, car keys, and candy containers that emitted low odor and low levels of vapor [45••]. Additionally, numerous YouTube videos that feature how to use JUUL at school, in class, and in the bathroom, as well as hide it from teachers, from parents, and use discreetly at home, have been created and shared, although whether such videos are uploaded by the manufacturers are unclear [45••]. One of the reasons for e-cigarette use among underaged youth is the ease of hiding vaping devices and behaviors from parents or school authorities [60]. Taken together, the emphasis placed on the stealth use of e-cigarettes in social media marketing suggests potential targeting of underaged youth audiences.

Another emerging promotional strategy is *building pro-vaping communities and vaping identities*. Building pro-vaping identities and vaping communities mean "building a group of ardent consumers organized around the lifestyle, activities, and methods of the brand" [65], herein e-cigarette use. By creating a "sense of belonging" in a new group, marketing efforts attract new customers as well as build a sense of loyalty among customers who now share an identity and help create relatable brand images [66]. E-cigarette industries commonly used community- and identity-related hashtags such as *"#vapelife"* [51••], *"#vapefamily"* [54], *#juulgang*, *#vapenation* [37••], and *#doit4juul* to highlight special and unique experiences related to vaping [36••]. Additionally, posts demonstrating public engagement such as attending public events, meeting policymakers, or promoting selected vaping-friendly research findings [52••] build common reference points and camaraderie while also encouraging vape community members to counteract messages from public health researchers and officials with their promoted information [52••]. Such pro-e-cigarette communities on social media share and promote e-cigarette

use behaviors and normalize e-cigarette use as a lifestyle [36••]. Clearly, individuals' beliefs and social media posts are not under FDA authority. However, continuous surveillance and regulation of e-cigarette marketing activities are warranted to the extent that collective, individual actions bolstered by interested parties try to form pro-e-cigarette identities and communities. These pro-e-cigarette communities may spread inaccurate or misleading information about e-cigarettes to multiple audiences including people who may be more susceptible to marketing claims, such as youth or other vulnerable populations.

Promotional Themes

Consistent with previous literature [17••], our study confirms that the recent content of social media commonly portrays positive imagery surrounding e-cigarette use. Exposure to positive images of tobacco use in advertising, including e-cigarette advertising, is a well-documented strong risk factor for tobacco use among young individuals [1]. An interesting new example of e-cigarette iconography is related to e-cigarettes being promoted as "harmless," "natural," and "organic," and other health-related words (e.g., "gluten-free," "vegan") [53••]. As health consciousness grows more popular with some segments of the youth and young adult populations, marketers have begun featuring "health food"-related words in e-cigarette marketing. Specifically, articles noted text in ads or testimonials demonstrating the portrayal of e-cigarettes as a new health product such as "*e-cigs maybe better for you than organic produce!*," "*put vitamins into vape juice so teens get their nutrients*," "*100% Natural #medicine E-cig #HealthyLiving #killcancer*," "*I vape since its gluten free*," and "*Switching From Smoking to Vaping Reduces Your Carcinogens #Organic #Health #Cooking #Food A new study in X*" [53••]. Portrayal of e-cigarettes as safer and healthier alternatives than combustible cigarettes has been common. Although e-cigarettes may be a safer alternative to combustible cigarettes, many of the e-cigarette promotions on social media claimed e-cigarettes as "harmless" and "healthy," which is incorrect messaging. Surveillance for health-related claims including the use of words like "natural" and "organic" is warranted, and such health claims should be prohibited.

Limitations

The current review presents descriptions of recent e-cigarette marketing practices on social media; however, this study has several limitations. First, we only included studies explicitly examining presented marketing practices. For example, two studies [67,68] that examined

e-cigarette-related Reddit discussions focused on illegal selling and buying of JUUL on the platform were excluded. We decided that these articles were not examining or presenting an analysis of intentional marketing by the e-cigarette industry. Conversations may exist among users who might be marketers or retailers, and might lead to e-cigarette purchase and use behaviors. However, these distinctions are unclear in the discussed studies and were therefore excluded. Both tobacco marketing and social media platforms are evolving rapidly, and frequent review studies are needed to capture these changes.

Conclusion

We provided the most recent review of the e-cigarette marketing, promotional strategies and promotional themes that are occurring on social media. Our review paper confirmed promotional strategies that are consistently used by the e-cigarette industry (e.g., price promotions, using youth-appealing themes, featuring flavors, celebrity/influencer marketing), and we also identified emerging promotional strategies (e.g., building or promoting pro-vape communities using vape community- and identity-related hashtags, incentivizing friend tagging). Our findings suggest that restrictions of e-cigarette marketing are needed on social media to limit the contributions of social media to youth e-cigarette initiation and behavioral reinforcement. Restrictions should include prohibiting promotional e-cigarette content on social media to underaged youth, mandating warning labels on pro-e-cigarette content on social media, and developing counter-messaging on social media to prevent e-cigarette use among youth and young adults.

Data Availability Data is available upon request.

Declarations

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●● Of major importance

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