Evaluating policy compliance among leading tobacco brands on Instagram

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ABSTRACT

Background Instagram hosts pro-tobacco content that may reach youth despite existing US federal and platform-specific policies designed to restrict such content. This study assessed compliance with platform-specific and federal tobacco control policies among leading tobacco brands on Instagram.

Methods This study collected 1654 Instagram posts between October 1, 2022, and September 29, 2024, from the main page and tagged sections of six leading tobacco brand accounts (Vuse, Lost Mary, ZYN, Velo, Lucky Strike, Winston). Posts were coded for compliance with Instagram, Federal Trade Commission (FTC) and US Food and Drug Administration (FDA) policies, including age-gating, financial disclosure, presence of health warnings and restricted URLs.

Results 69.4% (n=1148) of posts contained *URL links* to commercial tobacco websites. Unrestricted access to tobacco content was observed among 46.7% (n=772) of posts. *Influencers or celebrities* appeared in 19.2% (n=317) of posts, of which 41.6% (n=132) of posts did not disclose a financial relationship between the brand and the influencer or celebrity. 72.6% (n=1200) of posts had a *health warning label,* while 41.3% (n=683) of posts had an *age warning label*.

Conclusions Leading tobacco brands on Instagram often violated platform and federal policies, particularly those concerning age verification, sponsorship disclosure and health warning labelling. Stronger enforcement by Instagram, the FTC and the FDA may be needed to reduce youth exposure to tobacco marketing on social media.

INTRODUCTION

Tobacco use among youth is a public health concern in the USA.[1] In 2024, approximately 2.25 million middle and high school students reported using a tobacco or nicotine product in the past 30 days, compared with 2.80 million students in 2023.[2] This decline represents a reduction of nearly 550 000 fewer youth tobacco users in 2024. While this downward trend is encouraging, millions of adolescents still engage in nicotine use, underscoring the ongoing need for policy and prevention efforts. Combustible tobacco products have long been recognised as harmful to all age groups. Still, newer nicotine delivery systems, such as e-cigarettes and oral nicotine pouches, pose particular risks to adolescents, as nicotine use of any kind can curb brain development.[3][4] Research has also shown that early initiation of nicotine use has been associated with susceptibility to nicotine dependence, withdrawal symptoms and long-term use.[3][4]

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Most existing research on tobacco-related social media data has summarised themes, content types and the prevalence of pro-tobacco messaging. However, few studies have assessed compliance with specific federal or platform-level marketing policies.

WHAT THIS STUDY ADDS

⇒ This study evaluated compliance with US federal (Federal Trade Commission (FTC), Food and Drug Administration (FDA)) and platform-specific (Instagram) tobacco marketing policies across six leading brands. Findings revealed major gaps in enforcement, including missing health warnings, absent disclosure of brand-influencer relationships and unrestricted youth access to tobacco-promoting content.

HOW MIGHT THIS STUDY AFFECT RESEARCH, PRACTICE OR POLICY

⇒ Results offer actionable insights for regulators and platforms seeking to reduce youth exposure to tobacco marketing online, including stricter FTC enforcement (eg, financial penalties, mandated content removal), enhanced content moderation and enforcement mechanisms on Instagram, and stronger adherence to FDA requirements for health warnings and age restrictions on tobacco-related posts.

Pro-tobacco-related content has been observed across popular social media platforms, such as TikTok, YouTube and Instagram, often in violation of platform-specific and federal regulations.[5][6] However, much of the existing research has focused broadly on the prevalence of pro-tobacco-related content rather than the compliance of specific brands with current regulatory and platform-specific policies. Social media tobacco marketing policies and enforcement practices differ by country,[7] reflecting variation in national law, regulatory authority and enforcement capacity. Violations of such policies may include, but are not limited to, missing health warnings, undisclosed brand affiliations and unrestricted youth access to promotional content.

Among social media platforms, Instagram is popular among youth and young adults.[6] While select tobacco-related content is subject to platform-specific policies, such as Instagram's restriction of direct tobacco sales and its restriction of tobacco promotions to users under 21 years of age,[8] several federal policies also apply. These include the Federal

Trade Commission (FTC) disclosure requirements for sponsored content and the US Food and Drug Administration (FDA) regulations requiring health warnings on tobacco product packaging and advertising, as well as the prohibition of misleading claims.[9 10] Preliminary research has suggested low compliance with these policies.[11–13] Given Instagram's popularity, monitoring brand compliance with such policies on the platform is important.

The tobacco marketplace consists of multiple product classes, each with distinct risk profiles and regulatory considerations. To appreciate this heterogeneity, this study included six leading (ie, based on market share data and consumer reviews) tobacco brands across three product classes: e-cigarettes, cigarettes, and nicotine pouches. Selected products included those with FDA marketing authorisation (eg, Vuse, ZYN),[14 15] products sold under FDA enforcement discretion (eg, Velo),[16] products permitted under grandfather provisions (eg, Winston, Lucky Strike),[17] and products without marketing authorisation at the time of data collection (eg, Lost Mary).[18] Taken together, this study examined what these tobacco brands posted on Instagram and assessed their compliance with platform-specific and federal policies.

METHODS

Instagram posts were collected using the Selenium package in Python from the main page of six leading tobacco brands, two for each product class (e-cigarette: Vuse, Lost Mary; nicotine pouch: ZYN, Velo; cigarette: Lucky Strike, Winston).[19] Brands were selected based on available market share data and consumer reviews.[20–23] Similar to prior research,[24] posts in the 'tagged' section of each official brand account were collected to describe possible partnerships between brands and social media influencers (ie, individuals with large followings who engage audiences through sponsored content, brand collaborations or product endorsements).[25]

Posts were retrospectively collected between October 1, 2022, and September 29, 2024, representing a 2-year study period. A total of N=1705 posts were initially collected. At the time of coding, (n=51) posts were unavailable due to dead or expired links, resulting in an analytic sample of n=1654. Among the analytic sample, 782 (n=47.3%) were from the tagged section of the accounts. Lost Mary had the greatest number of posts (n=759, 45.9%), followed by ZYN (n=323, 19.5%), Vuse (n=260, 15.7%), Velo (n=254, 15.4%), Winston (n=33, 2.0%) and Lucky Strike (n=25, 1.5%).

Analytic plan

Compliance with Instagram's tobacco-related policies was assessed in two ways. First, to test Instagram's age-gating policy,[26] a research team member created a new Instagram account registered to a fictitious user under the age of 21 (ie, under the legal tobacco age),[27] using a Gmail address created for research purposes. Instagram requires users to enter a birth-date during account setup, which determines access to age-restricted content. Using this account registered to a 'minor', a member of the research team systematically attempted to view each post by clicking the associated URL (uniform resource locator) and recorded whether or not the post was viewable. Posts that were accessible without age verification were recorded as non-compliant.

Second, Instagram prohibits content or posts that directly sell, link to, or facilitate access to branded tobacco products.[28] To evaluate this policy, coders reviewed the account profile

associated with each post and coded for the presence of URL links to affiliate pages, products and services. As such, the percentage of posts with account profiles that contained URL links to affiliate pages, products and services, indicating non-compliance, was recorded.

Compliance with federal tobacco marketing policies was assessed in two ways. First, posts from influencers or celebrities with at least 10 000 followers were coded for the presence of required financial disclosures (eg, '#ad', '#sponsored', platform-generated labels, or explicit brand acknowledgments).[10] Similar to prior research,[24] an influencer was considered non-compliant if they disclosed a financial relationship in some posts but not others.

Second, posts were reviewed for FDA-required health warnings (eg, 'contains nicotine'), age warnings (eg, 'not for minors'), and unsubstantiated health claims (eg, statements implying cognitive or physical health benefits without scientific support) suggesting benefits from tobacco use.[9] Coders were trained to observe the post and read the text and hashtags in the caption that accompanied the post. If non-compliance was present in the post, they were told to place a '1' in the cell, and if not, place a '0'. A subset of 250 posts was double-coded to assess inter-rater reliability (percent agreement=85.9–97.2%) and discrepancies were resolved through consensus.

The *Selenium* package in *Python* was used to collect the number of likes and the timestamp of each post.[19] Research has shown that engagement metrics for social media posts do not follow a normal distribution.[29] As such, the median number of likes and the 10th to 90th interdecile range were reported. All analyses relied on public posts and adhered to the terms and conditions, terms of use and privacy policies of Instagram.

RESULTS

Unrestricted access to tobacco-related content was observed in 46.7% (n=772) of posts, which came from two brands—Lucky Strike (100%, n=25) and Lost Mary (98.4%, n=747). Additionally, 69.4% (n=1148) of posts included *URL links* to affiliate pages, products and services. *Influencers or celebrities* were observed in 19.2% (n=317) of posts and received the highest median number of likes (M=119) (table 1). Among such posts, 58.4% (n=185) disclosed a financial relationship, while 41.6% (n=132) did not. Influencers or celebrities who partnered with Vuse and Velo inconsistently disclosed their financial relationship across multiple posts; 87.7% (n=278) of influencer or celebrity-related posts contained *URL links*, 72.6% (n=1200) of posts had a *health warning label*, while 41.3% (n=683) of posts had an *age warning label*. Posts related to *unsubstantiated health claims* (0.91%, n=15) were rarely observed. Brand-specific findings are provided in online supplemental table S1.

DISCUSSION

This study examined Instagram posts from six leading tobacco brands, measuring compliance with Instagram-specific and US federal marketing policies. Despite platform-specific policies restricting access to promotional tobacco content and prohibiting direct sales, posts contained links to commercial tobacco websites, suggesting inconsistent enforcement of Instagram's age-gating and commerce policies. Federal policies require transparency in advertising, including in influencer-brand partnerships, yet influencer-related posts lacked proper FTC-mandated disclosures of financial relationships. Additionally, compliance with FDA regulations on health warnings was inconsistent, as a portion of posts failed to contain the required nicotine addiction

Table 1 Policy compliance indicators in Instagram posts (n=1654)

Theme	Definition	n	%	Median likes	Likes (10th–90th percentile)
Instagram platform policies					
Age restriction	Post was accessible without signing into an age-verified account (18+)	772	46.7	103.5	34.0 to 360.2
URL links	Account profile has URL links to affiliate pages, products, services that sell tobacco/nicotine products	1148	69.4	76.0	7.0 to 296.0
Federal Trade Commission policies					
Influencers or celebrities	Post mentions or displays references to a celebrity or social media influencer (ie, account with >10k followers), such as tagging/mentioning them in the post	317	19.2	119.0	50.0 to 368.5
Brand/influencer disclosure*	Post includes a disclosure: (1) post contains '#ad', '#sponsored', '#sponsorpost', '#sponsoredpost' or an influencer-designated hashtag (eg, #Insider) or some combination of these; (2) post states a 'paid sponsorship with brand name' (eg, company presents) under the influencer's name in the post; (3) post is an obvious advertisement, including a brand name or product placement in the post; and (4) post explicitly thanks the brand in the caption for a specified product. The disclosure should be clear and conspicuous. Brand and influencers in the post are not enough to be coded as a disclosure	185	58.4	55.0	4.0 to 257.0
US Food and Drug Administration (FDA) policies					
Health warning label	Post displays a health warning label, eg, visual warning statement, mentioning that the product contains nicotine (eg, 'nicotine is an addictive chemical' or provides an FDA warning statement.	1200	72.6	73.0	5.0 to 288.4
Age warning label	Post displays age restriction warnings such as 21+ warning, not for minors, or underage sales prohibited	683	41.3	96.0	10.0 to 379.1
Unsubstantiated health claim	Post mentions false, inaccurate, misleading or incomplete information about using tobacco/nicotine products. For example, posts may claim that using a product will improve one's mental health, by reducing stress, depression and anxiety, or increasing cognitive focus	15	0.91	18.5	8.9 to 47.2

*n=317 posts contained influencers or celebrities.

warnings. Taken together, these findings highlight ongoing concerns regarding tobacco posts on Instagram, compliance with existing policies and the potential impact of these posts on shaping youth pro-tobacco-related attitudes and behaviours.

Influencer and brand-generated posts embedded URL links, highlighting how Instagram is used as a promotional platform to facilitate consumer engagement and product purchasing. For example, this study showed that posts featuring influencers and celebrities tended to generate higher engagement compared with other post types, suggesting this content may be effective in attracting user attention. Tobacco brands may leverage such content in an attempt to influence future behaviours. These findings underscore the need for tobacco control policies to regulate direct promotions and address the role of marketing tactics that contribute to youth tobacco normalisation.

Although Instagram's community guidelines prohibit the promotion and sale of tobacco products,[26] this study found that enforcement of these policies was inconsistent. While Instagram states that it restricts access to tobacco-related content unless a user is signed into an age-verified account (ie, aged 18 years or older, per Instagram's policy), findings from this study indicated that 46.7% of posts—originating from Lucky Strike and Lost Mary—were publicly accessible without any age restriction. This is particularly concerning given that Lost Mary has been shown to use marketing tactics in their Instagram posts that may be appealing to youth (eg, featuring flavoured products and use of bright colours).[30] Additionally, 69.4% of all posts contained URL links to commercial tobacco websites, despite Instagram's stated policy prohibiting posts that 'facilitate the sale of tobacco products, unless access is age-gated or the post does not involve branded promotion'.[28] This finding aligns with prior research showing that tobacco brands and affiliated influencers frequently use Instagram to facilitate access to products despite policies designed to prevent direct sales and restrict youth access.[24] Given the tobacco posts described in this study, increased enforcement and increased or improved content moderation by Instagram may be necessary to address failures in compliance.

This study assessed compliance with FTC disclosure requirements related to influencer-brand partnerships. The FTC requires influencers to 'clearly and conspicuously disclose' any financial relationships with brands, such as through hashtags (#ad, #sponsored) or explicit captions acknowledging a paid partnership.[10] However, non-compliance was observed in this study. For example, 58.4% of influencer posts contained a disclosure, and 41.6% did not, suggesting a lack of uniform compliance with disclosure policies. Previous research has shown similar patterns in tobacco influencer marketing on Instagram,[24] where some posts included the required disclosure while others from the same influencer did not. Posts from social media influencers promoting tobacco brands and products without transparent disclosure of paid partnerships and health warning labels have been shown to reduce harm perceptions and increase tobacco product appeal.[31] Stricter FTC enforcement, such as issuing financial penalties or requiring platforms to remove non-compliant content, could deter brands and influencers from skirting disclosure requirements. While the feasibility of enforcement across countries remains a significant barrier to reducing policy violations on social media, greater cross-agency collaboration could improve oversight and compliance.

This study showed that a portion of branded content lacked FDA-required health warnings, which may make it difficult for consumers to assess product risks.[9] These findings align with past research showing that only 13% of Instagram advertisements for synthetic nicotine e-cigarettes included FDA-mandated health warnings, and posts without warnings tended to generate higher user engagement.[32] While this study showed that the frequency of posts containing unsubstantiated health claims was small, such claims still constitute 'health fraud' under FDA guidance, which prohibits marketing tobacco products as offering cognitive or emotional benefits.[9] Ensuring that tobacco-related posts do not contain statements that constitute health fraud, while containing clear health warnings and age restrictions, as required by FDA regulations, could help protect consumers.

Limitations

Data were collected from a 2-year study period and may not generalise to other time periods. Data were collected from three tobacco product classes and six brands and may not generalise to other product classes or brands. The number of posts varied substantially

across brands, which may have biased the results. The data were from Instagram and may not extend to posts from other social media platforms. The classification of an influencer was based on observable criteria (eg, the presence of brand-related hashtags or tags in their posts). However, this study could not confirm if an actual financial relationship existed between an account and a brand.

CONCLUSIONS

Our findings highlight the need for stricter enforcement of existing policies by the FTC and FDA, and enhanced enforcement efforts by Instagram to ensure community guidelines are followed. Future research should investigate the effects of exposure to pro-tobacco content on Instagram, and develop and assess the effectiveness of regulatory interventions in ensuring compliance with advertising and disclosure policies. Ultimately, these efforts could reduce youth exposure to tobacco marketing and prevent initiation of tobacco use.

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