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Cartoon-based marketing strategies for e-cigarette-related products: a content analysis of
Instagram posts from 2019

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Introduction

E-cigarette use is a growing public health concern. In 2019, 27.5% of U.S. high school students reported current e-cigarette use.¹ Marketing practices by e-cigarette companies may specifically appeal to adolescents,² and contribute to tobacco-related behaviors. Studies have indicated that cartoons are an effective strategy in increasing product recognition and susceptibility to use e-cigarettes.³ Recently, the U.S. Food and Drug Administration announced it is prioritizing enforcement against e-cigarette companies whose marketing is likely to promote youth use.⁴ This study aimed to determine if companies were using cartoon-based strategies to market and promote e-cigarette-related products in 2019 on Instagram, an image-based social media platform popular among adolescents.

Methods

Prior research suggests the hashtag “#ejuce” is commonly used in e-cigarette-related promotional posts on Instagram.² As such, posts that contained the hashtag (#ejuce) were scraped from Instagram between August 22 and September 12, 2019 (n=2,100). Among these, 1,936 posts remained publicly available at the time of analysis. Each Instagram post (image and corresponding caption) was reviewed and coded as to whether: 1) a cartoon was present, 2) contained promotional content, 3) the cartoon was the company’s logo, 4) the name of the company that used cartoons, and 5) Instagram user engagement (i.e., number of likes the post received). Rules for coding were based upon the Master Settlement Agreement (MSA) definition of a cartoon (Table 1) and similar to prior research.²

Two coders were trained using a subsample of posts (n=1,000) to establish interrater reliability. Agreement ranged from 70% to 90% for the coded categories. Any disagreements

were resolved by a third coder. Descriptive statistics were calculated, including the companies who most frequently used cartoons, and an independent t-test was used to determine if Instagram user engagement (mean number of likes) differed between posts with cartoon-related posts to those without.

All posts and analyses relied on publicly available and accessible data from Instagram's website. Data collection adhered to the terms and conditions, terms of use, and privacy policy of Instagram and was approved by the authors' university institution review board.

Results

About 7.3% (142/1936) of posts had cartoon(s) somewhere in the image, 83.1% (1608/1936) of posts were identified as promotions, and 2.3% (44/1936) of images were coded as a cartoon solely because of the logo. We identified 100 different companies that utilized cartoons in promotions (Figure 1), including Bang Juice (n=9), Jam Monster (n=6), Kenji Juice (n=4), Dr. Frost (n=3), Vapetasia (n=3), Nasty Juice (n=3), Momo e-liquid (n=3), and Mr. Nik's (n=3), among others.

Posts with cartoons received more likes (mean=133.94 ± 24.34 *l*) compared to posts without cartoons (mean=72.41 ± 4.12 *l*, $p < 0.001$).

Discussion

E-cigarette companies were utilizing cartoons in their marketing and promotional practices on Instagram in 2019. Findings demonstrated that user engagement was higher among posts with cartoons, indicating cartoons' appeal among Instagram users. Logos and product packaging are known to have an impact on consumers' attitudes and behaviors,⁵ and adolescents are left vulnerable to these industry tactics. While the MSA restricted the use of cartoons and youth-specific marketing tactics for combustible cigarette and chew companies,⁶ e-cigarette

companies are not included in the MSA. The U.S. FDA may take action against these companies, including through warning letters to injunction, seizure, and/or civil money penalty actions where warranted.⁴ While the current study could not determine the impact of these promotional practices on e-cigarette appeal among adolescents, prior research has shown that recognition of cartoon-based imagery increased appeal of e-cigarette-related products among young adults.³ Future research should determine how exposure to these marketing strategies impacts perceived risks and benefits of e-cigarette use, intentions to use, and use among adolescents.

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Author Contributions: Jon-Patrick Allem and Allison Dormanesh had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

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Table 1. The Master Settlement Agreement definition of 'cartoon.' ⁶
A 'cartoon is defined as any drawing or other depiction of an object, person, animal, creature or any similar caricature that satisfies any of the following criteria:
(1) the use of comically exaggerated features;
(2) the attribution of human characteristics to animals, plants or other objects, or the similar use of anthropomorphic technique; or
(3) the attribution of unnatural or extrahuman abilities, such as imperviousness to pain or injury, X-ray vision, tunneling at very high speeds or transformation.

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Figure 1: Shows example Instagram posts of e-juice companies with cartoon as their logos and promotional content.