

Cartoon images on E-juice labels: A descriptive analysis

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Abstract:

Introduction: Although previous studies have found cartoons in electronic cigarette (e-cigarette) advertisements, social media posts, and a small sample of labels, there has yet to be an analysis of cartoons located on the labels attached to bottles of e-juice (the solution that contains nicotine and other chemicals). As such, the objective of this study was to analyze the prevalence and types of cartoons on e-juice labels. **Methods:** Two researchers independently analyzed the presence and types of cartoons on the labels of e-juice flavors available on [eliquid.com](#). Based on the Master Settlement Agreement's definition of a cartoon, the cartoons were placed into five categories: (1) comically exaggerated people, (2) comically exaggerated animals, (3) comically exaggerated creatures, (4) anthropomorphic creatures, or (5) extra-human creatures. **Results:** There was a total of 1587 brands that offered 7135 e-juice products. Of those, 311 brands (19%) offered 1359 products (19%) that contained cartoons on the e-juice labels. From the labels that contained cartoons, 790 (58%) were of comically exaggerated people, 247 (18%) were of anthropomorphic creatures, 212 (16%) were of comically exaggerated animals, 73 (5%) were of comically exaggerated creatures, and 37 (3%) were of extra-human creatures. **Conclusions:** Given the previous success of Joe Camel on youth tobacco use, the prevalence of cartoon images found in this study is noteworthy. In addition, the number of brands that had cartoons on e-juice labels indicates that this issue is pervasive among businesses that sell e-juice. **Implications:** This study adds to the body of knowledge on this topic by describing a concerning number of cartoons located on e-juice labels, indicating a need for policy that prohibits the use of cartoon images in e-cigarette packaging.

Keywords: adolescent | advertising | cartoons | tobacco use | electronic cigarettes

Article:

Introduction

The use of cartoon images to sell tobacco products is a major public health issue in the United States. In 1988, the R.J. Reynolds Tobacco Company launched their “Old Joe” (also known as Joe Camel) cartoon advertising campaign to sell Camel cigarettes, resulting in a large increase in use of the brand among adults.¹ The success of Joe Camel on youth tobacco use eventually led to the 1998 Master Settlement Agreement’s ban of cartoon images in the advertisement of tobacco products, including product packaging or labeling.^{1,2}

Unfortunately, despite prohibiting the use of cartoons to sell tobacco products, electronic cigarette (e-cigarette) companies are currently using cartoons for marketing purposes. Kirkpatrick and colleagues found that vape shops were marketing their store locations using Pokémon Go, a game in which cartoon creatures appeared in cell phone screens on top of real-world settings.³ Jackler and colleagues searched over 12 000 e-cigarette advertisements specifically for cartoon unicorns from the Stanford Research into the Impact of Tobacco Advertising’s e-cigarette online database, finding over 20 flavors that contained cartoon unicorns.⁴ Two other studies analyzed 1000 and 3481 random online posts to Instagram regarding e-cigarette liquids, finding that 20%⁵ and 53%⁶ of posts contained cartoon images, respectively.

Research also suggests that there may be a relationship between cartoon images on e-juice labels and susceptibility of e-cigarette use among teenagers. Kirkpatrick et al. conducted an experiment on a convenience sample of over 700 young adults in the United States regarding e-cigarette use and exposure to 22 e-juice labels that did or did not contain cartoons. Among those who had never used e-cigarettes, there was an association between cartoon exposure and the perception of enjoying the taste of the e-juice, and the perception of improved social interactions.⁷

Although these previous studies have found cartoons in e-cigarette advertisements, social media posts, and a small sample of labels,³⁻⁸ there has yet to be an analysis of cartoons located on the labels attached to bottles of e-juice (also known as e-liquid), the solution that contains nicotine and other chemicals.⁹ This gap in research on e-juice labels is important. Given the prior effectiveness of cartoons in selling tobacco products,¹ and cigarette packaging as its own marketing tool that impacts consumer perceptions and purchasing behavior,¹⁰⁻¹² it is vital that e-juice labels be analyzed for the presence of images used to influence branding and sales. As such, the objectives of this study were to analyze the prevalence of cartoons on e-juice labels and to categorize the types of cartoons according to the definition provided by the Master Settlement Agreement.

Methods

The e-juice labels analyzed in this study came from the website eliquid.com. This website was selected after using the search terms “e-juice for sale” and “e-liquid for sale” through google.com. The first page of websites resulting from each search term were analyzed to determine which website offered the most e-juice flavors. At the time of the study (November 2018 to March 2019), eliquid.com claimed to contain over 11 000 different flavors (individual e-juice products) provided by over 2000 brands. From eliquid.com, each flavor’s name and a hyperlink to a picture of each flavor’s label were entered into a document.

Two researchers were then trained to identify a “cartoon,” which was defined by the Master Settlement Agreement 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 extra-human abilities, such as imperviousness to pain or injury, X-ray vision, tunneling at very high speeds or transformation.”²

From this definition, cartoons were placed into five categories: (1) comically exaggerated people, (2) comically exaggerated animals, (3) comically exaggerated creatures (eg, dragons, unicorns, monsters), (4) anthropomorphic creatures (eg, candy with human faces, fruit with arms and legs), or (5) extra-human creatures (eg, angels, gods, zombies). During the coder training, it was determined that illustrated or digitally produced objects (eg, fruit, pastries, vehicles, landscapes) were difficult to determine comic exaggeration, as compared to exaggerated people, animals, or creatures. As such, illustrated objects were classified as non-cartoons in the analysis. Flavors that were sold out or not available during the study’s timeframe were not included in the study, as these flavors did not have any images of e-juice labels on the website at the time of the study. Inter-rater reliability was calculated using Cohen’s Kappa, indicating a strong agreement between the two independent raters, $K = 0.924$ (95% CI, 0.913 to 0.935). The project’s supervisor resolved disagreements between the two independent researchers.

Results

There was a total of 1587 brands that offered 7135 flavors. Of those, 311 brands (19%) offered 1359 products (19%) that contained cartoons on the e-juice labels. From the labels that contained cartoons, 790 (58%) were of comically exaggerated people, 247 (18%) were of anthropomorphic creatures, 212 (16%) were of comically exaggerated animals, 73 (5%) were of comically exaggerated creatures, and 37 (3%) were of extra-human creatures.

Discussion

The purpose of this study was to assess the prevalence and types of cartoons on e-juice labels. After analyzing a large convenience sample of e-juice product labels shown through a popular website, the study found over 1000 labels contained cartoon images of people, animals, and creatures (both extra-human and anthropomorphic). These findings are timely and noteworthy, given the rise of e-cigarette use among youth, and concerns about marketing strategies that target young people.⁹

By simply assessing the presence of cartoons located on e-juice labels, this study adds to the body of knowledge on this topic, as well as contributes to the current call within the literature for regulating the use of cartoon images in the marketing of e-cigarettes.^{3,4,7,8}

The study’s results have several implications for public health research and practice. First, findings from this research study provide convincing evidence that there is a need for policy that prohibits the use of cartoon images in the marketing of e-cigarettes. The FDA Commissioner recently mentioned that he seeks to advance a policy that will remove e-cigarette products

“...that are marketed to children and/or appealing to youth. This could include using popular children’s cartoon or animated characters...”¹³ As suggested by the commissioner and called for by others,^{3,7} the FDA should consider a policy that includes the same verbiage of the Master Settlement Agreement,² in which not just “popular children’s cartoon” characters are prohibited, but any type of cartoon in general.

Second, there was a large prevalence of cartoon images that were found in this study. Nearly 20% of the labels in the sample contained a cartoon. Considering that there were over 15,500 available e-cigarette flavors in 2017,¹⁴ it is plausible that there are several thousand labels that currently contain cartoon images. In addition, the number of brands that had cartoons on e-juice labels indicates that this issue is pervasive among businesses that sell e-juice, meaning that potential future regulations would impact a large portion of the industry.

Second, the Master Settlement Agreement provided a criterion that was successfully used in this study to identify and categorize cartoon images in the marketing of e-cigarettes. These criteria could be used by researchers to investigate cartoon images in the marketing of other products that impact public health.

Third, this study found the use of anthropomorphic creatures and comically exaggerated animals on e-juice labels. Previous research on Joe Camel, who was an anthropomorphic animal, strongly indicates that such cartoons can have powerful effects on youth, including brand recognition and appeal, smoking experimentation, and cigarette use.^{1,15-17} Future research should investigate the impact that different kinds of cartoons may have on the perceptions of young people regarding e-juice.

The study’s limitations should be taken into consideration when interpreting the findings. First, although the findings are consistent with previous studies that documented cartoons used in e-cigarette marketing,³⁻⁸ the results are not generalizable, due to the convenience sample of labels from a single website. Second, it is unknown how often cartoon images are viewed in the marketplace. It is likely that several brands with cartoon images are from relatively small companies with few customers. Thus, it is unknown what level of harm has resulted from the specific cartoons found in this study.

Given the popularity of e-cigarette use among youth, and in light of Joe Camel’s previous impact on youth tobacco use, the number of e-juice labels with cartoon images found in this study underscore the need for policy change. In 1998, the evidence against Joe Camel had accumulated, and cartoons were included in the Master Settlement Agreement. Hopefully, the results from the current study and the previous body of knowledge regarding this topic,³⁻⁷ will serve as convincing evidence for policymakers to create policy that would protect the population’s most vulnerable from unethical marketing strategies.

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Declaration of Interests. None declared.

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