

Analysis of content created by dental influencers on TikTok and its impact on society

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SUMMARY

Oral health has a major impact on quality of life and intake of sugar-sweetened beverages can cause dental caries and other oral health issues. Although there are many health-related influencers on TikTok, it is unclear if dental professionals have capitalized on the opportunity to spread accurate information about oral health and the health risks associated with sugar-sweetened beverages. In this study, we examined 10 dental influencers with accounts on TikTok and qualitatively assessed the main themes of posts and level of engagement (e.g., “likes” and comments). We hypothesized that dental influencers were posting content related to improving the oral health of their viewers, including advising reductions in sugar-sweetened beverage intake. We analyzed 200 TikTok videos and found that the three most common main themes of the TikTok videos were dental hygiene, oral health, and other. Future studies should examine the effectiveness of different dental influencers on improving positive oral health behaviors among social media users.

INTRODUCTION

Oral health is critical for supporting overall quality of life and well-being (1). Numerous clinical evidence has highlighted an association between dental disorders and cardiovascular diseases, diabetes, lung diseases, and obstetric complications (2). Good oral health involves having healthy teeth and gums, but consumption of sugar-rich foods and drinks are contributors to poor oral health among all age groups. Often, consuming too much sugar causes cavities. In a 2021 study, children who consumed sugar-rich beverages had a 4.3 times higher risk of developing dental caries compared to children who did not consume sugar-rich drinks (3). Besides leading to tooth decay, many adults in the United States are unaware that sugar-rich drink consumption is related to other health risks, including diet-related cancers (4,5).

Excess sugar consumption is further amplified through beverage advertisements. Youth-targeted advertisements have been shown to be especially effective in increasing sales (6). Companies take advantage of television ads to influence high sales and recently have shifted their advertising focus to include digital platforms such as social media (7,8).

Beverage advertisements on social media platforms such as TikTok or Facebook have led people to purchase more sugar-rich beverages (9,10). The influence of social media is not limited to promoting bad oral health. Social media's

function of live communication allows people to spread world issues and muster change, and quick communication allows doctors and scientists to provide life-saving advice or education to increase the quality of life (11). Influencers on social media can create content to promote a healthy oral lifestyle. In a 2021 research study conducted via Facebook groups, it was found that social media advertisements against fruit drinks were shown to be successful in decreasing the selection of fruit drinks by parents (12).

Currently, young people are at risk from advertisements that promote poor oral health. Social media is one outlet to reach and educate youth, but there have been no studies on the content and characteristics of TikTok videos created by dental influencers. Dental influencers on TikTok are important because, as self-proclaimed dentists, their voices hold credibility. Viewers trust advice from dental influencers, and fellow dentists also rely on social media for decision making (13). The objective of this research was to examine the content of dental influencers on TikTok. We hypothesized that the majority of dental influencers' content on TikTok will discuss educational resources regarding dental hygiene. We identified 10 dental influencers in July 2023 that met our criteria of being English-speaking, having greater than 10 videos, having more than 10,000 followers. Then, we categorized each video by format, theme, and tone. We learned that these dental influencers on TikTok largely promote content about oral health, dental hygiene, and dental product advertisement/review. We believe that this study may help develop an understanding of the possible ways that social media can positively affect a young audience's dental hygiene.

RESULTS

We looked at popular dental influencers, main themes, and level of engagement in social media content. We collected 20 TikTok videos from each of the 10 most popular dental influencers on TikTok, creating a sample of 200 TikTok videos. The 10 dental influencers in our sample collectively had 15 million subscribers, and the 200 TikTok videos collectively generated two billion views (**Table 1**). The three TikTok videos with the highest number of views came from *thebentist* at 634 million views, *thekidzdentist* at 537 million views, and *doctortristanpeh* at 364 million views. The top three subscribed dental influencers each generated more views than the next seven influencers combined, with the exception of *doctortristanpeh*.

The 200 TikTok videos were categorized by their main theme, format, and tone into a codebook. In the codebook, Question 1 determined the main theme, or kind of content, created by dental influencers. The main theme of each TikTok

| Influencer | No. Views | % of All Views | No. Subscribers | % of All Subscribers |
|-------------------------|----------------------|----------------|-------------------|----------------------|
| <i>thebentist</i> | 634,139,500 | 31.4% | 13,900,000 | 88.9% |
| <i>dentistexplains</i> | 196,439,400 | 9.7% | 300,900 | 1.92% |
| <i>ryansaveddds</i> | 25,268,863 | 1.3% | 375,500 | 2.40% |
| <i>doctortristanpeh</i> | 364,168,000 | 18.0% | 300,000 | 1.92% |
| <i>dentistsinging</i> | 12,722,029 | 0.6% | 218,200 | 1.40% |
| <i>joycethedentist</i> | 149,850,700 | 7.4% | 417,800 | 2.67% |
| <i>dentist_emi</i> | 14,657,113 | 0.73% | 8,500 | 0.05% |
| <i>thekidzdentist</i> | 537,310,900 | 26.6% | 53,800 | 0.34% |
| <i>dentist_rach</i> | 13,308,706 | 0.7% | 46,600 | 0.30% |
| <i>thedontist</i> | 71,979,100 | 3.6% | 16,300 | 0.10% |
| TOTAL | 2,019,844,311 | 100% | 15,637,600 | 100% |

Table 1: Views and subscribers of 50 TikTok videos of top 10 dental TikTok influencers, as of July 25, 2023. Statistics were collected from 20 TikTok videos from each of 10 dental influencers, resulting in a total dataset of 200 TikTok videos.

was classified into the following categories: sugar-rich drinks are bad, no-sugar drinks are good, drink water instead of sugar-rich drinks, dental hygiene, oral health, recommendations, and others. “Others” contained TikTok videos with uncommon main themes outside of those described in the previous sentence. “Oral health” is a category for TikTok videos with greater emphasis on identifying oral diseases and advice for oral health. If the main message of the TikTok video discussed methods to maintain teeth and gum health, the TikTok video was categorized as “dental hygiene”. If the main message discussed oral diseases that arise from poor dental hygiene, the TikTok video was categorized as “oral health”. If the TikTok video featured a product to recommend or review to the audience, the TikTok video was categorized as “recommendations/review”. In our sample of 200 TikTok videos, they were each only categorized for one main theme that best fitted the TikTok video. The most common main themes of the 200 TikTok videos we selected were “others” (38.0%, $n = 76$), “oral health” (32.5%, $n = 65$), and “dental hygiene” (21.0%, $n = 42$) (**Figure 1**). The main theme, “Product tips and recommendations”, was 6.50% ($n = 13$) of the sample. “Sugar-rich drinks are bad”, “no-sugar drinks are good”, and “drink water instead of sugar-rich beverages” had percentages of 1.00%, 0.00%, and 1.00%, respectively.

We then categorized the format of TikTok videos according to Question 2 of the codebook. Format and, later, tone of the TikTok videos were analyzed, because we believed that

recording how the information was presented to the audience was important. The “reaction” format consists of TikTok videos where dental influencers react to direct questions from the viewer or a separate influencer’s content. The “recommendation” format consists of TikTok videos where dental influencers recommended products for dental hygiene or tips on maintaining good oral health. The “original post creation” format consists of TikTok videos that did not fit our generic TikTok video format categories. The most prevalent content format was “original post creation” (47.5%, $n = 95$), followed by “reaction” TikTok videos (25.5%, $n = 51$) (**Figure 2**). “Autonomous sensory meridian response (ASMR)” content constituted 10.0% ($n = 20$) of the sample, while other formats such as “challenges”, “gaming”, and “split/collab” were not represented. “Answering questions” and “recommendation/review” formats accounted for 3.50% ($n = 7$), and 13.5% ($n = 27$) of the sample, respectively.

With Question 3 in the codebook, we sorted the tone of TikTok videos into three exclusive categories: educational, funny, and serious. TikTok videos with an “educational” tone accounted for 53.5% ($n = 107$) of the analyzed TikTok videos (**Table 2**). “Funny” and “serious” toned TikTok videos had percentages of 27.5% ($n = 55$) and 19.0% ($n = 19$), respectively (**Table 2**).

Next, we sought to determine whether the dental influencers we selected discuss oral health and dental hygiene in a statistically significant majority of their content.

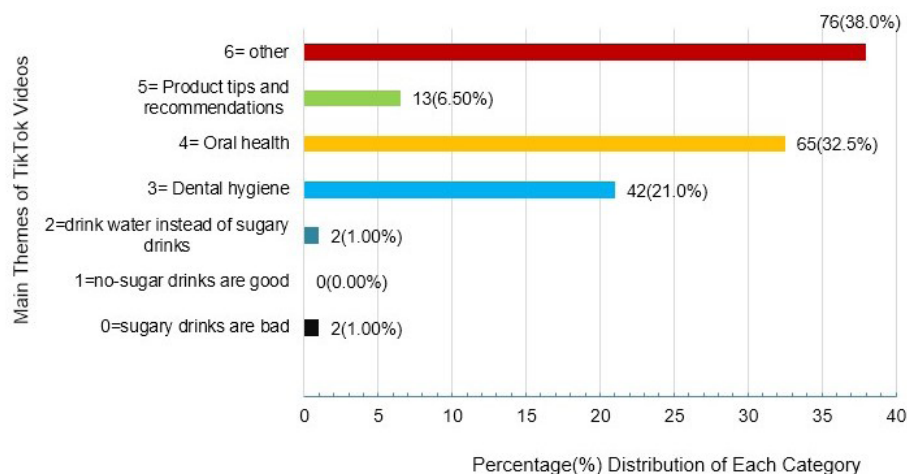


Figure 1: Main themes of TikTok videos by dental influencers, as of July 25, 2023. We collected 200 TikTok videos from 10 dental influencers and each video was categorized into one main theme.

| Tone of TikTok videos | Number of TikTok videos | Percent of TikTok videos |
|-----------------------|-------------------------|--------------------------|
| Educational | 107 | 53.5% |
| Funny | 55 | 27.5% |
| Serious | 38 | 19.0% |
| TOTAL | 200 | 100% |

Table 2: Distribution of tones across dental influencer posts (subset). Statistics were collected from 20 TikTok videos from each of 10 dental influencers, resulting in a total dataset of 200 TikTok videos.

This analysis on if the majority of TikTok videos were about oral health and dental hygiene is relevant, because followers will be frequently recommended TikTok videos by dental influencers. To assess the amounts of dental and non-dental content, we performed a one proportion z-test by separating our categorical data about main themes into two groups separating videos that contain main theme “oral health” and “dental hygiene” from videos that do not. We checked multiple assumptions and conditions for the one proportion z-test. Notably, the sample data was not a simple random sample, which is an assumption of a one proportion z-test, but we assumed it was representative of the TikTok dental influencer population and proceeded with caution. We calculated a Z-score = 0.707 using the mean and standard deviation of the main theme codebook data. We then wanted to determine the probability of this z-score value falling between 0.707 and 99, which would indicate that the majority of dental influencer’s content were not discussing dental hygiene and oral health. For a normally distributed random variable, the normalcdf function calculates the probability of that variable. Therefore, we used the normalcdf function to calculate that the z-score = 0.707 was associated with a p -value = 0.239. The calculated p -value exceeds the significance threshold ($\alpha = 0.05$), indicating insufficient evidence to conclude that the majority of dental influencer’s content on TikTok focuses on dental hygiene and oral health. However, our sample may not be a representative sample of the dental influencer population on TikTok, and the one proportion z-test may be invalid for this study.

DISCUSSION

In this study, we examined types of content created by popular dental influencers on TikTok. Out of the top 10

dental influencers on TikTok, the top three have the strongest number of views (**Table 1**). The accounts *thebentist* and *thekidzdentist* created content promoting good oral health, while the other 8 dental influencers created content unrelated to oral health (**Figure 1**). These data suggest that most viewers who watch TikTok videos made by dental influencers are exposed to oral health advice, which encourages good oral health behaviors. Of the 200 videos we analyzed, 6.50% of the videos were recommendations of oral health products or tips. Recommendations of oral health products or tips were sometimes sponsored advertisements from businesses, and we speculate that educational recommendations encouraged good oral health.

We did not measure the level of impact that social media content could have on their audience. However, there is prior research that looked at the impact of social media advertising on children and adolescences in different contexts. A 2020 study investigated social media influencers who target children and unhealthy food placement (14). The study used YouTube to track the popular TikTok videos of child influencers for product placement. They found that social media influencers who target children create millions of impressions for unhealthy food and drink brands through product placement (14). Another study from 2021 surveyed teenagers’ willingness to try e-cigarettes after being exposed to Instagram-type posts on social media (15). They discovered that greater social media exposure was related to greater willingness to use e-cigarettes (15). Both research papers studied social media and its effects. While our study focused on analyzing content released by dental influencers, these two previous studies speak to the effects of social media posts on affecting behavioral changes. Therefore, our results may have broader implications, as understanding the

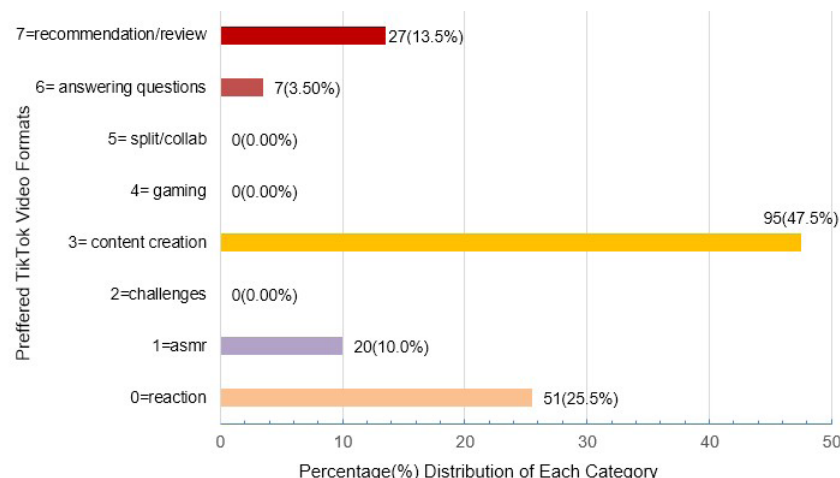


Figure 2: Distribution of preferred TikTok video formats among top 10 dental influencers on TikTok, as of July 25, 2023. A total of 200 TikTok videos were collected from 10 dental influencers. Each TikTok video was categorized into one of the video formats of the codebook.

types of content created by dental influencers is a necessary step before examining the effects caused by different types of social media content.

One major difference between the 2021 study on e-cigarette influencing on adolescents and our study is the difference in potential motivation behind using e-cigarettes compared to maintaining dental hygiene: e-cigarettes provide instant relief through nicotine, while oral hygiene has long-term benefits (15). Despite these differences, teens are likely to associate social media influencers as potential role-models regardless of whether the social media influencers are promoting smoking e-cigarettes or maintaining dental hygiene (15). The positive framing of e-cigarettes, created by influencers, was effective at increasing people's interest and willingness to use those products. Therefore, we predict that exposing adolescents to positive framing of good oral health maintenance would increase adolescents' interest and willingness to take care of their teeth.

Dental influencers are unique because they claim to be a certified expert. We predict their claims to be a certified expert help them gain trust more easily than social media influencers who do not. They can hold strong influence over people regarding topics of oral health and advice. We speculate that dental influencers improve the quality of life and long-term oral health through the content they provide on the internet. Future survey studies should be conducted on social media influencers who connect with their audience by spreading medical knowledge. Understanding the approximate impact of social media influencers on general health will provide knowledge into how modern social media affects younger generations.

Future work should also aim to improve on some of the limitations of our work. One limitation of our study included the data being restricted to TikTok, and there is a possibility that different social media platforms may produce unique results. Second, we did not verify whether the dental influencers we identified were truly credible dentists. Future studies could be improved by checking for whether the dental influencers have dental board certifications. Third, dental content released on social media could change after 2023. Content on social media is highly sensitive to trends. There is a possibility that, in the future, content released by dental influencers will produce different effects. Fourth, the number of views in dental content does not accurately measure how dental content will affect the public. Fifth, there was a limitation in analyzing patterns of the codebook and making statistical conclusions. In the future, a similar study conducted on a different popular platform such as Instagram could add to this discussion, and a survey should be made to quantify how people accept health related content on social media, to accurately understand the overall effects.

Of the content we analyzed from dental influencers on TikTok, we found that most content encouraged good oral health. However, dental influencers should consider the responsibilities that are associated with their influence over their audience. For example, dental influencers spreading inaccurate information could have a strongly negative effect on the population. Although TikTok enforces bans on misleading content like medical, climate change, and election misinformation, as well as misleading AI-generated content, conspiracy theories, and public safety issues like natural disasters, there is a lack of guidelines or laws regarding

spreading health-related information online (16). A policy regarding spreading medical information online could be discussed.

In conclusion, dental influencers promote stronger dental hygiene and oral health through the creation of TikTok video contents. While dental influencers have the potential to encourage positive dental hygiene, the effects of their influence remain unclear. Our discoveries indicate that the influence of dental influencers is a new area that requires future research.

MATERIALS AND METHODS

The top 10 dental TikTok influencers in July 2023 were identified by searching "dentist" in the search field on the TikTok website. Non-English-speaking accounts, accounts with fewer than 10 TikTok videos, and accounts with fewer than 10,000 followers were excluded. From the 10 selected dental influencers, we recorded the number of followers and total likes of the account. We took a sample of the 10 most recent TikTok videos and 10 most viewed TikTok videos from each account as of July 25, 2023. In the sample, there were no overlaps between the 10 most recent TikTok videos and 10 most viewed TikTok videos. In Microsoft Excel, the codebook was developed based on the content analysis guidelines of Lombard and colleagues (17).

Statistical analysis

To statistically test our hypothesis that most of the posts from our selected sample had the main theme "oral health" or "dental hygiene," we performed a one proportion z-test on the coded main themes of each TikTok video. We separated our categorical data into two groups in order to compare the sizes of each group using a one proportion z-test. One group contains TikTok videos that were identified as having main themes of dental hygiene and oral health. The second group contains the remaining TikTok videos of the sample, which do not have main themes of dental hygiene and oral health.

ACKNOWLEDGMENTS

We express our gratitude to Professor Marie A. Bragg for her invaluable contributions to the article. Her guidance to prepare the study was valuable experience.

Received: October 19, 2023

Accepted: July 26, 2024

Published: January 1, 2026

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