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A Social Media Quality Review of Popular Sinusitis Videos on TikTok

Rose Dimitroyannis, BA[1], David Fenton, BS[1], Stella Cho, BS[1], Rachel Nordgren, PhD[2], Jayant M. Pinto, MD[3], and Christopher R. Roxbury, MD[3]

Abstract

Objective. Social media may inform health care decisions among younger patient populations. TikTok is a social media platform that allows users to post short-form videos. This study aimed to assess the quality of sinusitis-related videos on TikTok.

Study Design. We searched TikTok on January 29, 2023, for sinusitis-related hashtags: #sinusitis, #sinus, #sinusinfection.

Setting. Internet.

Methods. The number of views/shares per day, uploader type (nonmedical influencer, lay individual, and medical professional) content categories (medical advice, marketing, comedy, and lifestyle/acceptability), and content type (educational vs factual) were collected. The Patient Education Materials Assessment Tool for Audiovisual Material and *Journal of the American Medical Association* criteria score was used to measure understandability, actionability, and reliability. The Global Quality Scale (GQS) was used to evaluate the quality of videos; the harm/benefit score was used to evaluate causative effects. Analyses were performed using analysis of variance ($\alpha = .05$).

Results. There were 221 videos identified, which garnered over 300 million views and 1 million shares. Almost half of the videos were published by nonmedical influencers. When controlling for covariates, nonmedical influencers and lay uploaders were more likely to have harmful harm/benefit scores, less understandable videos, and lower GQS scores compared to medical professionals. Less than half of videos posted by nonmedical influencers categorized as educational were factual (46.7%); lay individuals and medical professionals had higher rates of factual educational content (79.9% and 83.7%, respectively).

Conclusion. Most nonmedical influencer-posted TikTok videos about sinusitis are inaccurate, despite being portrayed as medical advice/educational. Rhinologists must find modern ways to disseminate true disease-related content via social media to combat medical misinformation.

Keywords

health care education, public health, sinusitis, social media, TikTok

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Approximately, 1 in 7 adults in the United States suffer from sinusitis.[1] Treatment of sinusitis results in annual medical costs of ~$5.8 billion.[2] Causes of sinusitis include viral, bacterial, or fungal pathogens; allergic, environmental, immunologic, and anatomic factors also play a role.[3] Classic symptoms include nasal congestion, fatigue, headache, and facial pain/pressure.[4,5] These symptoms are often burdensome and have detrimental effects on quality of life, sleep, mental or emotional status, and productivity.[6,7] Sinusitis is classified by duration of symptoms as acute or chronic, but the pathogenesis of sinusitis is not yet fully understood.[8] Treatment for acute sinusitis consists of symptom management, anti-inflammatory therapy, and antibiotics when symptoms do not resolve on their own after a period of time.[9,10] Clinical guidelines for treating chronic sinusitis recommend at least 1 month of medical therapy before pursuing surgical treatment.[11]

Many individuals with sinusitis turn toward self-treatment and lifestyle modifications, including steam inhalation, hydration, saline irrigation, herbal agents, aromatherapy, self-acupressure, minimizing exposure to environmental toxins and smoke, and/or pursuing an anti-inflammatory diet.[2,12] Patients often turn to the internet for information on sinusitis before or instead of seeking professional medical advice.[13] However, information on sinusitis on the internet may be poor quality.[14] After the advent of social media, many patients now use these platforms to discuss health information. Indeed, an analysis of sinusitis information on Twitter revealed that general public accounts often spread misinformation, especially during peak sinusitis season.[15]

[1]Pritzker School of Medicine, University of Chicago, Chicago, Illinois, USA
[2]Department of Public Health Sciences, University of Chicago, Chicago, Illinois, USA
[3]Department of Surgery, Section of Otolaryngology, University of Chicago Medicine, Chicago, Illinois, USA

Corresponding Author:
Christopher R. Roxbury, MD, Section of Otolaryngology–Head and Neck Surgery, University of Chicago, Chicago, IL, USA.
Email: croxbury@surgery.bsd.uchicago.edu

More recently, TikTok has become the sixth most popular social media platform with over 1.05 billion active monthly users and expected to grow to 2.2 billion users by 2027.[16,17] TikTok is an open-access video-sharing platform allowing users to view, comment, and create short-form videos synced to pop songs.[18] With its growing popularity, TikTok has become an easily accessible source of health-related information generated by both lay users and medical professionals, with the potential for spreading incorrect information. Indeed, it has already been studied to assess the quality of information on diabetes, urinary tract infections, and other diseases.[19,20]

To date, no scientific evaluation of the quality of sinusitis TikTok videos in English has been performed. Therefore, we aimed to identify sinusitis-related TikTok videos and systematically assess their quality, understandability, and actionability. By doing so, we sought to better understand a popular method in which individuals with sinusitis may learn about their disease.

Methods

Search Strategy and Eligibility Criteria

Using the hashtags "sinus," "sinusitis," and "sinus infection," we searched TikTok posts from January 29 to 30, 2023. These general hashtags were chosen to capture the broadest search of sinusitis on TikTok as possible, as these hashtags may be used by nonmedical influencers, medical professionals, and lay individuals. Furthermore, videos with more specific hashtags (such as "sinus surgery") likely also have these more general hashtags, allowing our search to span multiple topics without focusing on 1 subsection of sinusitis. Our search identified a total of 465 videos. One independent researcher collected the first 155 videos recommended by TikTok's standard search algorithm for each hashtag. This number of videos for the collection was set by examining exclusion rates of prior literature evaluating TikTok videos.[19,21] Videos were included if they met the following criteria: (1) present information on sinusitis, (2) have audio or text, and (3) provide information in English. After screening through the search results, all duplicate results were excluded (**Figure 1**). It is important to note that the confidential TikTok algorithm is influenced by viewing history and creates unique viewing experiences. All videos were collected over 24 hours to limit the effect of algorithm variability on results.

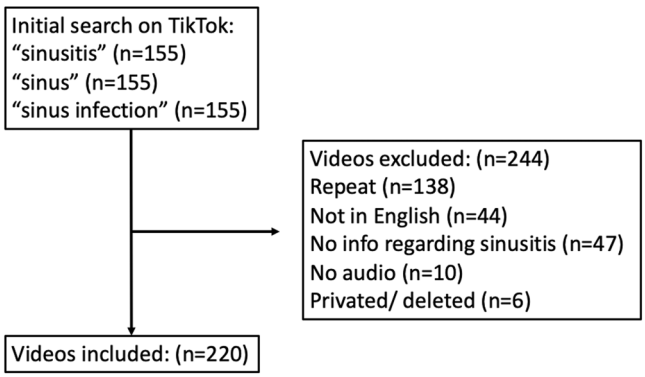

Figure 1. Flowchart detailing the inclusion and exclusion criteria for videos.

Data Management

For all videos that met the eligibility criteria, metadata (URL, number of views per day, and number of shares per day) were documented. The videos were then grouped by type of uploader into the following categories: lay individual (<10,000 followers), nonmedical influencer (>10,000 followers), or medical professional (self-defined physicians, nurses, chiropractors, and pharmacists, regardless of total followers). Uploaders classified as medical professionals were unable to be classified as nonmedical influencers regardless of follower number due to the large overlap of medical professional nonmedical influencers. Each video was organized by content category (medical advice, marketing, comedy, and lifestyle/acceptability) and content type (educational and factual). Lifestyle/acceptability videos were "vlogging" or video blogging videos that show parts of uploaders' routine daily life. Educational videos were defined as those with the intention to teach viewers, while noneducational videos did not show the intent to teach. Factual videos were defined as those discussing information validated through a literature review and consultation with an expert in rhinology (C.R.R.), while nonfactual videos discussed nonvalidated information. Two independent reviewers (R.D. and D.F.) assessed the videos' understandability, reliability, and actionability for all analyses. A third reviewer (S.C.) resolved disagreements in the initial review. This study was exempted from institutional review because it analyzed only publicly available data that did not qualify as human participant research.

Understandability, Actionability, and Reliability

The Patient Education Materials Assessment Tool for Audiovisual Material (PEMAT-AV) was used to assess the understandability and actionability of the videos.[22] The understandability section contains 13 items, and the actionability section includes 4 items, which can each be scored as 0 ("disagree"), 1 ("agree"), or N/A ("not applicable"). For each section, PEMAT-AV scores are calculated as percentages by dividing the points achieved over the items evaluated for the video. Therefore, higher values are usually indicative of higher understandability and actionability.

The *Journal of the American Medical Association* (JAMA) criteria score was used to measure reliability, accuracy, and utility.[23] There are 4 criteria: authorship (authors, contributors, affiliations, and credentials), attribution (references and sources used for content and copyright information), disclosures (sponsorship, advertising, commercial funding, and potential conflicts of interest), and currency (dates of posted and updated information). These items are scored as 0 ("disagree") or 1 ("agree"), and are used to calculate the

percentage of achieved items. Higher values indicate greater reliability, accuracy, and utility for each video.

The Global Quality Scale (GQS) was used to evaluate the overall quality of videos, with a score from 1 to 5. GQS was scored based on the following scale 1 = "very poor quality, missing information, not useful," 2 = "generally poor quality, some missing information, very limited use," 3 = "moderate quality, some information adequately discussed, somewhat useful," 4 = "good quality, most relevant information discussed, useful," and 5 = "excellent quality, all relevant information discussed, very useful."[24] A harm/benefit score was used to evaluate the harm or benefit caused by a video, with −1 ("harm"), 0 ("neutral"), and 1 ("benefit"); a greater harm/benefit score indicates a more beneficial video.[25] Videos with misinformation (educational but nonfactual) were deemed harmful, while videos with factual information were beneficial. Neutral videos were noneducational videos, such as comedy or lifestyle/acceptability videos that did not claim to share nonfactual educational content.

Statistical Analysis

Descriptive statistics were performed using Wilcoxon Rank Sum, Fisher's Exact, Welch's *t* test, and analysis of variance testing. Random intercept linear regression modeling was performed to determine the association of video metadata and content variables (views, shares, views per day, shares per day, uploader type, content type, educational information, factual information) to outcome variables (harm vs benefit, understandability, actionability, JAMA, and GQS).[26] All significant variables from univariable analyses were included in multivariable regression models except for collinear (shares) and confounding variables (content in harm vs benefit, uploader type in actionability, and content category in all models). Views, shares, views per day, and shares per day were separated into quartiles for regression analysis to account for outliers. Understandability, actionability, and JAMA criteria scores were converted from 0 to 1 scale to 0 to 10 for regressions, and harm versus benefit scores were converted from −1 to 1 scale to −5 to 5. Spearman's rank correlation test was performed to determine the correlation among variables. Correlation analysis was performed on only 1 video per uploader, only including each uploader's most viewed video. This was done to include analysis without repeat uploaders. All statistical analysis was performed using Excel 16 and R (Foundation for Statistical Computing) with a threshold for statistical significance at $\alpha = .05$.[27,28]

Results

Video Metadata

From 465 initial videos, 220 videos were included in this study. Of the 245 excluded videos, 56.3% (n = 138) were duplicate videos, 18.0% (n = 44) were not in English, 19.2% (n = 47) had no information regarding sinusitis, 4.1% (n = 10) had no audio, and 2.5% (n = 6) were private or deleted between collection and analysis (**Figure 1**). All videos were published between 2020 and 2023, with 71.0% of videos posted in 2022 and 15.4% in 2021. In total, the videos were viewed 330,771,103 times and shared 1,127,415 times. The included videos received 1,503,505.1 (SD = 3,848,987.8) views on average, 5124.6 (SD = 22,222.5) shares on average, 23,895.7 (102,531.6) views per day on average, and 94.2 (651.2) shares per day. Half (48.1%; n = 106) of videos were published by nonmedical influencers, or individuals with more than 10,000 followers on TikTok, while lay individuals published 31.4% of videos (n = 69), and 20.4% (n = 45) were from medical professionals. There was no significant difference in views, shares, views per day, or shares per day among different uploader types (**Table 1**). Of 220 included videos, there were 183 unique uploaders included in the analysis, as creators with different videos were included. For the nonmedical influencer video category, there were 80 unique uploaders for 106 videos included. For the lay video category, there were 66 unique uploaders for 69 videos, while for the medical professional category, there were 37 unique uploaders for 45 videos. There was a significant difference in the number of unique uploaders per uploader category, with the nonmedical influencer category having fewer unique uploaders than the medical professional and lay video categories.

Video Content

In general, medical advice videos demonstrated tips and tricks to cure sinus infections and common symptoms to look for, while lifestyle videos depicted individuals trying nasal rinses. Comedy videos often focused on humor surrounding the chronicity of sinus infections and their burden, and marketing videos promoted a nasal rinse product/machine. Medical advice was the most common content type for videos published, with 51.8% (n = 114) videos, while marketing was the least common, with 0.9% (n = 2). There was a significant difference among uploader types for video content, with medical advice being the most common nonmedical influencer (52.8%, n = 56/106) and medical professional (84.4%, n = 38/45, $P < .001$) content, and lifestyle videos being the most common for lay uploaders (52.2%, n = 36/69, $P < .001$). Most videos (61.8%; n = 136) were categorized as educational. Ninety-five percent (n = 43/45) of medical professional videos, 58.5% (62/106) of nonmedical influencer videos, and 44.9% (n = 31/69) of lay uploader videos were categorized as educational ($P < .001$).

More than half of all videos were categorized as factual (55.5%, n = 122); however, the presence of factual content significantly differed among uploader types (lay individual: 53.6%, 37/69; nonmedical influencer: 45.3%, 48/106; medical professional: 84.4%, 38/45; $P < .001$) (**Figure 2**). Within videos categorized as educational, there were also significant differences in factual content across uploaders (lay individual:

Table 1. Metadata, Content, and Quality Information From Videos Collected, Breakdown by Uploader Type

	All (n = 220)	Videos made by nonmedical influencer (n = 106)	Videos made by lay individuals (n = 69)	Videos made by medical professionals (n = 45)	*P* value
Number of unique uploaders	183	80	66	37	<.001
Views	Mean (SD) 1,503,505.1 (3,848,987.8)	1,827,897.60 (4,637,982.36)	678,181.38 (1,310,723.64)	2,004,876.49 (4,262,650.87)	.096
	Median (IQR), range 290,700 (1,080,550) 28,699,015	411,100 (1,309,525) 28,699,015	150,500 (578,500) 8,398,648	214,800 (1,377,900) 19,198,155	
Shares	Mean (SD) 5124.6 (22,222.5)	8124.19 (31,189.21)	1706.15 (4077.33)	3123.47 (6712.65)	.133
	Median (IQR) range 430.5 (2314) 295,300	690 (3214) 295,300	194 (1136) 24,100	395 (2529) 29,398	
Views/d	Mean (SD) 23,895.7 (102,531.6)	25,441.02 (112,269.14)	8791.67 (36,853.85)	43,415.14 (139,262.07)	.207
	Median (IQR) range 1640.83 (7547.59) 1,066,655.06	3031.53 (14,058.13) 1,066,655.06	775.77 (4224.87) 289,638.48	1845 (5584.24) 793,082.34	
Shares/d	Mean (SD) 94.2 (651.2)	74.32 (254.00)	21.02 (81.12)	253.18 (1382.47)	.161
	Median (IQR) range 2.50 (19.89) 9236	6.11 (25.86) 2,152	1.51 (4.68) 600	4.62 (24.12) 9235.98	
Content					
Medical advice	114 (51.8%)	56 (52.8%)	20 (28.9%)	38 (84.4%)	<.001
Lifestyle	76 (34.5%)	37 (34.9%)	36 (52.2%)	3 (6.6%)	
Comedy	28 (12.7%)	12 (11.3%)	12 (17.4%)	4 (8.9%)	
Marketing	2 (0.9%)	1 (0.9%)	1 (1.4%)	0 (0.0%)	
Educational					
Yes	136 (61.8%)	62 (58.5%)	31 (44.9%)	43 (95.5%)	<.001
No	84 (38.2%)	44 (41.5%)	39 (55.1%)	2 (4.4%)	
Factual					
Yes	122 (55.5%)	47 (44.3%)	37 (53.6%)	38 (84.4%)	<.001
No	98 (44.5%)	59 (55.7%)	32 (46.4%)	7 (15.5%)	
Education type					
Factual	87 (64.0%)	29 (46.7%)	22 (71.0%)	36 (83.7%)	<.001
Nonfactual	49 (36.0%)	33 (53.2%)	9 (29.0%)	7 (16.3%)	
Understandability (0-1)	0.80 (0.14)	0.80 (0.14)	0.75 (0.13)	0.88 (0.10)	<.001
Actionability (0-1)	0.50 (0.43)	0.55 (0.43)	0.32 (0.40)	0.67 (0.37)	<.001
JAMA (reliability, accuracy, and utility) (0-1)	0.50 (0.02)	0.50 (0.02)	0.50 (0.01)	0.51 (0.03)	.077
Global quality score	2.70 (0.92)	2.47 (0.69)	2.38 (0.78)	3.76 (0.86)	<.001
Harm vs benefit score (−1 to 1)	0.22 (0.46)	0.08 (0.37)	0.10 (0.40)	0.73 (0.39)	<.001

Abbreviations: IQR, interquartile range; JAMA, *Journal of the American Medical Association*.

79.9%, 22/31; nonmedical influencer: 46.7%, 29/62; medical professional: 83.7%. 36/42; $P < .001$).

Video Quality

Using PEMAT-A/V, the mean understandability and actionability of all videos were found to be 0.80 (SD = 0.14) and 0.50 (0.43), respectively. There was a significant difference among uploader types for understandability and actionability scores, with medical professionals receiving higher scores for both metrics than nonmedical influencers and lay uploaders ($P < .001$). The most common reasons for a point deduction in understandability score were lack of visual cues such as larger or bolder font, arrows or highlighting (69.5%; n = 153), difficulty reading text on screen (19.5%; n = 43), and

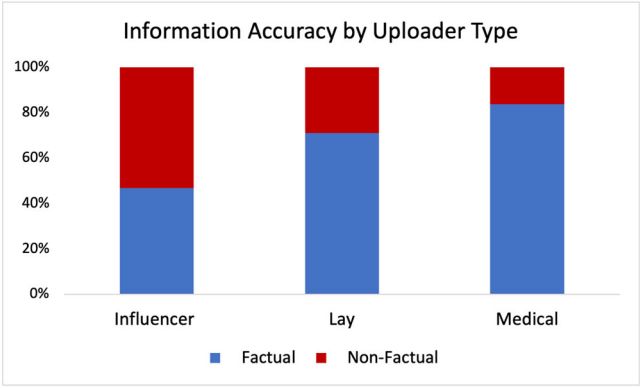

Figure 2. Graph depicting percent of educational content that is factual, by uploader type.

difficulty understanding speaking (17.3%; n = 38). The most common reason for a point deduction in actionability score was not addressing the viewer directly when speaking about actions and failure to break actions into manageable, explicit steps (52.7%; n = 116, 53.1%; n = 117, respectively).

An average of 0.5 (SD = 0.02) of JAMA criteria score benchmarks (reliability, accuracy, and utility) were fulfilled for all videos, with no significant difference among uploader types. The most common reason for unfulfilled points was a lack of disclosures for sponsorships and attributions/references for information discussed (99.1%; n = 218, 100%; n = 220, respectively). Using the GQS, the mean score for all videos was 2.70 (0.92), with a significant difference among uploader types ($P < .001$). The average GQS score for medical professionals was 3.76 (0.86), 2.47 (0.69) for nonmedical influencers, and 2.38 (0.78) for lay uploaders. The mean harm/benefit score for all videos was 0.22 (0.46). There was a significant difference among uploader types, as medical professionals had a better harm/benefit score (0.73, SD: 0.39) than both nonmedical influencers and lay uploaders (0.08 SD = 0.37, 0.10 SD = 0.40, respectively).

Regression Analysis/Correlations

The number of views significantly predicted the GQS score, with higher views associated with lower scores, controlling for views, shares, views per day, shares per day, uploader type, content type, educational information, and factual information ($P = .005$; refer to **Table 2** for univariable regression and **Table 3** for multivariable regressions, β and confidence interval).

The type of uploader significantly predicted harm/benefit, understandability, and GQS scores, with medical professionals associated with higher scores than nonmedical influencers and lay individuals on all tests, controlling for covariates, the ($P < .001$, $P = .028$, $P < .001$, respectively) (**Table 3**). Videos that were categorized as educational significantly predicted harm/benefit ($\beta = 1.2$, 0.71, 1.7, $P < .001$), understandability ($\beta = 0.56$, 0.06, 1.1, $P = .030$), actionability ($\beta = 4.0$, 3.0, 5.0, $P < .001$), and GQS scores ($\beta = 0.66$, 0.43, 0.89, $P < .001$, respectively). Videos categorized as factual significantly predicted harm/benefit and GQS score ($\beta = 1.7$, 1.2, 2.1, $P < .001$ and $\beta = 0.60$, 0.45, 0.76, $P < .001$, respectively). See **Tables 2** and **3** for univariable and multivariable regressions.

In correlation analysis including only each uploaders' most viewed video significant positive correlation was found between views and shares ($r = .71$, $P < .001$). Views were significantly negatively correlated with understandability ($r = -.20$, $P = .005$) and GQS score ($r = -.15$, $P = .05$). Videos with lower harm/benefit scores were significantly positively correlated with worse understandability ($r = .38$, $P < .001$), actionability ($r = .31$, $P < .001$), and GQS score ($r = .81$, $P < .001$). Understandability was significantly positively correlated with higher actionability ($r = .41$, $P < .001$), reliability, accuracy, and utility ($r = .18$, $P = .015$), and GQS score ($r = .50$, $P < .001$). Actionability was significantly positively correlated with a higher GQS score ($r = .54$, $P < .001$). See **Table 4** for all correlation coefficients and associated P values.

Discussion

Our study is the first to objectively analyze the quality of videos related to sinusitis on TikTok. Videos analyzed in this study garnered over 300 million views and 1 million shares, demonstrating the prevalence of the topic of sinusitis on this platform and its potential impact on patients and the public more generally. Almost one-half of the videos were published by nonmedical influencers. Nonmedical influencers and lay uploaders were more likely to have more harmful harm/benefit scores, less understandable videos, and lower GQS scores in comparison to medical professionals in adjusted analyses. Less than half of videos posted by nonmedical influencers categorized as educational actually contained factual information. Our findings suggest that sinusitis-related misinformation is most perpetuated by nonmedical influencers and lay individuals. Nonmedical influencers were also the most likely to have multiple uploads in the sample, allowing these users to have greater visibility. Ultimately, this highlights a need for health care professionals to increase their presence on social media to dispel medical misinformation.

Uploader type significantly predicted video quality scores, with lay individuals and nonmedical influencers being more likely to create videos that were less educational, less factual, of lower quality, and harmful. Given the increasing use of social media in health decision-making and the growing popularity of the application, sinusitis videos posted through TikTok may reach a large audience.[29] Recent examinations of social media such as TikTok have shown a potential to form a "community of practice," an avenue for engaging members to share information or advice, solve problems, or support each other.[30] Within this context, TikTok's public health implications are still being studied across various medical disciplines.[31-34] Due to its community of

Table 2. Univariable Regression Testing Relationship Between Metadata and Content of Video Against Quality Scores

	Harm vs benefit (−5 to 5)			Understandability (0-10)			Actionability (0-10)			JAMA (0-10)			Global quality score (1-5)		
Characteristics	β	95% CI	*P* value	β	95% CI	*P* value	β	95% CI	*P* value	β	95% CI	*P*value	β	95% CI	*P* value
Views			.40			.11			.13			.4			.003
First quartile (reference)	-	-		-	-		-	-		-	-		-	-	
Second quartile	0.00	−0.85, 0.84		−0.11	−0.62, 0.39		1.7	0.28, 3.2		0.01	−0.07, 0.10		0.19	−0.14, 0.51	
Third quartile	−0.56	−1.40, 0.28		−0.41	−0.91, 0.09		0.70	−0.70, 2.1		−0.06	−0.14, 0.03		−0.31	−0.63, 0.01	
Fourth quartile	−0.51	−1.40, 0.34		−0.56	−1.1, −0.05		0.76	−0.67, 2.2		−0.04	−0.12, 0.05		−0.32	−0.65, 0.00	
Views per day			.08			.50			.5			.3			.085
First quartile (reference)	-	-		-	-		-	-		-	-		-	-	
Second quartile	−0.53	−1.40, 0.32		−0.11	−0.62, 0.40		−0.73	−2.2, 0.75		−0.08	−0.17, 0.01		−0.29	−0.63, 0.04	
Third quartile	−1.10	−1.90, −0.22		−0.11	−0.62, 0.40		0.30	−1.2, 1.8		−0.04	−0.12, 0.05		−0.41	−0.74, −0.08	
Fourth quartile	−0.32	−1.20, 0.54		−0.37	−0.89, 0.14		0.05	−1.4, 1.6		−0.06	−0.15, 0.03		−0.36	−0.70, −0.02	
Shares			.20			.90			.008			.7			.3
First quartile (reference)	-	-		-	-		-	-		-	-		-	-	
Second quartile	−0.57	−1.40, 0.28		0.05	−0.47, 0.56		1.4	−0.07, 2.8		−0.04	−0.13, 0.05		−0.02	−0.36, 0.32	
Third quartile	−0.84	−1.70, 0.00		−0.16	−0.67, 0.35		2.2	0.80, 3.6		−0.01	−0.09, 0.08		−0.24	−0.57, 0.09	
Fourth quartile	−0.65	−1.50, 0.22		−0.08	−0.60, 0.44		2.2	0.72, 3.7		−0.04	−0.13, 0.05		−0.24	−0.59, 0.11	
Shares per day			.20			.70			<.001			.7			.4
First quartile (reference)	-	-		-	-		-	-		-	-		-	-	
Second quartile	−0.95	−1.80, −0.10		−0.16	−0.67, 0.35		1.3	−0.12, 2.8		0.04	−0.04, 0.13		−0.29	−0.62, 0.05	
Third quartile	−0.36	−1.20, 0.49		0.10	−0.42, 0.61		2.4	1.0, 3.9		0.00	−0.08, 0.09		−0.17	−0.51, 0.16	
Fourth quartile	−0.64	−1.50, 0.23		−0.18	−0.70, 0.34		2.8	1.3, 4.3		0.03	−0.06, 0.13		−0.19	−0.54, 0.16	
Uploader			<.001			<.001			<.001			.10			<.001
Medical professional (reference)	-	-		-	-		-	-		-	-		-	-	
Nonmedical influencer	−3.3	−4.0, −2.60		−0.85	−1.3, −0.38		−0.94	−2.5, 0.63		−0.06	−0.15, 0.04		−1.3	−1.6, −1.1	
Lay Individual	−3.3	−4.0, −2.5		−1.3	−1.8, −0.83		−3.5	−5.1, −1.8		−0.11	−0.20, −0.01		−1.4	−1.7, −1.1	
Content			<.001			<.001			<.001			.13			<.001
Medical advice (reference)	-	-		-	-		-	-		-	-		-	-	
Comedy	−2.1	−3.0, −1.2		−1.7	−2.2, −1.2		−6.9	−8.1, −5.7		−0.09	−0.19, 0.01		−1.3	−1.6, −0.97	
Lifestyle and acceptability	−1.5	−2.2, −0.87		−1.0	−1.4, −0.66		−5.9	−6.7, −5.0		−0.05	−0.12, 0.02		−0.82	−1.1, −0.58	
Educational	2.2	1.7, 2.8	<.001	1.3	0.93, 1.6	<.001	6.3	5.5, 7.1	<.001	0.05	−0.01, 0.12	.10	1.2	0.97, 1.4	<.001
Factual	2.4	1.9, 2.9	<.001	0.52	0.16, 0.88	.004	0.74	−0.29, 1.8	.2	0.05	−0.01, 0.12	.084	0.95	0.74, 1.2	<.001

Abbreviations: CI, confidence interval; JAMA, *Journal of the American Medical Association*.

Table 3. Multivariable Regression Testing Relationship Between Metadata and Content of Video Against Quality Scores

	Harm vs benefit (−5 to 5)			Understandability (0-10)			Actionability (0-10)			Global quality score		
Characteristics	β	95% CI	*P* value	β	95% CI	*P* value	β	95% CI	*P* value	β	95% CI	*P* value
Views			-			-			-			.005
First quartile (reference)	-	-		-	-		-	-		-	-	
Second quartile	-	-		-	-		-	-		0.04	−0.17, 0.24	
Third quartile	-	-		-	-		-	-		−0.22	−0.43, −0.01	
Fourth quartile	-	-		-	-		-	-		−0.27	−0.48, −0.06	
Shares per day			-			-			.030			-
First quartile (reference)	-	-		-	-		-	-		-	-	
Second quartile	-	-		-	-		1.3	0.31, 2.2		-	-	
Third quartile	-	-		-	-		1.2	0.21, 2.2		-	-	
Fourth quartile	-	-		-	-		1.2	0.21, 2.2		-	-	
Uploader			<.001			.028			-			<.001
Medical professional (reference)	-	-		-	-		-	-		-	-	
Nonmedical influencer	−2.2	−2.8, −1.5		−0.45	−0.90, 0.01		-	-		−0.76	−0.96, −0.55	
Lay individual	−2.0	−2.7, −1.4		−0.68	−1.2, −0.18		-	-		−0.82	−1.0, −0.59	
Content			-			.006			<.001			.011
Medical advice (reference)	-	-		-	-		-	-		-	-	
Comedy	-	-		−1.0	−1.7, −0.40		−3.7	−5.0, −2.3		−0.40	−0.70, −0.11	
Lifestyle and acceptability	-	-		−0.41	−0.91, 0.09		−2.9	−4.0, −1.9		−0.06	−0.29, 0.17	
Educational	1.2	0.71, 1.7	<.001	0.56	0.06, 1.1	.030	4.0	3.0, 5.0	<.001	0.66	0.43, 0.89	<.001
Factual	1.7	1.2, 2.1	<.001	0.17	−0.17, 0.51	0.3	-	-	-	0.60	0.45, 0.76	<.001

All significant variables from univariable analyses were included in multivariable regression models except for collinear (shares) and confounding variables (content in harm vs benefit, uploader type in actionability, and content category in all models).

Table 4. Correlation Analysis Among Variables, Data Presented as Correlation Coefficient and *P* Values

	Views	Shares	Views/d	Shares/d	Harm vs benefit	Understandability	Actionability	Reliability, accuracy, utility (JAMA)	GQS
Views	1	0.710, $P < .001$	0.305, $P < .001$	0.102, $P = .130$	−0.075, $P = .268$	−0.186, $P = .005$	−0.048, $P = .478$	−0.034, $P = .619$	−0.144, $P = .032$
Shares	0.710, $P < .001$	1	0.121, $P = .073$	0.112, $P = .098$	−0.058, $P = .390$	−0.036, $P = .594$	0.105, $P = .121$	−0.018, $P = .796$	−0.059, $P = .385$
Views per day	0.305, $P < .001$	0.121, $P = .073$	1	0.728, $P < .001$	−0.035, $P = .608$	−0.046, $P = .49$	0.046, $P = .49$	−0.019, $P = .77$	−0.056, $P = .41$
Shares per day	0.102, $P = .130$	0.112, $P = .098$	0.728, $P < .001$	1	0.015, $P = .828$	0.073, $P = .279$	0.105, $P = .119$	−0.011, $P = .869$	0.029, $P = .660$
Harm vs Benefit	−0.075, $P = .268$	−0.058, $P = .390$	−0.035, $P = .608$	0.015, $P = .828$	1	0.376, $P < .001$	0.308, $P < .001$	0.141, $P = .036$	0.809, $P < .001$
Understandability	−0.186, $P = .005$	−0.036, $P = .594$	−0.046, $P = .49$	0.073, $P = .279$	0.376, $P < .001$	1	0.409, $P < .001$	0.192, $P = .004$	0.514, $P < .001$
Actionability	−0.048, $P = .478$	0.105, $P = .121$	0.046, $P = .49$	0.105, $P = .119$	0.308, $P < .001$	0.409, $P < .001$	1	0.142, $P = .035$	0.513, $P < .001$
Reliability, accuracy, utility (JAMA)	−0.034, $P = .619$	−0.018, $P = .796$	−0.019, $P = .77$	−0.011, $P = .869$	0.141, $P = .036$	0.192, $P = .004$	0.142, $P = .035$	1	0.208, $P = .002$
GQS	−0.144, $P = .032$	−0.059, $P = .385$	−0.056, $P = .41$	0.029, $P = .660$	0.809, $P < .001$	0.514, $P < .001$	0.513, $P < .001$	0.208, $P = .002$	1

Abbreviations: GQS, Global Quality Scale; JAMA, *Journal of the American Medical Association*.

practice characteristics and personalized algorithm, the application may play a role in spreading medical information or misinformation regarding sinusitis.[35] We recommend that users of the application should tread carefully when viewing sinusitis-related content, especially if not created by medical professionals. Moreover, practicing otolaryngologists and providers should be equipped to understand the complex interactions of TikTok on patients and be willing to assist patients in their decision-making. Additionally, it must be noted that around 15% of medical professionals uploaded TikToks classified as nonfactual. This finding may be partially due to the low sample of medical professionals; however, it is vital that TikTok viewers also understand that medical professionals can post nonfactual information as well, albeit at a lower rate.

Video uploads from medical professionals were more likely to be factual, of higher quality, and contain useful information for patients. Thus, producing TikTok content may serve as a unique opportunity for medical professionals to increase public awareness, address misconceptions, and provide education on common conditions or procedures. Interacting with pre-existing content or with other content creators may be particularly helpful in dispelling misinformation or increasing the accessibility of factual and educational material. For example, users may "stitch" (incorporating less than 5-second clips from another video and reposting it as part of another) or "duet" (posting videos side-by-side with a video from another creator) other content. Ultimately, since health professionals will play an integral role in increasing the presence and quality of information on social media, a concerted effort is necessary through groups such as the American Board of Otolaryngology, the American Academy of Otolaryngology–Head and Neck Surgery, or the American Rhinologic Society. Additionally, it is important to note that a majority of medical professionals (84.4%; n = 38) qualified as influencers based on follower count. This highlights that medical professionals are able to gain followings on TikTok. Compounded by the finding that there was no significant difference in views and shares amongst uploader types, medical providers should feel empowered to create educational and factual videos that have been shown to reach large audiences.

A significant positive correlation was identified between understandability and actionability, reliability, accuracy, utility, and GQS score, as well as between actionability and more beneficial scores. Since these quality scores correlated with the understandability, actionability, reliability, accuracy, and utility of videos, we collected common reasons for missed points in these sections of the PEMAT-AV (understandability and actionability) and JAMA criteria score (reliability, accuracy, utility). For example, the most common reason for a point deduction in understandability score was a lack of visual cues drawing attention to key points in the video. Posting on TikTok, 1 can add visual cues to spoken words, such as subtitles or word bubbles that accentuate points. These videos can be easier to understand as they allow a viewer to both listen and read information, with 1 study finding that COVID-related TikTok videos with subtitles were shared more often, likely due to increased understanding.[36] Based on our findings, we provide further suggestions for improvement that may aid medical professionals' or content creators' quality of content (**Table 5**).

Table 5. Suggestions for Increasing the Quality of Educational Videos on TikTok (Conflict of Interest)

Commonly missed points on quality assessments	Suggestions for Improvements
Understandability	
– Lack of visual cues to draw attention to key points	(a) Use TikTok's subtitle feature to highlight key points (b) Use in-app features such as stickers to bring viewers' attention to important points on the screen
– Difficulty reading text	(a) Ensure words on the screen are large enough to read on a cell phone (b) Use fonts that do not blend into the background, or place a background behind text
– Difficult to understand speaking (too fast, garbled)	(a) Opt for background music without lyrics, or play music quietly (b) Speak at a normal speed, and avoid rushing for the video time limit
Actionability	
– Failure to use active voice when speaking about actions	(a) Use active voice whenever possible
– Failure to break actions into manageable, explicit steps	(a) Use bullet points or numbers to break down actions for the audience (b) Can make videos multiple parts, each addressing a step
Reliability	
– Failure to cite sources	(a) Cite any sources in a video or description
– Failure to disclose sponsorships or conflicts of interest	(b) If discussing a product, note any conflict of interest or sponsorships explicitly in the video and description

This study has several limitations. The first 155 videos from 3 hashtags were selected. However, the confidential TikTok algorithm gives each user a unique experience and adapts based on prior viewing history. The search function within TikTok is highly dynamic and changes each time a new video is uploaded. We hoped to limit algorithm variability by collecting all videos over 24 hours. Additionally, 2 independent reviewers analyzed videos, with a blinded third reviewer to resolve conflicting assessments, improving our sampling technique's robustness. While scoring videos, it was not possible for reviewers to be blind to uploader type, as uploaders often revealed their uploader status in videos. In addition to this, multiple videos by single uploaders were included in the analysis. This may have caused bias in rating. However, the inclusion of multi-uploaders was necessary for the aims of our study to better understand the landscape of sinus TikTok searches. By removing repeat uploaders we would lose the over-saturation of their status, which wouldn't be an accurate representation of the application. Furthermore, random intercept linear regression modeling analysis is able to account for multi-uploaders. Finally, while the quality tools used in this study were validated for audio-visual information, they have yet to be specifically validated for use in rating TikTok videos.

Conclusion

In this study examining information regarding sinusitis on TikTok, we found most nonmedical influencer-posted videos about sinusitis are inaccurate, despite their portrayal as educational medical advice. Videos posted by medical providers were more likely to be educational and factual, as well as of higher quality. These findings highlight an increasing need for medical professionals to not only engage with social and disseminate factual, educational content but to also address misinformation within the TikTok application. Based on our findings, we provide applicable recommendations for medical professionals to effectively produce high-quality content.

Author Contributions

Rose Dimitroyannis, conception and design, data acquisition, analysis and interpretation, drafting the manuscript, critical revision; **David Fenton**, conception and design, data acquisition, analysis and interpretation, drafting the manuscript, critical revision; **Stella Cho**, data acquisition, analysis and interpretation, drafting the manuscript, critical revision; **Rachel Nordgren**, analysis and interpretation, drafting the manuscript, critical revision; **Jayant M. Pinto**, analysis and interpretation, drafting the manuscript, critical revision, guarantor; **Christopher R. Roxbury**, conception and design, critical revision, drafting the manuscript, analysis and interpretation, guarantor.

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Data Availability Statement

Data collected from this study may be made available upon request from the corresponding author. TikTok videos collected are publicly available through the social media platform.

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