



Nutrition Information on TikTok: A Qualitative Exploration of Posts from Registered Dietitian Nutritionists (RDN) and non-RDNs.

Madison Moore

College of Agricultural and Life Sciences, University of Florida

Dr. Jeanette Andrade, Food Science and Human Nutrition

Abstract

TikTok has grown in popularity since its release in 2016. It has also garnered recent attention from the United States government due to its potential breach of user privacy. Registered Dietitian Nutritionists (RDN) are using TikTok to promote their services and public nutrition knowledge. However, their viewers' engagement and comments have yet to be explored. A descriptive qualitative study was conducted to identify the difference in posts by RDNs and non-RDNs. For one month, the engagement on posts from 4 creators (n=2 RDNs and n=2 non-RDNs) was monitored. The number of positive and negative comments and common comment topics were identified. Four post categories were identified: preparing meals, consuming nutritious food/meals, nutrition/diet tips, and indirectly nutrition related content. Likes were the most common form of engagement. Most comments were positive (70%). The creators with more followers received more negative comments (27%) than those with less followers (6%). RDNs received more comments asking for nutrition advice (n>44) than non-RDNs (n<13). RDNs posted more about preparing meals and nutrition/diet tips while non-RDNs posted more about consuming nutritious food/meals and indirectly nutrition related. Informing RDNs of the usefulness of TikTok and of the expectations of their audience is important as the use of social media in health care is increasing. Thus, further research is important to ensure that we can inform RDNs on the best social media practices.

Keywords: nutrition information, social media, RDN, TikTok

Introduction

A 2021 survey reported that 72% of American responders use some type of social media (Pew Research Center, 2021). Furthermore, 31% percent of internet users report using social media to find nutrition information (Thackeray et al., 2013). Twenty-five percent of Danish survey responders prefer to use social media to communicate with their health care provider (Belt et al., 2013). Previous studies have also found that athletes (Bourke et al., 2019), adults with diabetes (Stockman et al., 2019) and women with suboptimal fruit and vegetable intake (Bissonnette-Maheux et al., 2015) used a form of social media to improve their dietary choices. Furthermore, social media use has been increasing among health care professionals (Von Muhlen & Ohno-Machado, 2012). For example, 97% of 31 Registered Dietitian Nutritionists (RDN)

surveyed agreed with the statement that social media usage is important for RDNs to “spread knowledge on healthy eating” and to “share their scientific knowledge on nutrition” (Saboia et al., 2021).

The limited research that has been done on TikTok about health-related topics has focused on information dissemination and dietary patterns. A 2021 study reported that informational TikTok posts by public health agencies about the COVID-19 pandemic received over 900 million views (Li et al., 2021). Another study analyzed the content of the hashtag #mediterraneandiet on TikTok and found that there was some confusion about the meaning of the term “Mediterranean Diet” (Raber et al., 2022). However, no studies have been conducted about the information posted by RDNs and how viewers respond to it versus non-RDNs. This study aimed to explore content posted from RDNs and non-RDNs and the engagement of their viewers.

Methods

A qualitative descriptive study was conducted from August 31 – September 30, 2022 using the social media platform TikTok. A one-month period was deemed sufficient to obtain engagement from viewers (Power et al., 2020). University of Florida’s Institutional Review Board approved this study as exempt (IRB202202034).

Selection of Content Creators

Initially, the top 200 posts under the #nutrition were identified. A total of 139 creators emerged with 33 of these creators being repeated. The top four creators were chosen from this list based on frequency of repeats on this list (≥ 5). The creators were qualified as either RDN ($n=2$; Creator A and B) or non-RDN ($n=2$; Creator C and D) based on internet searches. The two RDNs had credentials on their personal web pages. One non-RDN, creator C, had provided the Certified Nutrition Counselor credential on her personal web page. The other non-RDN, creator D, had no personal website nor any claims/credentials of being an RDN. Creator B had the greatest number of followers at the time of data collection (1,600,000), followed by Creator A (665,500), D (357,300), and C (141,900).

Data Collection

For each post from the individual creators, the date and title, the sponsorship status, engagement, and a brief description was recorded. The sponsorship status of a post was

determined based on hashtags used (#spons, #sponsored, #sponsorship) or by key words used by the creator in a video (“this post is sponsored”, “thank you to [company] for sponsoring this video”). Engagement was defined as the number of likes, shares, saves, and comments. Those who commented on posts were defined as commenters. Those who engaged in another way (sharing, saving, and/or liking) were defined as viewers. Those who followed a creator were defined as followers. Each creator’s posts were grouped as either preparing meals, consuming nutritious foods/meals, nutrition/diet tips, or indirectly related to nutrition (see Table 1). Comments were grouped into one of seven categories. Body image comments were related to physical features of both creators and commenters. Science comments were related to nutrition, dietetics, or health science. Other suggestions were comments for improvement or new ideas. Nutrition advice comments were questions from commentors to creators related to diet. Disagreement comments were opinions of commenters that opposed those of the creator. Questions were related to specific topics discussed in video and could be answered in a few words. Comments from brands were from TikTok accounts run by a company.

Table 1. Description of each post category

Category	Content Description
Preparing meals	Posts that focused on recipes for meals and snacks; grocery shopping
Consuming nutrition food/meals	Eating nutritious foods; best food options at grocery stores and restaurants; food journals
Nutrition/diet tips	Trips for health issues, specific foods/nutrients, traveling
Indirectly related to nutrition	Posts that were not related directly to nutrition but that had nutrition related comments

Data was collected every 1-3 days by the researcher (MM). This was done by analyzing each new TikTok posted and recording the parameters. The time of the post was recorded to the best of the researcher’s ability. This was not possible for every post as TikTok does not share the time stamp 24 hours after an initial post.

Analysis

The first 100 comments of each post were analyzed independently by two researchers (MM and EH) as TikTok orders comments based on popularity in terms of replies and likes. The researchers initially met to discuss and agree upon the parameters for qualifying comments (positive, negative, neutral, or general topic). A comment was counted as either positive or

negative only if it shared a positive or negative opinion in the form of text or emoji. Thus, not all comments were qualified as positive or negative as not all comments shared an opinion (see Table 2). Each researcher qualified the comments independently in Excel spreadsheets and met to discuss their findings, any discrepancies were resolved through the third researcher, JM. Once comments were qualified and agreed upon, the data was averaged.

Table 2. Examples of Positive and Negative Comments for each Creator

Creator	Example Positive Comment	Example Negative Comment
A	<p>Spice brooms are clutch 2022-9-17 Reply 6</p>	<p>Could never set my fruits/veggies straight in the basket like that, always have to put it in a produce bag. People let their dogs sit back there 🤔 2022-9-12 Reply 12</p>
	<p>yasssss!!! 2022-9-13 Reply 5</p>	
	<p>BOOOO the pumpkin spice hummus is so good 2022-9-14 Reply 5</p>	
B	<p>yasssss!!! 2022-9-14 Reply 2</p>	<p>FAKE NEWS 2022-9-23 Reply 1</p>
	<p>Genius 2022-9-14 Reply 3</p>	
	<p>Why are you so pretty?!! 2022-9-15 Reply 1</p>	
C	<p>YES 2022-9-29 Reply 3</p>	<p>This sound is about a boy who was raped by his mother it's totally disrespectful to use it for your gym video... 2022-9-30 Reply 4</p>
D	<p>Bros handsome 2022-9-2 Reply 1</p>	<p>None of that is healthy bro 2022-9-4 Reply 1</p>
	<p>love these 2022-9-4 Reply 1</p>	
	<p>you come through with these 2022-9-1 Reply 1</p>	

Results

A total of 88 posts were analyzed from the four content creators. Creator B posted the most (n=35) while Creator A posted the least (n=14).

Posts

RDNs posted more about consuming nutritious foods/meals and nutrition/diet tips while non-RDNS posted more about preparing meals and indirectly related to nutrition. Preparing meals and consuming nutritious foods/meals had more negative comments than other posts (see Figure 1). 6 sponsored posts were posted: 2 from Creator A and 4 from Creator D.

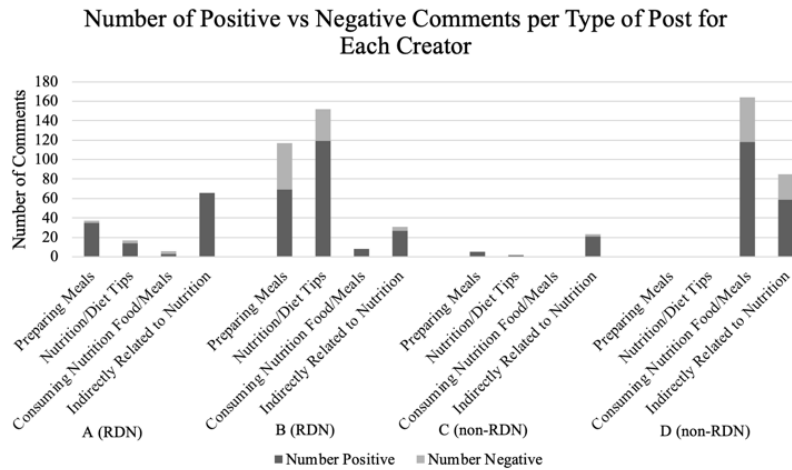


Figure 1. Number and Type of Reactionary Comments for Each Type of Post from Each Creator

Engagement

Likes were the most common form of engagement for all creators. Creator D had over 10 times more engagement compared to the other creators. Engagement was higher on sponsored posts by non-RDNs than on sponsored posts by RDNs (see Table 3).

Table 3. Average Engagement for Each Creator

Creator	Average Number of Likes	Average Number of Comments	Average Number of Saves	Average Number of Shares	Average Percent of Followers Who Engage	Total Engagement on Sponsored Posts*	Total Engagement on non-Sponsored Posts*
A	2771.64	15.71	363.79	24.36	0.48%	679	3589
B	2316	32	560	36.97	0.18%	N/A	N/A
C	270.31	2.94	30	2.47	0.22%	N/A	N/A
D	24586.17	112.87	2027.70	131.26	7.52%	36366	24854

*refers to the sum of likes, comments, saves, and shares on posts

Comments

The number of positive and negative comments were recorded for each of the creators. Of the comments that expressed an opinion, most were positive (70%). The creators with the

higher number of followers from each group (Creator B and D) received the greatest number of negative comments, 27.6% and 28.9% respectively.

Creators B and D had the greatest number of comments focused on body image and science. Creators A and B had the greatest number of comments asking for nutrition advice. Creator B tended to have more suggestions and disagreements in their comment section while Creator D tended to have the greatest number of questions (see Table 4).

Table 4. Positive and Negative Comments by Creator

Creator	Percent Positive Comments (n=713)	Percent Negative Comments (n=713)	Body Image Comments	Science Comments	Other Suggestions	Nutrition Advice	Disagreement	Questions	Brands
A	93.65% (n=126)	6.35% (n=126)	1	0	12	47	2	2	2
B	72.40% (n=308)	27.60% (n=308)	39	47	99	44	126	90	10
C	93.33% (n=30)	6.67% (n=30)	3	8	2	3	1	6	3
D	71.08% (n=249)	28.92% (n=249)	46	48	20	13	86	178	6

Discussion

A descriptive qualitative study was conducted to explore content posted by RDNs and non-RDNs and engagement from their viewers. Results revealed four main themes of posts: preparing meals, consuming nutritious food/meals, nutrition tips and indirectly related to nutrition. Likes were the most common form of engagement across all creators. Sponsored posts from RDNs received less engagement than sponsored posts from non-RDNs. RDNs posted more about preparing meals and nutrition tips while non-RDNs posted more about consuming meals and indirectly related to nutrition. Most comments were positive for each creator but creators with more followers had more negative comments. RDNs received more comments asking for nutrition advice than non-RDNs.

Engagement

Likes were the most common form of engagement at 91%. This was true for each creator's posts as well as similar across the platform, as studies have indicated (Literat, 2021; Lovett et al., 2021; Rutherford et al., 2022). This may be due to the relative ease of engaging in

the form of a like. TikTok users can either press the heart on the side of their screen or double tap the screen to like a post. Saving a post is also relatively easy as it only requires pressing a single button. In contrast, shares require choosing the method and recipient of a shared post and comments require creating and typing a response to the post. Other social media platforms showed similar trends in a 2016 study (Hayes et al.) in that liking was the preferred form of reaction. Hayes and colleagues also found vastly different motivations for liking/favoriting content for each of these platforms. For example, on Facebook there was a common theme of aimlessly providing likes as a reaction to seeing friends rather than to the post itself (Hayes et al., 2016). In contrast, Twitter users were more selective with their reactions by only reacting when they deemed a post valuable (Hayes et al., 2016). To the author's knowledge, no research has been done specifically to understand the motivation of liking a post on TikTok.

While Creator B had the greatest number of followers, Creator D had over 10 times more engagement. These results fall in line with another study that found that posts with a "medium level of vividness" received the most amount of engagement on Facebook (Luarn et al., 2015, p. 514). In this study, a "medium level of vividness" on Facebook meant posts that included more text and photos while a "high level of vividness" meant video posts (Luarn et al., 2015, p. 514). These "medium level" posts had more engagement since they more easily and quickly attract people's attention and allowed them to engage with less effort (Luarn et al., 2015, p. 514). While all the posts analyzed in the present study were in the video format, the components of each video (i.e., text boxes, voice overs, music) could have caused a similar trend in that having more of these components made a post more vivid and influenced how the audience responded.

Additionally, another study found that creators on Instagram that were more familiar had more followers but lower engagement while those that were more likable had fewer followers and higher engagement (Myers, 2021). Familiarity is attractiveness of a creator based on repeated exposure and likability is an affection that a consumer holds towards a creator (Myers, 2021). Myers found that more familiar Instagram influencers had lower engagement but more followers than more likable influencers. She theorized that this may be due to familiar influencers gaining fame from controversial actions and having a sense of unreachability (Myers, 2021). More likable creators may have more engagement as followers are more likely to be genuinely interested in the creator's posts and are more inclined to engage (Myers, 2021). Therefore, while Creator B may be more familiar in that she posts more often and has more

followers, she may have lower engagement due to a high level of vividness in her diversity of posts and a sense of unreachability. Creator D may be more likable to his followers since he has a medium level of vividness with lower diversity in posts. This may encourage followers to engage more as they feel more connected to his online persona.

During the data collection period, 6 sponsored posts were posted: 2 from Creator A, a RDN, and 4 from Creator D, a non-RDN. A study found that creators who were more motivated to share informational posts were less inclined to share sponsored tourism posts (Plume & Slade, 2018). This coincides with the results from this study in that the non-RDNs created more sponsored posts than the RDNs. The sponsored posts from the RDN received less engagement than non-sponsored posts. In contrast, the sponsored posts from the non-RDN received more engagement than the non-sponsored posts. Another study found that Facebook users who seek entertainment have a positive view of advertisements (Celebi, 2015). A RDN may have an audience that expects more educational material, while a non-RDN may have an audience that expects more entertainment. Thus, Creator D's followers may engage more on sponsored posts as they align with what they expect of a non-RDN. In contrast, Creator A's followers may engage less on sponsored posts as it is out of line with what they expect of a RDN.

Posts

The non-RDNs, Creators C and D, created more posts and had the greatest number of comments in the “consuming nutritious meals/foods” and “indirectly related to nutrition” categories. The viewers of non-RDNs seemed to engage more on these types of posts which in turn incentivized the creators to create more posts in these categories. As previously discussed, likability increases engagement for creators (Myers, 2021). These posts may contribute to the likability of the creators and elicit more engagement as these two categories are more personal. Additionally, a study found that primary motivations for viewing TikTok videos were related to escapism and social interaction purposes (Omar & Dequan, 2020). The personal nature of these categories may increase the likability of the creator and elicit more engagement from TikTok users whose primary motivations are escapism and social interaction. Non-RDN creators may have recognized this relationship and posted more of this content to increase engagement.

RDNs posted more about preparing meals and nutrition/diet tips than other categories. These types of posts from Creator B received the most engagement, but not for Creator A. Creator A's audience may have a different expectation of her content in part due to her lower follower count

(665,500) compared to Creator B (1,600,000). Creators with more followers may seem unreachable (Myers, 2021). This could mean that their audience may be more comfortable engaging in the less personal preparing meals and nutrition/diet tips categories. In contrast, the creators with less followers may have viewers who are interested in more personal posts (Myers, 2021). Thus, Creator A's lower follower count may explain why consuming nutritious meals/foods and indirectly related to nutrition categories were more popular as viewers may value the more personal posts from this smaller creator.

Comments

Creators B and D had the highest percentage of total negative comments versus positive comments, 27.6% and 28.9% respectively. Creator B had the greatest number of followers (1,600,000) for the RDN group while Creator D had the greatest number of followers (357,300) for the non-RDN group. The greater number of negative comments on the more popular creators of each group may be explained in two ways. First, negative comments could attract more followers. Other studies have similarly found that more negative posts tend to gain more attention on Twitter (Yu et al., 2022) and Facebook (Bene, 2017). The higher percentage of negative comments on both creator's posts may also be attracting their higher follower rate. Second, a larger follower counts leaves room for more negativity. This may result in an amplification of negativity on posts by creators with greater numbers of followers.

Seventy percent of comments that expressed an opinion were positive. This may be due to an echo chamber effect, in which seeing positive comments inspires a person to post a positive comment that then inspires others (Kramer et al., 2014). Evidence of echo chambers have been previously found on blogs (Gilbert et al., 2009), Twitter (Barberá et al., 2015), and Facebook (Quattrociocchi et al., 2016).

The two RDNs followed in this study, Creator A and B had the greatest number of comments asking for nutrition advice. Previous research shows that healthcare professionals more actively and intentionally verify that their information is correct (Bautista et al., 2021). Encouraging users to direct nutrition advice towards RDN TikTok creators instead of non-RDN creators would help decrease the spread of nutritional misinformation, a main concern of patients who use social media for health-related purposes (Antheunis et al., 2013). TikTok users seem to understand this and thus seek advice from healthcare professionals.

Conclusions

TikTok is garnering more national attention as it is a growing social media platform that has the potential to rapidly disseminate information to diverse audiences. The recent proposed ban of TikTok for US users highlights how important social media, especially TikTok, is in American culture. In the event of a TikTok ban after the publication of this paper, the conclusions recorded here would remain relevant as many of the results were similar to previous studies conducted on other social media sites. The results of this study are helpful for RDNs who are interested in learning more about the power of social media in their practice and for those who wish to grow their platform. RDNs should be encouraged to know that TikTok users tend to ask them for nutrition advice more than non-RDNs. RDNs should seek to create an online presence that focuses on preparing meals and nutrition/diet tips with less diversity in type of posts to improve engagement. RDNs should note that TikTok viewers engage less with sponsored posts when compared to non-RDN sponsored posts due to potential different expectations of the audience. They should also expect the most common form of engagement on their posts to be the type that requires the least amount of work for the viewer (i.e. likes and saves). RDNs should also be aware that creators that have more followers tend to have more negativity in their comments. Further research is needed to investigate, if positive and negative comments are grouped to certain posts. Additionally, future research should focus on identifying which types of posts generate the most amount of negativity, if there are certain brands that comment more frequently on RDNs, and if the gender of the creator affects the type of comments they receive.

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