Original Article

What do TikTok videos offer us about dental implants treatment?

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A R T I C L E   I N F O

A B S T R A C T

Objective: To evaluate the quality, source, popularity, visibility and reliability of Tiktok videos on dental implants.
Materials and Methods: A Tiktok search for dental implants was performed English language setting. Search hashtags were determined as "#dentalimplants," "#dentalimplantsurgery," "#dentalimplantstreatment," and "#implantdentistry." 148 of the 300 videos watched were included the study. Two periodontologists scored the videos for quality, reliability, utility, visibility and popularity. Videos' quality was evaluated using the Global Quality Scale (GQS) and the DISCERN tools, by categorizing them through quality of communication, duration, likes and dislikes, views, source and video type of each video were recorded.
Results: There was significant positive correlation between "GQS" and "Total DISCERN" (Rho: 0.636) and "Duration in seconds" (Rho: 0.343) (p<0.05). For Total DISCERN, averages of the 31-45 seconds (p=0.010) and 46 seconds and above (p=.018) groups were higher than the averages of the 0-15 seconds group and average of the Educational group was higher than the average of the Testimonial, Product Advertisement and Entertainment groups (p=0.001, p=0.033 and p=0.041). Healthcare professionals mostly upload GQS 2 score videos and Hospital/Universities mostly upload GQS 2 and 3 score videos (p<0.05). Testimonial videos mostly receive GQS2 score videos and the 'Videos rich in supplementary visuals' quality also receives the most GQS4 score videos (p<0.05).
Conclusions: The results of this study demonstrate that TikTok videos provide low to moderate quality information about dental implants and that TikTok may not provide reliable information about dental implants.

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1. Introduction

The use of social media, which is one of the most research and usage purposes of the internet, has become more widespread with the increase in the use of mobile devices [1]. TikTok is a short video sharing focused social networking service, currently representing one of the most popular social media apps in the world. The duration of these videos varies between 15 seconds and 3 minutes [2,3]. Using identification hashtags on TikTok allows users to post multiple videos on the same subject in a row, resulting in a series of related posts. This creates an opportunity for users to have repetition learning and a series of "on demand" videos. TikTok also provides users with a sense of community by allowing to follow others with similar interests and respond to videos. While traditional video-based technologies are better suited for broader videos discussing complex topics, TikTok allows for shorter, high-throughput content with a focus on

engaging presentations and quick identification of key points [3]. In addition, it provides an accessible way for patients to get medical advice, especially because of its low cost, widespread use among healthcare professionals and widespread popularity. However, online platforms have the potential to spread and abuse misinformation [4]. Dental implants provide patients with a more satisfactory option for replacing missing teeth, as they preserve the structure of adjacent teeth, while providing better esthetic result, comfort, stability, and function with a highly predictable 10-year survival rate of approximately 90% [5]. The success of dental implants depends on a comprehensive assessment of the careful consideration of indications and contraindications, the patient's conditions, and follow-up [6]. In addition, patient education is also one of the most important factors for the success of any implant treatment plan. Patients can get information about dental implant treatment from academic institutions or dentists, but recently, patients have started to use the internet more frequently to get information about dental implants. [7,8]

TikTok has recently attracted attention in the fields of dentistry and medicine, and recently several studies have been published on this subject [9–14]. As far as we know, there has not been any research on dental implants content in TikTok yet.

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The goal of the study was to examine the reliability and quality of the information about dental implant on TikTok by using Global Quality Scale and DISCERN tool, and offer some facts-based advice on implant dentistry.

2. Materials and methods

A cross-sectional analysis of dental implants content on Tik-Tok (http://www.tiktok.com/) was conducted on July 6, 2022, by two experienced periodontologists (G.U and S.C.Ş). Prior to a hashtag search, all popups in the browser history and historical data were deleted. Search hashtags were determined as "#dentalimplants," "#dentalimplantsurgery," "#dentalimplanttreatment," and "#implantdentistry." The first 75 videos reviewed by relevance for each hashtag (Fig. 1).

A total of 300 videos were watched. Data were manually evaluated and recorded using the Excel program (Microsoft, Redmond, WA, USA). Videos were included if they presented or discussed anything relevant to dental implants and were in English. Non- English videos, duplicate videos, irrelevant videos, conference/lecture videos and videos that do not have a sound, and were unrelated to dental implants were excluded (Fig. 1). Since the data is publicly open, no research or ethics committee approval was needed for the study.

For each video, descriptive statistics were recorded, including number of views, likes, comments, duration in seconds, number of days since upload, country origin, source of upload, video type, and uploader gender (male, female, or private company).

The video types were recorded in four groups: (1) educational, (2) patient experience (testimonial), (3) product advertisement, (4) entertainment [14].

The uploaders were categorized under 5 headings: (1) Healthcare professionals (oral surgeon, periodontologist, dentist), (2) Hospital/University/dental clinics (3) Commercial (dental manufacturing company or dental supply company) (4) Layperson (5) Other (Tv channels, new agencies) [15].

The videos were also grouped by video length: 0-15 seconds, 15-30 seconds, 30- 45 seconds, and >45 seconds [9,16].

Content creators were further categorized into influencer group types based on followers (nano-influencers having one to 10,000 followers, microinfluencers having 10,000 to 50,000 followers, mid-tier influencers having 50,000 to 500,000 followers, macro-influencers having 500,000 to one million followers, and mega influencers having one million to five million followers) [9].

Videos were then also stratified by the quality of communication and were recorded in three groups. Group 1 videos had no supplementary visuals, Group 2 videos had minimal supplementary visuals (i.e., one image), and Group 3 with videos rich in supplementary visuals (i.e., moving image, multiple images) [9].

The reliability was assessed using the DISCERN tool (http://www.discern.org.uk/discern_instrument.php), a questionnaire based on a standardized set of criteria to assess the quality and reliability of written health information about treatment options. The videos were finally assessed utilizing DISCERN, a tool used to appraise consumer health information on a scale of 1 (poor) through 5 (excellent) for 15 questions [17]. Videos evaluated in this study were scored from 1 to 5 for all questions in the DISCERN tool-kit. These scores gradually increase from 1 to 5 for the quality and reliability of the video content, as 1-No and 5-Yes [17].

The quality of the information provided by the included videos was assessed using a five-point ordinal scale called the Global Quality Scale (GQS), which is based on the quality of the video the availability
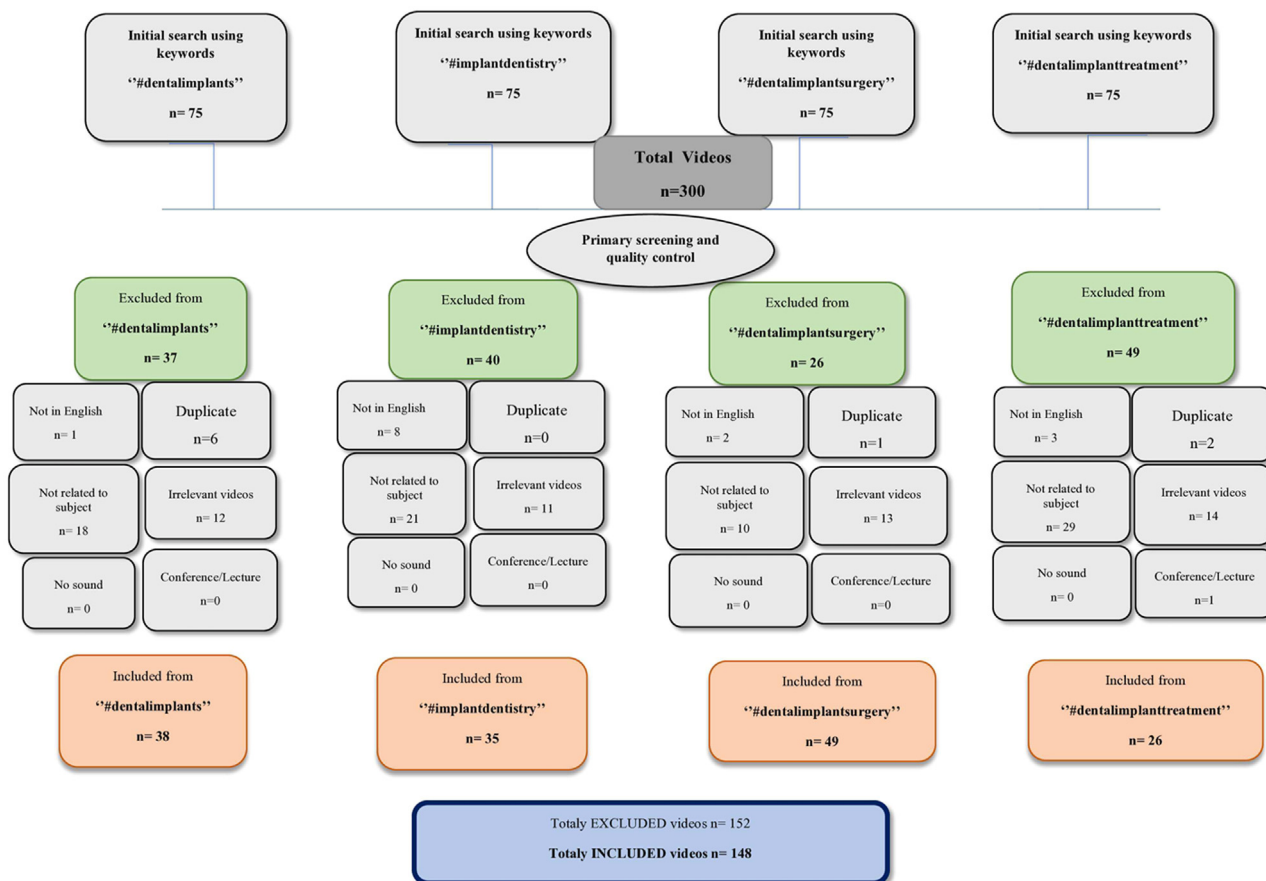

Fig. 1. Prisma flow chart of the selection process

of the information and its usefulness to patients. The same videos were then scored using the GQS tool to gradually increase from 1-poor to 5-excellent in terms of ease of use, quality, and flow. The scale consists of five questions – one point indicates very poor quality, two points for generally poor quality and limited use, three points for moderate quality, four points for good quality, and five points for excellent quality [18].

2.1. Statistical Analysis

Descriptive statistics (number, percentage, mean, standard deviation, minimum and maximum) are given in this study. As the first step of the statistical analysis, the assumption of normality was checked with the Shapiro Wilk test. The Kruskal Wallis test was used to compare the means of three or more groups that did not have a normal distribution. Post Hoc Bonferroni test was applied to reveal the group or groups that made the difference. Spearman correlation was used to examine the relationship between non-normally distributed continuous variables. To examine the relationship between categorical variables, Fisher's Exact test was used when the sample size assumption could not be met. Kendall's Tau correlation was applied to examine the relationship between categorical and continuous variables. A test-retest was used to investigate whether the re-measured values of the same variables at different times, people or situations were similar to the first measurements. The assumption of normality was checked with the Shapiro-Wilk test to decide which correlation to choose in the Intraclass correlation analysis. Accordingly, the variability of the initial measurements and repeated measurements was evaluated with the Spearman Rank Differences Correlation test. The correlation coefficients between the first measurement values and the repeat measurement values were found above the minimum value of 0.70. Statistically significant, positive and very high-level relationships were obtained because the p values were smaller than the alpha value of 0.05. It shows that the measurements are reliable and repeatable. The analysis was performed using IBM SPSS 25 and the level of significance was set as a p-value ≤ 0.05.

3. Results

Some of the videos reviewed could not be used because they did not meet the requirements. 49.3% of the videos were used and 50.7% were not used. The reason the videos were not available was because of 9.2% of due to "not in English", 5.9% of due to "duplicate", 51% of due to "not related to subject", 33.3% of due to "irrelevant videos" and 0.7% of due to "conference/lecture" (Fig. 1). The distribution of features of TikTok videos and descriptive statistics for the Global Quality Scale is given in Table 1 and Table 2, respectively. The most popular video had approximately 75 million 400 thousand views, and the average number of views was approximately 1 million 88 thousand. The mean number of likes was 25,788 and the mean number of comments was 468 (Table 1). According to GQS, 46.6% of dental implant videos were of poor quality overall, followed by moderate quality (22.3%) (Table 2).

A statistically significant, positive, and weak correlation was found with a correlation coefficient of .215 between "Duration in seconds" and "DISCERN Section 1" score (p<0.05). A statistically significant, positive, and moderate correlation was observed with a correlation coefficient of .380 obtained between "Duration in seconds" and "DISCERN Section 2" score (p<0.05). A statistically significant, positive, and moderate correlation was obtained with a correlation coefficient of .343 between "Duration in seconds" and "Total DISCERN" score (p<0.05). A statistically significant, positive, and very weak correlation was found with a correlation coefficient of .198 between "Duration in seconds" and "GQS" (p<0.05) (Table 4). A statistically significant, positive, and moderate correlation was found between "DISCERN Section 1" and "DISCERN Section 2" score, with a correlation coefficient of .420 (p<0.05). A statistically significant, positive, and high-level correlation was obtained with the correlation coefficient of .846 obtained between "DISCERN Section 1" and "Total DISCERN" score (p<0.05). A statistically significant, positive, and moderate correlation was found between "DISCERN Section 1" and "GQS" with a correlation coefficient of .638 (p<0.05). A statistically significant, positive, and high-level correlation was obtained with the .813 correlation coefficient between "DISCERN Section 2" and "Total

Table 1
Descriptive Statistics of Tiktok Videos Features

		Minimum	Maximum	Mean	Standard deviation	Median
Number of views		24	75400000	1088619,2365	6345337,36512	94250
Duration in seconds		4	323	32,7703	36,31178	24
Days since upload		1	1120	197,6689	200,85448	135
Number of comments		0	13800	468,7216	1895,07112	36
Number of likes		0	1100000	25788,8980	118003,17845	1635
					n	%
Video length	0-15 seconds				48	32.4
	16-30 seconds				49	33.1
	31-45 seconds				21	14.2
	46 seconds and more				30	20.3
Source of Upload	Healthcare professionals (oral surgeon, periodontologist, dentist)				73	49.3
	Hospital/University				46	31.1
	Commercial (dental manufacturing company or dental supply company)				5	3.4
	Layperson				24	16.2
	Other (Tv channels, new agencies)				0	0
Influencer groups	Nano influencer				58	39.2
	Micro influencer				12	8.1
	Mid-tier influencer				53	35.8
	Macro influencer				11	7.4
	Mega influencer				14	9.5
Video type	Educational				81	54.7
	Testimonial				59	39.9
	Product Advertisement				6	4.1
	Entertainment				2	1.4
Quality of communication	Videos had no supplementary visuals				50	33.8
	Videos had minimal supplementary visuals				43	29.1
	Videos rich in supplementary visuals				55	37.2

Table 2
Descriptive Statistics for the Global Quality Scale (GQS)

Global Quality Scale	n	%
Score 1: Poor quality, poor flow of the video, most information missing, not at all useful for patients	18	12.2
Score 2: Generally poor quality and flow, some information listed but many important topics missing, of very limited use to patients	69	46.6
Score 3: Moderate quality, suboptimal flow, some important information adequately discussed but others poorly discussed, somewhat useful for patients	33	22.3
Score 4: Good quality and generally good flow. Most of the relevant information is listed but some topics are not listed. useful for patients	25	16.9
Score 5: Excellent quality and flow, very useful for patients	3	2.0

Table 3
Correlations between descriptive statistics of the features of videos and DISCERN Section 1, Discern Section 2, Total DISCERN, and Global Quality Scale

		DISCERN Section 1	DISCERN Section 2	Total DISCERN	Global Quality Scale**
Number of views	Rho	-.077	-.066	-.092	-.058
	p	.353	.424	.266	.356
Duration in seconds	Rho	.215	.380	.343	.198
	p	.009*	.000*	.000*	.002*
Days since upload	Rho	.104	.045	.086	.094
	p	.207	.584	.299	.133
Number of comments	Rho	-.001	.124	.056	-.013
	p	.994	.133	.502	.838
Number of likes	Rho	-.004	.012	-.005	-.020
	p	.961	.889	.952	.748
DISCERN Section 1	Rho	1.000	.420	.846	.638
	p		.000*	.000*	.000*
DISCERN Section 2	Rho		1.000	.813	.434
	p			**.000***	**.000***
Total DISCERN	Rho			1.000	.636
	p				**.000***

* p<0.05 ve Rho: correlation coefficient
** Kendal's Tau testi

DISCERN" score (p<0.05). A statistically significant, positive, and moderate relationship was determined with the correlation coefficient of .434 obtained between "DISCERN Section 2" and "GQS" (p<0.05). A statistically significant, positive, and moderate correlation was found between "Total DISCERN" and "GQS" with a correlation coefficient of .636 (p<0.05) (Table 3).

In the Figure 2, the distribution of the countries where the videos in the study were uploaded was examined.

A statistically significant difference was found between the Total DISCERN averages according to the Video length groups (p<0.05).

Statistically significant differences were found between 0-15 seconds, 31-45 seconds and 46 seconds and above groups (p=.010 and p=.018). It was determined that the averages of the 31-45 seconds and 46 seconds and above groups were higher than the averages of the 0-15 seconds group. A statistically significant difference was found between the means of Total DISCERN according to the influencer groups (p<0.05). Statistically significant differences were found between Macro influencer, Mega influencer and Micro influencer groups (p=.033 and p=.045). It has been determined that the average of the Macro influencer group is higher than the average of the Mega
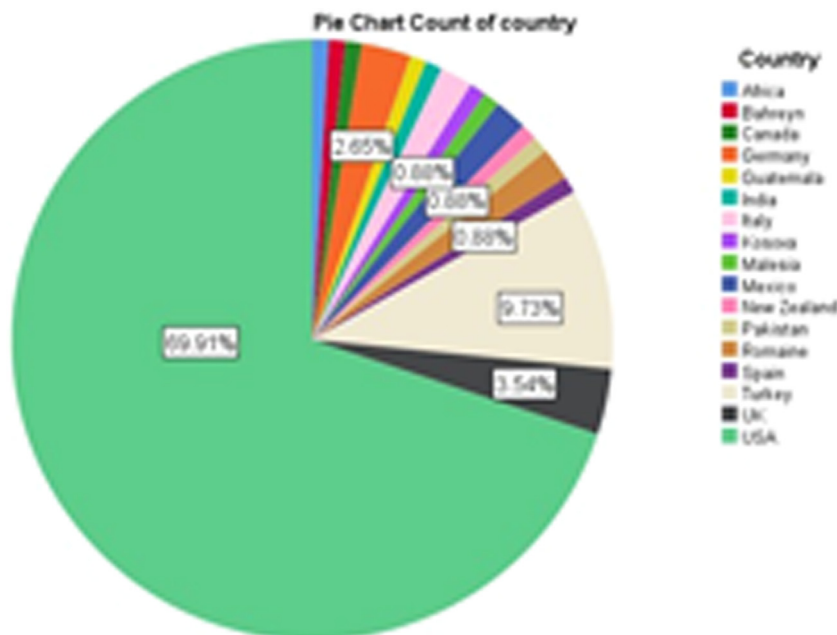

Fig. 2. Video publishing percentage of countries

Table 4
Comparison of Total DISCERN Scores Means by Variables

		Minimum	Maximum	Mean	Standard deviation	p
Video length	0-15 seconds	28.2083	4.92911	18.00	38.00	**.003***
	16-30 seconds	30.1224	4.99847	19.00	43.00	
	31-45 seconds	32.3810	3.49966	25.00	37.00	
	46 seconds and more	32.7000	8.09065	19.00	57.00	
Source of Upload	Healthcare professionals	30.9726	6.27157	21.00	57.00	.171
	Hospital/University	30.1957	4.86539	19.00	40.00	
	Commercial	24.8000	4.54973	18.00	29.00	
	Layperson	29.8750	5.86302	19.00	38.00	
Influencer groups	Nano influencer	30.9310	5.77916	18.00	57.00	.004*
	Micro influencer	26.3333	5.67824	19.00	38.00	
	Mid-tier influencer	31.0377	5.37431	21.00	45.00	
	Macro influencer	32.8182	5.15399	21.00	38.00	
	Mega influencer	26.7857	5.88582	19.00	37.00	
Video type	Educational	32.3457	5.73402	21.00	57,00	.000*
	Testimonial	28.3898	4.86372	19.00	37.00	
	Product Advertisement	25.8333	4.26224	18.00	29.00	
	Entertainment	20.5000	0.70711	20.00	21.00	
Quality of communication	Videos had no supplementary visuals	26.3800	4.66813	18.00	37.00	.000*
	Videos had minimal supplementary visuals	30.1163	4.25502	19.00	38.00	
	Videos rich in supplementary visuals	34.1273	5.36813	23.00	57.00	

* p<0.05

influencer and Micro influencer groups. A statistically significant difference was also found between Total DISCERN averages according to video types (p<0.05). Statistically significant differences were found between Educational and Testimonial, Product Advertisement and Entertainment groups (p=.001, p=.033 and p=.041). It was observed that the average of the Educational group was higher than the average of the Testimonial, Product Advertisement and Entertainment groups. A statistically significant difference was found between the means of Total DISCERN according to the quality of communication groups (p<0.05). Statistically significant differences were found between "videos had no supplementary visuals", "videos had minimal supplementary visuals" and "videos rich in supplementary visuals" groups, and between "videos had minimal supplementary visuals" and "videos rich in supplementary visuals" groups. found (p=.003, p=.002, and p=.000). The average of the "videos rich in supplementary visuals" group was higher than the average of the "videos had no supplementary visuals" and "videos had minimal supplementary visuals" groups, and the average of the "videos had minimal supplementary visuals" group was found to be higher the average of the "videos had no supplementary visuals" group. There was no statistically significant difference between Total DISCERN averages according to the source of upload variable (p>0.05) (Table 4).

Statistically significant relationships were found between all parameters expect video length and GQS (p<0.05). It is seen that Healthcare professionals mostly upload GQS 2 score videos and Hospital/Universities mostly upload GQS 2 and 3 score videos. Macro influencers upload the most GQS 4 score videos, and mega influencers upload the most GQS 2 score videos. It is seen that testimonial videos mostly receive GQS2 score videos and the 'Videos rich in supplementary visuals' quality also receives the most GQS4 score videos (Table 5).

A statistically significant difference was found between the mean number of video views according to the Source of Upload groups (p<0.05). Statistically significant differences were found between the "Layperson" and "Hospital/University" groups (p=.002). It was determined that the average of the "Layperson" group was higher than the average of the "Hospital/University" group. A statistically significant difference was found between the mean number of video views according to the influencer groups (p<0.05). Statistically significant differences were found between Nano influencer and Mid-tier influencer, Macro influencer and Mega influencer groups and between Micro influencer and Mega influencer groups (p=.000, p=.000, p=.000

and p=.046). It has been determined that the averages of the Mid-tier influencer, Macro influencer and Mega influencer groups are higher than the average of the Nano influencer group, and the average of the Mega influencer group is higher than the Micro influencer group. There was no statistically significant difference between the average number of video views according to the Video length, Video type and Quality of communication variables (p>0.05) (Table 6).

A statistically significant difference was found between the mean number of videos likes according to the Source of Upload groups (p<0.05). Statistically significant differences were found between "Layperson", "Hospital/University" and "Healthcare professionals" groups (p=.017). It was determined that the averages of the "Hospital/University" and "Healthcare professionals" groups were higher than the average of the "Layperson" group. A statistically significant difference was found between the mean number of videos likes according to the influencer groups (p<0.05). Statistically significant differences were found between Nano influencer and Micro influencer, Mid-tier influencer, Macro influencer and Mega influencer groups (p=.031, p=.000, p=.000 and p=.000). It has been determined that the averages of Micro influencer, Mid-tier influencer, Macro influencer and Mega influencer groups are higher than the average of the Nano influencer group. There was no statistically significant difference between the average number of videos likes according to the video length, video type and Quality of communication variables (p>0.05) (Table 7).

A statistically significant difference was found between the mean number of video comments according to Source of Upload groups (p<0.05). Statistically significant differences were found between the "Layperson" and "Hospital/University" groups (p=.017). It was determined that the average of the "Layperson" group was higher than the average of the "Hospital/University" group. A statistically significant difference was found between the mean number of video comments according to the influencer groups (p<0.05). Statistically significant differences were found between Nano influencer and Micro influencer, Mid-tier influencer, Macro influencer and Mega influencer groups (p=.017, p=.004, p=.002 and p=.000). It has been observed that the averages of Micro influencer, Mid-tier influencer, Macro influencer and Mega influencer groups are higher than the average of the Nano influencer group. There was no statistically significant difference between the average number of video comments according to the video length, Video type and Quality of communication variables (p>0.05) (Table 8).

Table 5
Relationship between Global Quality Scores and Variables and Cross-Table

			GQS					
			1	2	3	4	5	p
Video length	0-15 seconds	n	7	28	8	5	0	.131
		%	14.6	58.3	16.7	10.4	0	
	16-30 seconds	n	7	22	11	8	1	
		%	14.3	44.9	22.4	16.3	2.0	
	31-45 seconds	n	0	7	9	5	0	
		%	0.0	33.3	42.9	23.8	0	
	46 seconds and more	n	4	12	5	7	2	
		%	13.3	40.0	16.7	23.3	6.7	
Source of Upload	Healthcare professionals	n	9	34	13	15	2	.010*
		%	12.3	46.6	17.8	20.5	2.7	
	Hospital/University	n	3	20	19	4	0	
		%	6.5	43.5	41.3	8.7	0	
	Commercial	n	2	3	0	0	0	
		%	40	60	0	0	0	
	Layperson	n	4	12	1	6	1	
		%	16.7	50	4.2	25	4.2	
Influencer groups	Nano influencer	n	4	28	12	13	1	.000*
		%	6.9	48.3	20.7	22.4	1.7	
	Micro influencer	n	5	4	2	1	0	
		%	41.7	33.3	16.7	8.3	0	
	Mid-tier influencer	n	5	24	19	4	1	
		%	9.4	45.3	35.8	7.5	1.9	
	Macro influencer	n	1	4	0	6	0	
		%	9.1	36.4	0	54.5	0	
	Mega influencer	n	3	9	0	1	1	
		%	21.4	64.3	0	7.1	7.1	
Video type	Educational	n	5	31	18	24	3	.000*
		%	6.2	38.3	22.2	29.6	3.7	
	Testimonial	n	9	36	13	1	0	
		%	15.3	61	22	1.7	0	
	Product Advertisement	n	2	2	2	0	0	
		%	33.3	33.3	33.3	0	0	
	Entertainment	n	2	0	0	0	0	
		%	100	0	0	0	0	
Quality of communication	Videos had no supplementary visuals	n	16	32	2	0	0	**.000***
		%	32	64	4	0	0	
	Videos had minimal supplementary visuals	n	2	25	16	0	0	
		%	4.7	58.1	37.2	0	0	
	Videos rich in supplementary visuals	n	0	12	15	25	3	
		%	0	21.8	27.3	45.5	5.5	
DISCERN Section 3	1	n	15	5	0	0	0	.000*
		%	75	25	0	0	0	
	2	n	3	35	1	0	0	
		%	7.7	89.7	2.6	0	0	
	3	n	0	28	26	3	0	
		%	0	49.1	45.6	5.3	0	
	4	n	0	1	6	21	1	
		%	0	3.4	20.7	72.4	3.4	
	5	n	0	0	0	1	2	
		%	0	0	0	33.3	66.7	

* p<0.05

4. Discussion

With the increase in the use of smart phones and mobile phones and the ease of internet access, the number of applications to the internet for health information is increasing. There are various sites on the Internet with visual content such as videos and written resources [19]. Videos have more persuasiveness and guiding ability because visual and audio transmission is more effective in transferring information [13]. TikTok has become one of the most popular social media applications of recent times, and the number of users continues to increase day by day. Its users are mostly young people (10-29 years of age with 62%) [20].

As video sharing platforms become widespread, the rate of patients applying to official health sites has decreased and the rate of applications to social media sites increased [21]. One study noted that more than 40% of patients reported a history of discontinuation of treatment based on recommendations from social media platforms [22]. We think that the increased use of the internet, the easy accessibility of videos, and the high likelihood of patients' unconditional reliance on video content may cause patients to delay their clinic visits, harm the dentist-patient relationship, and mislead patients in treatment. Although the number of users is high, there are few studies to understand the content of Tiktok videos about dentistry [14,20,23]. There is no other study evaluating Tiktok video content on dental implants in the literature, and we, therefore, think that the results of this study will be important in terms of dentist-patient relationship.

The number of users who use YouTube videos to learn about dental implants is quite high. Patients who have had dental implant treatment share their experiences and opinions on this platform to help other individuals who want to have dental implant treatment. In the study of Menziletoğlu et al. [24] in which they analyzed

Table 6

Comparison of the Averages of Views of Tiktok Videos by Variables

		Mean	Standard deviation	Minimum	Maximum	p
Video length	0-15 seconds	2310210,042	10850500,13	24	75400000,00	0.121
	16-30 seconds	580002,8571	1877606,384	89	9500000,00	
	31-45 seconds	714138,4762	2136318,089	152	9900000,00	
	46 seconds and more	226950,5667	724384,1529	322	4000000,00	
Source of Upload	Healthcare professionals	1757344,014	8931589,763	102	75400000,00	.004*
	Hospital/University	360160,2609	1401828,101	89	9500000,00	
	Commercial	882485,6	1202728,431	24	2200000,00	
	Layperson	493738,9167	808952,3862	6926	4000000,00	
Influencer groups	Nano influencer	76161,9655	237360,0967	24	1400000,00	.000*
	Micro influencer	143951,5833	130145,0185	352	353100,00	
	Mid-tier influencer	2445500,642	10482810,53	1359	75400000,00	
	Macro influencer	493400	483978,6359	128900	1500000,00	
	Mega influencer	1423707,143	1400819,865	282500	4000000,00	
Video type	Educational	643052,6173	1714924,832	102	9900000,00	0.586
	Testimonial	1810765,831	9851941,48	89	75400000,00	
	Product Advertisement	129333,5	240698,0109	24	611700,00	
	Entertainment	708600	977787,257	17200	1400000,00	
Quality of communication	Videos had no supplementary visuals	2098755,22	10646458,35	24	75400000,00	0.386
	Videos had minimal supplementary visuals	592820,8837	1585727,408	89	9500000,00	
	Videos rich in supplementary visuals	557937,9636	1835912,018	167	9900000,00	

* $p < 0.05$

YouTube videos on dental implants, 21,553 comments were made on the evaluated videos. The whole mean number of likes was 185,796 and the mean number of views was 500 thousand views. In our study, the average number of views was higher by approximately 1 million 88 thousand, but the number of comments and likes was lower than previous study [24]. These results show that TikTok reaches wider audiences on dental implants, and therefore, the content of the videos on this platform may affect more individuals.

Like other studies in the literature conducted on Instagram and YouTube [14,24-27], in our study, most of the videos was created by healthcare professionals including oral surgeon, periodontologist and dentist. In some YouTube studies, most of the videos and posts were uploaded by patients [28−30]. In contrast, the number of videos from Layperson was low in our study. This shows that TikTok is used more and more by dentists and dental professionals to reach patients who want to have dental implant treatment.

Kurian et al. [27] conducted on a study on YouTube videos about complete arch fixed implant-supported prostheses and stated that the video upload sources were mostly dentists, dental clinics or healthcare institutions and dental laboratories. Educational videos were few, and most were uploaded by marketing stakeholders. In their study, no significant relationship was found between the total views and the usefulness score of the videos. The authors interpreted this result as 'the highest rate of viewing of a video with weak content indicates that the general public has insufficient knowledge of dental implants' [27]. In our study, most of the video sources were healthcare professionals; like Kurian et al. [27], but on the contrary, video uploaded for educational purposes was higher (54.7%). It was observed that the mean total DISCERN of the videos uploaded for educational purposes was higher than the average of the Testimonial, Product Advertisement and Entertainment groups. In addition, educational videos had higher GQS values than videos uploaded for product advertisement and entertainment.

Like Kurian et al. [27], in our study, there was no significant relationship between the number of views, DISCERN and GQS, likes and comments of videos. This means that videos that reach larger audiences may have insufficient content. In addition, the number of views of the videos uploaded by Layperson was higher than the videos from hospitals/universities and the number of views of the videos uploaded by Nano-influencer was lower than the viewing rate of

Table 7

Comparison of the Averages of Likes of the Videos According to the Variables

		Mean	Standard deviation	Minimum	Maximum	p
Video length	0-15 seconds	36048,9792	130325,7775	0	651000,00	0.612
	16-30 seconds	32441,8125	158510,597	0	1100000,00	
	31-45 seconds	13340,0952	27414,68823	4	111900,00	
	46 seconds and more	7442,2667	25094,80489	0	138400,00	
Source of Upload	Healthcare professionals	25597,0833	107785,9577	0	651000,00	.001*
	Hospital/University	31824,5652	162163,2231	0	1100000,00	
	Commercial	6776,2	14883,74308	0	33400,00	
	Layperson	18756,9583	28914,53501	370	138400,00	
Influencer groups	Nano influencer	947,8966	2564,8932	0	10300,00	.000*
	Micro influencer	4379,0833	4972,79141	11	15400,00	
	Mid-tier influencer	60762,9423	193496,5691	42	1100000,00	
	Macro influencer	11939,4545	8949,63009	339	35100,00	
	Mega influencer	28031	33970,32598	334	138400,00	
Video type	Educational	15241,4875	72871,18236	0	651000,00	0.563
	Testimonial	43301,661	165148,4175	0	1100000,00	
	Product Advertisement	2712	4987,04714	0	12700,00	
	Entertainment	289,5	70,00357	240	339,00	
Quality of communication	Videos had no supplementary visuals	23081,18	92782,69229	0	648200,00	0.411
	Videos had minimal supplementary visuals	28660,4762	101843,6436	0	651000,00	
	Videos rich in supplementary visuals	26057,6182	148150,1128	0	1100000,00	

* $p < 0.05$

Table 8

Comparison of Averages of Video Comments According to Variables

		Mean	Standard deviation	Minimum	Maximum	p
Video length	0-15 seconds	679,2292	2770,71353	0	13800,00	.808
	16-30 seconds	432,8122	1709,97020	0	11800,00	
	31-45 seconds	432,6667	831,02300	0	3201,00	
	46 seconds and more	215,8000	551,10181	0	3023,00	
Source of Upload	Healthcare professionals	700,7945	2630,72033	0	13800,00	**.009***
	Hospital/University	227,1696	491,35212	0	1998,00	
	Commercial	17,2000	18,08867	0	36,00	
	Layperson	319,8750	678,82407	9	3023,00	
Influencer groups	Nano influencer	25,8793	64,16757	0	304,00	**.000***
	Micro influencer	125,5000	135,71260	1	469,00	
	Mid-tier influencer	1148,7132	3039,00922	0	13800,00	
	Macro influencer	96,4545	67,13920	43	200,00	
	Mega influencer	315,7857	786,49712	0	3023,00	
Video type	Educational	438,6667	2003,18322	0	13800,00	.435
	Testimonial	562,5898	1880,01863	0	13700,00	
	Product Advertisement	74,1667	132,69125	0	341,00	
	Entertainment	100,5000	123,74369	13	188,00	
Quality of communication	Videos had no supplementary visuals	473,4600	1971,71644	0	13700,00	.248
	Videos had minimal supplementary visuals	888,4651	2753,22867	0	13800,00	
	Videos rich in supplementary visuals	136,2509	316,13500	0	1998,00	

* p<0.05

other influencer groups. People increase the number of views of these videos by considering the videos uploaded by the sources with the most watched and more followers, without paying attention to the video sources, so these videos seem more reliable to people. However, more patients are misled when the content and quality of these videos are inadequate.

Menziletoğlu et al., [24] Lena et al., [31] and Gaş et al., [32] stated in their studies conducted on YouTube that the duration of videos with high content is longer than other videos. Similarly, in our study, Total DISCERN was higher in long-term videos. The reason why the Total DISCERN is higher in long videos may be that these videos have enough time to include more comprehensive content. The video duration alone does not provide information about the quality and content of the video, but also the source and type of the video should be considered.

Since the present study is a cross-sectional study, it was able to examine a tiny part of very large data. TikTok is a dynamic platform and search results differ in different time periods. GQS and DISCERN tools used in the assessment are subjective tools, and results depend on observers. In addition, if different keywords were used in the study, different results could be obtained.

5. Conclusion

The result of the study showed that TikTok videos provide poor to moderate quality information about dental implants. TikTok does not guarantee accurate and reliable information about dental implants, and popular videos may not always have accurate and sufficient content. Patients should always get the most precise information from experts.

Declarations of competing interest

None

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References

[1] Mann DM, Chen J, Chunara R, Testa PA, Nov O. COVID-19 transforms health care through telemedicine: evidence from the field. J Am Med Inform Assoc 2020;27 (7):1132–5. doi: 10.1093/jamia/ocaa072.

[2] Eghtesadi M, Florea A. Facebook, Instagram, Reddit and TikTok: a proposal for health authorities to integrate popular social media platforms in contingency planning amid a global pandemic outbreak. Can J Public Health 2020;111(3):389–91. doi: 10.17269/s41997-020-00343-0.

[3] Comp G, Dyer S, Gottlieb M. Is TikTok the next social media frontier for medicine? AEM Educ Train 2021;5(3) 10.1002/aet2.10532. doi: 10.1002/aet2.10532.

[4] Chou WS, Oh A, Klein WMP. Addressing health-related misinformation on social media. Jama 2018;320(23):2417–8. doi: 10.1001/jama.2018.16865.

[5] Chrcanovic BR, Kisch J, Albrektsson T, Wennerberg A. Survival of dental implants placed in sites of previously failed implants. Clin Oral Implants Res 2017;28 (11):1348–53. doi: 10.1111/clr.12992.

[6] Buser D, Mericske-Stern R, Bernard JP, Behneke A, Behneke N, Hirt HP, et al. Long-term evaluation of non-submerged ITI implants. Part 1: 8-year life table analysis of a prospective multi-center study with 2359 implants. Clin Oral Implants Res 1997;8(3):161–72. doi: 10.1034/j.1600-0501.1997.080302.x.

[7] Abukaraky A, Hamdan AA, Ameera MN, Nasief M, Hassona Y. Quality of YouTube TM videos on dental implants. Med Oral Patol Oral Cir Bucal 2018;23(4):e463–e8. doi: 10.4317/medoral.22447.

[8] Wang G, Gao X, Lo EC. Public perceptions of dental implants: a qualitative study. J Dent 2015;43(7):798–805. doi: 10.1016/j.jdent.2015.04.012.

[9] Naseer S, Hasan S, Bhuiyan J, Prasad A. Current Public Trends in the Discussion of Dry Eyes: A Cross-Sectional Analysis of Popular Content on TikTok. Cureus 2022;14(2):e22702. doi: 10.7759/cureus.22702.

[10] Zheluk A, Anderson J, Dineen-Griffin S. Analysis of Acute Non-specific Back Pain Content on TikTok: An Exploratory Study. Cureus 2022;14(1):e21404. doi: 10.7759/cureus.21404.

[11] Lovett JT, Munawar K, Mohammed S, Prabhu V. Radiology Content on TikTok: current use of a novel video-based social media platform and opportunities for radiology. current problems in diagnostic radiology. 2021;50(2):126-31. https://doi.org/10.1067/j.cpradiol.2020.10.004

[12] Zheng DX, Ning AY, Levoska MA, Xiang L, Wong C, Scott JF. Acne and social media: a cross-sectional study of content quality on TikTok. Pediatr Dermatol 2021;38 (1):336–8. doi: 10.1111/pde.14471.

[13] Kılınç DD. Is the information about orthodontics on Youtube and TikTok reliable for the oral health of the public? A cross sectional comparative study. J Stomatol Oral Maxillofac Surg 2022 S2468-7855(22)00098-2. doi: 10.1016/j.jormas.2022.04.009.

[14] Arslan S, Korkmaz YN, Buyuk SK. Can TikTok provide reliable information about orthodontics for patients? Journal of Consumer Health on the Internet 2022;26 (2):146–56. doi: 10.1080/15398285.2022.2045669.

[15] Hassona Y, Taimeh D, Marahleh A, Scully C. YouTube as a source of information on mouth (oral) cancer. Oral Dis 2016;22(3):202–8. doi: 10.1111/odi.12434.

[16] Chen L, Vasudev G, Szeto A, Cheung WY. Trust in doctors and non-doctor sources for health and medical information. J Clin Oncol 2018;36(15_suppl) 10086-10.1200/JCO.2018.36.15_suppl.10086.

[17] Charnock D, Shepperd S, Needham G, Gann R. DISCERN: an instrument for judging the quality of written consumer health information on treatment choices. J Epidemiol Community Health 1999;53(2):105–11. doi: 10.1136/jech.53.2.105.

[18] Topsakal KG, Duran GS, Görgülü S, Eser Misir S. Is YouTube(TM) an adequate source of oral hygiene education for orthodontic patients? Int J Dent Hyg 2022;20(3):504–11. doi: 10.1111/idh.12557.

[19] Xue X, Yang X, Xu W, Liu G, Xie Y, Ji Z. TikTok as an information hodge-podge: evaluation of the quality and reliability of genitourinary cancers related content. Front Oncol 2022;12:789956. doi: 10.3389/fonc.2022.789956.

[20] Fraticelli L, Smentek C, Tardivo D, Masson J, Clément C, Roy S, et al. Characterizing the content related to oral health education on TikTok. Int J Environ Res Public Health 2021;18(24):13260. doi: 10.3390/ijerph182413260.

[21] Fode M, Frey A, Østergren PB, Jensen CF, Sønksen J. Patterns of knowledge acquisition among men undergoing radical prostatectomy. Eur Urol 2019;75(6):1040–1. doi: 10.1016/j.eururo.2019.01.018.

[22] Iftikhar R, Abaalkhail B. Health-seeking influence reflected by online health-related messages received on social media: cross-sectional survey. J Med Internet Res 2017;19(11):e382. doi: 10.2196/jmir.5989.

[23] Walshaw E, Taylor R, Iyer S, Cashman H. TikTok™: an application that oral and maxillofacial surgery should not overlook. Br J Oral Maxillofac Surg 2020;58(8):1054. doi: 10.1016/j.bjoms.2020.04.023.

[24] Menziletoglu D, Guler AY, Isik BK. Are YouTube videos related to dental implant useful for patient education? J Stomatol Oral Maxillofac Surg 2020;121(6):661–4. doi: 10.1016/j.jormas.2019.12.022.

[25] Meade MJ, Dreyer CW. What's in a hashtag: A content evaluation of Instagram posts related to orthodontic retention and retainers. J World Fed Orthodont 2021;10(1):35–9. doi: 10.1016/j.ejwf.2020.11.002.

[26] Buyuk SK, Imamoglu T. Instagram as a social media tool about orthognathic surgery. Health Promot Perspect 2019;9(4):319–22. doi: 10.15171/hpp.2019.44.

[27] Kurian N, Varghese KG, Daniel S, Varghese VS, Kaur T, Verma R. Are YouTube videos on complete arch fixed implant-supported prostheses useful for patient education? The Journal of prosthetic dentistry 2022. doi: 10.1016/j.prosdent.2022.02.013.

[28] Guo J, Yan X, Li S, Van der Walt J, Guan G, Mei L. Quantitative and qualitative analyses of orthodontic-related videos on YouTube. Angle Orthod 2020;90(3):411–8. doi: 10.2319/082019-542.1.

[29] Hegarty E, Campbell C, Grammatopoulos E, DiBiase AT, Sherriff M, Cobourne MT. YouTube™ as an information resource for orthognathic surgery. J Orthod 2017;44(2):90–6. doi: 10.1080/14653125.2017.1319010.

[30] Ustdal G, Guney AU. YouTube as a source of information about orthodontic clear aligners. Angle Orthod 2020;90(3):419–24. doi: 10.2319/072419-491.1.

[31] Lena Y, Dindaroğlu F. Lingual orthodontic treatment: A YouTube™ video analysis. Angle Orthod 2018;88(2):208–14. doi: 10.2319/090717-602.1.

[32] Gaş S, Zincir Ö, Bozkurt AP. Are YouTube Videos useful for patients interested in botulinum toxin for bruxism? J Oral Maxillofac Surg 2019;77(9):1776–83. doi: 10.1016/j.joms.2019.04.004.