QUALITY AND INTERACTION LEVELS OF INSTAGRAM POSTS RELATED TO ORTHODONTIC #CLEARALIGNERS

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ABSTRACT

Introduction: Developing technology and increased utilization of Internet have raised awareness and facilitated access to information about health-related issues.

Objectives: This study aimed to evaluate the content and quality of Instagram posts about orthodontic clear aligners.

Material and methods: A search using the hashtag #clearaligners was performed in the Instagram application. After pre-evaluation of the top 250 posts, those that did not meet the evaluation criteria were excluded, and the remaining 60 posts were analyzed. To determine quality of the posts, a quality score was created to evaluate content accuracy, consistency between the image and text, and image quality. Each post was assessed and given a quality score ranging from 0 to 20. According to this score, posts were classified as of poor, moderate, or excellent quality. Descriptive statistics, Kruskal-Wallis H test and Pearson's correlation coefficients were calculated for statistical evaluations.

Results: The 60 posts analyzed had a mean quality score of 14 ± 3, indicating moderate quality. Posts from dentists/ orthodontists and laypersons presented comparable quality scores. Number of likes and number of comments were positively correlated, but these parameters were not associated with quality score. When number of likes, number of comments, and quality score were compared according to the post's source and purpose, no significant differences were detected between the groups ($p > 0.05$).

Conclusions: Our study indicates that Instagram posts about clear aligners are of moderate quality. We believe that dentists/ orthodontists in particular should be more aware about sharing information in order to contribute to reliability and quality of medical content of popular social media platforms.

Key words: clear aligners, Instagram, orthodontics, social media.

INTRODUCTION

Developing technology and increased utilization of Internet have raised awareness and facilitated access to information about health-related issues. Many people in developed countries seek information online before being examined or undergoing treatment. People frequently search for popular health information about their condition, possible treatments, treatment process, and costs. Furthermore, people see the Internet as a tool for seeking support and advice both from other patients and specialists. One of the health fields, in which this frequently occurs is dentistry [1-4].

At present, social media sharing is a powerful and cost-effective platform for the promotion of services and products. Using these social media platforms to

inform general public has become popular among healthcare professionals and institutions. Orthodontists and related companies have increasingly used the Instagram application in recent years. In addition, more than a third of patients report that they researched dentists on social platforms [5-8].

Instagram (Meta Platforms, Inc.) has been created by Kevin Systrom and Mike Krieger as a social networking platform, where photos and videos can be uploaded. The first version was released in October 2010 and quickly gathered a large number of users. According to statistics, Instagram currently ranks fifteenth among the most visited websites in the world, and has more than 1 billion users. Users can share their comments on this platform and tag their posts with the hashtag (#) symbol. Hashtags enable Instagram users to increase the visibility of other users' posts [9]. As in all social media platforms, posts related to medicine and dentistry are frequently encountered, and patients search for information with appropriate hashtags in the Instagram application. As sharing on social media platforms steadily increases, there is concern that inaccurate content in this area may lead to misinformation and distraction. Therefore, it is argued that content producers should be careful in this regard.

With more adults seeking orthodontic treatment, there is growing interest in appliances that are both more esthetic and more comfortable, as an alternative to traditional fixed appliances [10]. In line with the developing technology and patients' esthetic demands, clear aligner systems have become increasingly practical and effective in the alignment of teeth in various malocclusions [11]. Although there have been several recent studies in the field of dentistry examining the content and quality of Instagram posts, none has evaluated the content and quality of posts related to clear aligner treatment.

OBJECTIVES

The aim of this present study was to determine the quality and characteristics of Instagram posts related to orthodontic clear aligners. In addition, we aimed to evaluate the level of interaction with these posts, and analyze how content created by different groups and for different purposes varies in quality and interaction.

MATERIAL AND METHODS

A new Instagram account was created on December, 7, 2021 to select posts included in our analysis. We performed a search using the hashtag #clearaligners, and a total of 16,100 major posts were found. Top 250 posts were selected and their URLs were saved. These 250 posts were pre-evaluated. Exclusion criteria consisted of posts not in English ($n = 77$), advertisements shared by clear aligner companies ($n = 11$), posts with no ex-

planation ($n = 4$), posts containing only other treatment procedures ($n = 42$), duplicate posts ($n = 2$), and irrelevant (not related to topic) posts ($n = 54$). As a result, 60 posts were included in the study.

We first recorded numbers of likes and comments of the analyzed posts. These data were recorded on the same day to avoid changes over time. We also identified post source and recorded whether they were a dentist/orthodontist, clinic, or layperson. Similarly, the purpose of a post was classified as patient information, sharing treatment-related experiences, and physician/clinic advertising. Finally, we developed a quality score to determine posts' quality. The quality score consisted of a 4-factor index, with each factor scored between 0 and 5. These factors were content accuracy, image quality, image consistency, and consistency between image and text. The sum of the four factors yielded a quality score, ranging from 0 to 20. Posts with scores of 0-7 were evaluated as poor quality, 8-14 as moderate quality, and 15-20 as excellent quality. To avoid bias, the posts were evaluated by one operator (OM, 8 years of experience). Since the current study was conducted with publicly available data, ethics committee approval was not required.

STATISTICAL ANALYSIS

Study data were analyzed using IBM SPSS Statistics version 21.0 (IBM Corp., Armonk, NY, USA). Quality score evaluations were repeated by the same orthodontist (OM, 8 years of experience) to enable calculations of the reliability of the method. Kappa coefficient was calculated to assess the intra-observer reliability. Kruskal-Wallis H test was applied to test the significance of differences between the means of three or more groups. Correlation analysis was done to evaluate the relationships between the parameters. Results with p-value < 0.05 were considered statistically significant.

RESULTS

When the intra-observer reliability was evaluated, Kappa coefficient was found to be 0.926, and the reliability was determined to be quite high. Descriptive statistics for the number of likes, the number of comments, and quality scores of the 60 Instagram posts in our analysis are shown in Table 1. The mean number of likes was 458 ± 746, the mean number of comments was 23 ± 27, and the mean quality score was 14 ± 3.

Analysis of the sources and purposes of the posts showed that 30 of the 60 posts were made by laypeople, and 23 were made by dentists/orthodontists (Figure 1). Twenty-five (41.7%) posts promoted a physician or clinic, while only 22 posts (36.7%) aimed to inform patients. The remaining 13 posts (21.7%) conveyed patients' experiences.

TABLE 1. Descriptive statistics of number of likes, comments, and quality score of Instagram posts

	n	Mean	Median	Min.	Max.	± SD
Number of likes	60	458	196	102	4,187	746
Number of comments	60	23	16	0	151	27
Quality score	60	14	14	6	19	3

Min. – minimum, Max. – maximum, SD – standard deviation

TABLE 2. Evaluation of correlations between number of likes, number of comments, and quality score

	Number of comments	Quality score
Number of likes		
r	0.421**	−0.023
p-value	0.001***	0.864
n	60	60
Number of comments		
r		−0.034
p-value		0.795
n		60

TABLE 3. Evaluation of correlations between number of likes, number of comments, and quality scores of different posts' sources

Source of posts	Correlations	
	Number of comments	Quality score
Dentist/orthodontist		
Number of likes		
r	0.526**	−0.029
p-value	0.010**	0.896
n	23	23
Number of comments		
r		0.126
p-value		0.568
n		23
Clinic		
Number of likes		
r	0.373	0.643
p-value	0.410	0.119
n	7	7
Number of comments		
r		0.742
p-value		0.05*
n		7
Layperson		
Number of likes		
r	0.382*	−0.115
p-value	0.037*	0.544
n	30	30
Number of comments		
r		−0.198
p-value		0.295
n		30

Analysis of correlations between the number of likes, the number of comments and quality score revealed a positive correlation between the number of likes and comments, but these parameters were not associated with quality score (Table 2). Similarly, the number of likes and comments were positively correlated with posts from different sources. Interestingly, in posts made by clinics, a higher quality score was also associated with a higher number of comments (Table 3).

In our comparison of the posts according to the source, no significant differences in the number of likes, number of comments, or quality scores were observed ($p > 0.05$) (Table 4). Similarly, there were no significant differences in these parameters when the posts were compared according to their purpose ($p > 0.05$). However, we noted that the quality score and number of likes were higher for posts intended to share treatment experiences or inform patients, compared with posts aiming to promote a clinic/physician (Table 5).

DISCUSSION

With the rapid growth and development of biomaterials and biomechanical systems, indications for clear aligner therapy have expanded from simple cases of crowding to treatment of moderate and severe malocclusions [12]. The increasing popularity of orthodontic treatment with clear aligners has given rise to a need for research investigating patients' experiences, such as esthetic and treatment satisfaction [13].

As social media use continues to increase, there is a growing number of health-related posts on public sharing sites. These platforms can be beneficial as well as harmful. Inaccurate information shared in these environments can be very misleading. However, health-related social media can bring patients and health professionals together to facilitate patients' education and build trust [14, 15]. In our review of the literature, we

TABLE 4. Comparison of likes, comments, and quality score between different posts' sources (Kruskal-Wallis *H* test)

	Source of posts (mean ± SD)			*p*-value
	Dentist/orthodontist (*n* = 23)	Clinic (*n* = 7)	Layperson (*n* = 30)	
Number of likes	373 ± 649	319 ± 446	556 ± 867	0.151
Number of comments	18 ± 16	15 ± 13	29 ± 34	0.487
Quality score	14 ± 3	13 ± 3	14 ± 3	0.921

TABLE 5. Comparison of number of likes, number of comments, and quality score between different groups according to the purpose of posts

	Purpose of posts (mean ± SD)			*p*-value
	Information (*n* = 22)	Physician/clinic promotion (*n* = 25)	Experience (*n* = 13)	
Number of likes	407 ± 695	266 ± 179	913 ± 1,234	0.107
Number of comments	19 ± 16	19 ± 23	39 ± 42	0.091
Quality score	14 ± 3	13 ± 3	14 ± 4	0.503
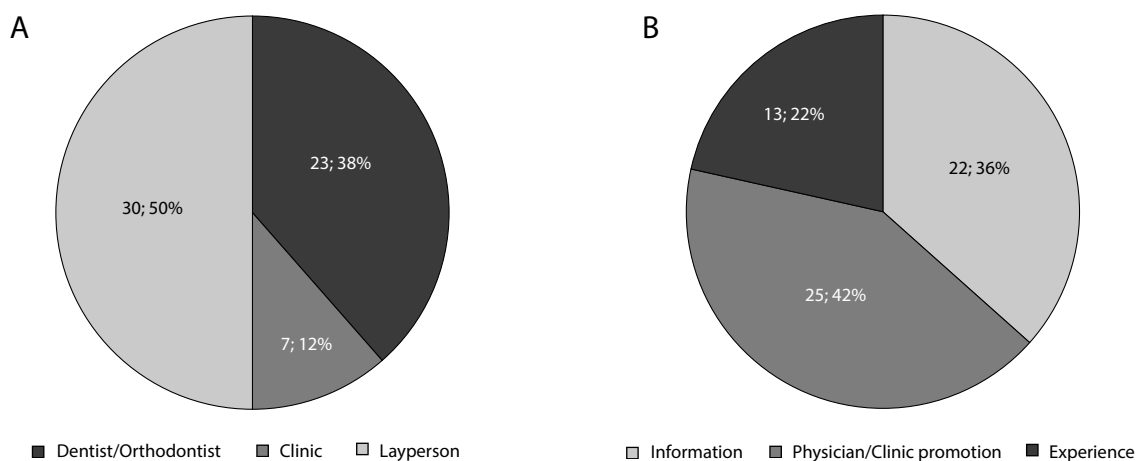
FIGURE 1. A) Distribution of the source of posts. **B)** Distribution of the purpose of posts

observed that studies generally evaluated social media content related to dentistry and orthodontics on platforms, such as YouTube and Twitter [13, 16, 17]. Therefore, in this study we aimed to evaluate the interaction level and quality of the posts about orthodontic clear aligners created in the Instagram application.

As in many other areas, active Internet users prefer to access health-related information online [18]. Orthodontic treatment with clear aligners has attracted considerable attention of patients in recent years, and is frequently discussed on social media platforms. A study evaluating YouTube videos about clear aligners showed that the videos were insufficient to inform patients on this subject, and that 73% of the video content was shared by laypeople. The authors of the study reported that the videos were of moderate quality, but information reliability was generally poor [16]. In our study, we determined that Instagram posts related to clear aligners were of moderate quality, with a mean quality score of 14 ± 3

out of 20, and half of the posts were made by laypeople.

One of the significant findings from our study was the correlation between the number of likes and the number of comments. We believe that this is a common finding, because the numbers of likes and comments increase in proportion to each other on social media posts, which are interacted with and on accounts with a high number of followers. In addition, we noted that for posts made by clinics, the number of comments increased in correlation with the posts' quality. Similarly, previous studies have shown that interaction with social media content increases in relation to its' quality [19]. This indicates that the quality of content of the post is also important for the users.

Although not statistically significant, we determined that the quality and number of likes were higher for patient experience or informational posts compared with clinic/physician promotional posts. Therefore, individuals and institutions intending to create content can be advised to produce the subject within a framework

of standards, such as content accuracy, image quality, and consistency between images and text.

CONCLUSIONS

The quality of posts shared by clinics can affect followers' comments and interactions. We observed no difference in the number of likes, number of comments, or quality of posts shared for different purposes. Information reliability and quality should be prioritized, especially in the content shared by physicians/ clinics. For the purpose of informing patients, the content should also be enriched with up-to-date and scientific information.

CONFLICT OF INTEREST

The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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