ORIGINAL RESEARCH ORİJİNAL ARAŞTIRMA

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A Content Analysis of Instagram® Posts About Pediatric Zirconia Crowns: A Cross-Sectional Study

Pediatrik Zirkonyum Kronlarla İlgili Instagram® Gönderilerinin İçerik Analizi: Kesitsel Bir Çalışma

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ABSTRACT Objective: The aim of this study was to analyze the content of Instagram® posts about pediatric zirconia crowns (PZC). **Material and Methods:** The selected posts for #pediatriczirconiacrowns (171 posts) and #pediatriccrowns (42 posts) hashtags were analyzed to the number of likes and comments, country and language of registration, purpose, uploader, and content. The posts were analyzed under eight titles for evaluating the utility score. The utility scores of the posts were classified as not useful, slightly useful, moderately useful, or very useful. Kruskal-Wallis test was used for data. Significance level was accepted as $p<0.05$. **Results:** One hundred fifty two (88.9%) posts with the hashtag #pediatriczirconiacrowns and 30 (71.4%) posts with the hashtag #pediatriccrowns were shared by pediatric dentists. According to the utility score, 64.3% of the posts with the hashtag #pediatriczirconiacrowns were moderately useful. 11.9% of the posts with the hashtag #pediatriccrowns were slightly useful. There was a statistically significant difference in the total utility scores for the hashtag #pediatriczirconiacrowns related to the purpose and uploader of the posts ($p<0.05$). **Conclusion:** The study results showed that Instagram® posts on PZCs do not contain very useful content for Instagram® users. For Instagram use to play an informative role, the shared posts should be presented more carefully.

Keywords: Child; Instagram; pediatric zirconia crown; social media

ÖZET Amaç: Bu çalışmanın amacı, pediatrik zirkonyum kronlar (PZK) hakkındaki Instagram® gönderilerinin içeriğini analiz etmektir. **Gereç ve Yöntemler:** #pediatriczirconiacrowns (171 gönderi) ve #pediatriccrowns (42 gönderi) etiketleri için seçilen gönderiler, beğeni ve yorum sayısı, kaydedildiği ülke ve dil, amaç, yükleyen ve içerik açısından analiz edilmiştir. Gönderiler, fayda puanını değerlendirmek için 8 başlık altında analiz edilmiştir. Gönderilerin fayda puanları; faydalı değil, biraz faydalı, orta derecede faydalı veya çok faydalı olarak sınıflandırılmıştır. Veriler için Kruskal-Wallis testi kullanılmıştır. Anlamlılık düzeyi $p<0,05$ olarak kabul edilmiştir. **Bulgular:** Yüz elli iki (%88,9) #pediatriczirconiacrowns etiketli gönderi ve 30 (%71,4) #pediatriccrowns etiketli gönderi çocuk diş hekimleri tarafından paylaşılmıştır. Fayda puanına göre #pediatriczirconiacrowns etiketli gönderilerin %64,3'ü orta derecede faydalıydı. #pediatriccrowns etiketli gönderilerin %11,9'u biraz faydalıydı. #pediatriczirconiacrowns etiketi için toplam fayda puanlarında, gönderilerin amacı ve yükleyeni ile ilgili istatistiksel olarak anlamlı bir fark vardı ($p<0,05$). **Sonuç:** Çalışma sonuçları, PZK'lar ile ilgili Instagram® gönderilerinin Instagram® kullanıcıları için çok faydalı içerik içermediğini göstermiştir. Instagram kullanımının bilgilendirici bir rol oynaması için paylaşılan gönderilerin daha dikkatli sunulması gerekmektedir.

Anahtar Kelimeler: Çocuk; Instagram; pediatrik zirkonyum kron; sosyal medya

Dental caries is the most common chronic childhood disease.[1] Failure to treat caries among children sufficiently early can cause early tooth loss, malocclusions, nutritional deficiencies, speech problems, serious aesthetic and psychological problems, and adverse effects on a child's development and quality of life. Since primary teeth are structurally different from permanent teeth, caries spread rapidly if the former are left untreated, causing excess material loss.[2,3]

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Full coronal restorations, which are among the most effective treatment methods, are preferred because they protect the teeth's mesiodistal size and structural integrity and increase their lifespan, especially in the treatment of multi-surface caries resulting from early childhood caries.[4] In full coronal restoration methods of primary anterior and posterior teeth, resin composite strip crowns, polycarbonate crowns, stainless-steel crowns, pre-veneered stainless-steel crowns, open-faced stainless-steel crowns, and prefabricated zirconia crowns are used. Each technique has its advantages and disadvantages.[5]

Pediatric zirconia crowns (PZC), which were introduced in 2008, are aesthetic and biocompatible restorative materials that provide long-term protection for the full coronal restoration of primary teeth.[6] Currently, there is a preference, especially by pediatric dentists, for prefabricated zirconia crown over preformed metal crowns (PMC), which is a widely used coronal restoration method in the treatment of severely damaged primary and permanent teeth.[7,8] Compared to PMCs, higher parental and child satisfaction and acceptance rates have been more associated with PZCs due to their natural toothlike aesthetic shape and color.[5,7,9]

The increased use of social media has made it easier for patients to access support and information before their examination or treatment by healthcare professionals. The most popular social media platform to receive oral health-related information is Instagram® (Facebook, Inc., Menlo Park, CA, USA), where healthcare professionals share photos and/or short videos alongside comments and hashtags.[10,11]

Nowadays, Instagram® has gained popularity in the field of dentistry, and several studies in the context of dental problems and treatments (orthodontic clear aligners and retainers, accelerated orthodontic treatment, orthodontic surgery, masseter botox injection for bruxism, wisdom teeth, early childhood caries, genioplasty, fluoride, cleft lip, dental trauma, dental pain, oral cancer) have been published.[12-20] To our knowledge, there has not been any research in the literature regarding PZCs-related content on Instagram® posts yet. In this sense, this study aimed to analyze the content of Instagram® posts about PZCs.

MATERIAL AND METHODS

Firstly, a new Instagram® (www.instagram.com) account without any connection was created to remove any bias. The account was created on 31st March 2023 and the research data were collected up to 1 April by a single investigator (E.O.).

Search hashtags were determined as "#pediatriczirconiacrowns" and "#pediatriccrowns". All posts per hashtag according to relevance were selected for analysis. Since the data is publicly open, no ethics committee approval was required for the study. The study was conducted according to the principles of the Declaration of Helsinki.

In terms of the data obtained from using the two hashtags, the following exclusion criteria were applied: (1) posts about other dental procedures, (2) duplicate posts, (3) irrelevant posts, (4) cartoons, and (5) patient-dentist images (Figure 1). The Uniform Resource Locator (URL) address of each post was recorded. All non-English posts were translated using Google Translate (Googleplex, Mountain View, California, U.S.) (https://translate.google.com).

Each post was analyzed to the number of likes and comments, country and language of registration, purpose, uploader, and content.

The purpose of posts were recorded: (1) educational, (2) advertisement, and (3) no text. The uploader was categorized as (1) pediatric dentists, (2) dental clinics, and (3) commercial (dental manufacturing company). The utility scores of the posts were evaluated under eight criteria: (1) indications and contraindications, (2) advantages and disadvantages, (3) pre- and postoperative photos, (4) follow-up period, (5) location of treated teeth (anterior vs posterior), (6) type of treated teeth (permanent vs primary), (7) number of treated teeth, and (8) treatment method (sedation, general anesthesia, and clinical conditions). If these titles were mentioned in the post, 1 point was given, and 0 otherwise. A total score of 0 meant that the post was not useful. Total scores of 1 and 2 meant the post was poor quality and slightly useful for patients. Total scores between 3 and 5 meant the post was moderately useful for patients. Total scores between 6 and 8 meant that the post was very useful for patients (Table 1).

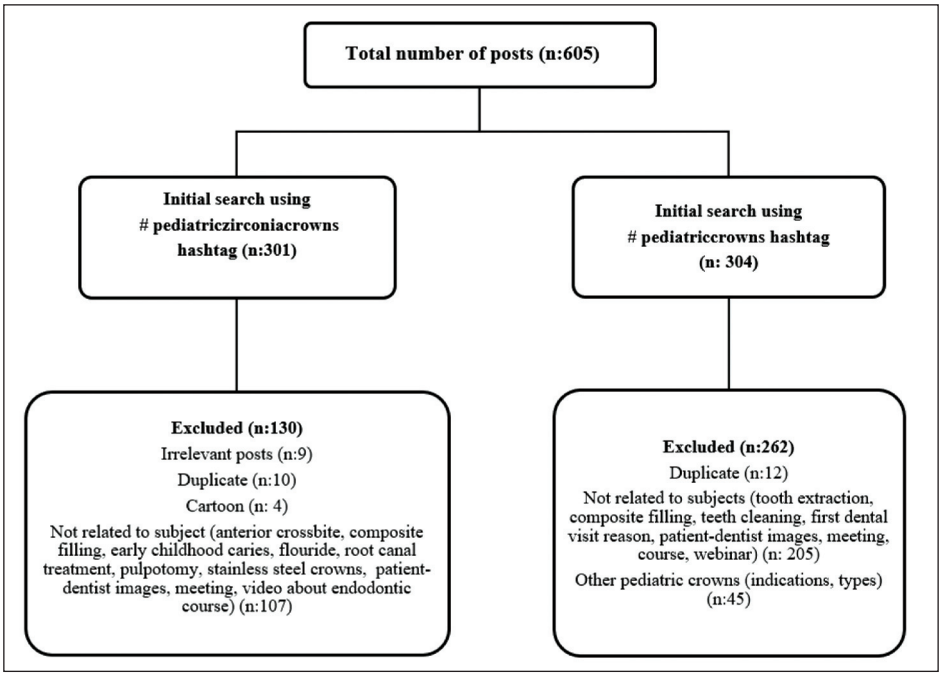

FIGURE 1: Flow chart of the selection process.

TABLE 1: Criteria for utility score on Instagram posts.

Scoring item	Score
Indications and contraindications	1
Advantages and disadvantages	1
Preoperative and postoperative photos	1
Follow-up period	1
Location of teeth treated (anterior vs posterior)	1
Type of teeth treated (permanent vs primary)	1
Number of teeth treated	1
Treatment method (sedation, general anesthesia, clinical conditions)	1
Total score	8

Score 0=not useful; Score 1-2=slightly useful; Score 3-5=moderately useful; Score 6-8=very useful.

Each post was reevaluated by the same investigator (E.O.) 4 weeks after initial data collection. Intrarater reliability of accuracy of claims was tested using Cohen's kappa with excellent levels of agreement observed (κ=0.84).

STATISTICAL ANALYSIS

All statistical analyses were performed using IBM SPSS V23 (Chicago, IL, USA). Data were recorded by mean, standard deviation (SD), median (minimum-maximum) for continuous variables (likes, comments, utility scores), and frequency (percentage) for categorical variables. Conformity to normal distribution was evaluated using the Shapiro-Wilk test. Kruskal-Wallis test was used for data that were not normally distributed. $p<0.05$ indicated statistical significance.

RESULTS

In total, 605 Instagram® posts were collected for PZCs-related content. When considering the criteria, 171 posts with the hashtag #pediatriczirconiacrowns and 42 posts with the hashtag #pediatriccrowns were analyzed (Figure 1).

When the uploaders sharing the posts on Instagram® used in this study were analyzed, 152 (88.9%) posts with the hashtag #pediatriczirconiacrowns and 30 (71.4%) posts with the hashtag #pediatriccrowns were shared by pediatric dentists. All posts displayed photos for the hashtag #pediatriczirconiacrowns, had a mean of 2.52 (SD=2.38) comments and 91.02 (SD=59.34) likes. The majority of posts displayed photo for the hashtag #pediatriccrowns (95.2%), had a mean of 1.24 (SD=2.05) comments and 31.6 (SD=24.04) likes. The objective of sharing for educational purposes was high in the case of the hashtag #pediatriczirconiacrowns (90.1%), and most of the

TABLE 2: Comparison of Instagram® characteristics of #pediatriczirconiacrowns and #pediatriccrowns hashtags.

Variables	#pediatriczirconiacrowns (n=171)		#pediatriccrowns (n=42)	
Post type				
Photograph	171		40	
Video	-		2	
Uploader				
Pediatric dentists	152		30	
Dental clinics	15		3	
Commercial	4		9	
Purpose				
Educational	154		16	
Advertisement	5		19	
No text	12		7	
Total utility score	843		102	
Number of likes	15,565		1,327	
Number of comments	430		52	
	Median (minimum-maximum)	**Mean (SD)**	**Median (minimum-maximum)**	**Mean (SD)**
Number of likes	82 (0-297)	91.02 (59.34)	25 (6-114)	31.6 (24.04)
Number of comments	2 (0-12)	2.52 (2.38)	0.5 (0-9)	1.24 (2.05)
Total utility score	5 (0-7)	4.93 (1.32)	2.5 (0-7)	2.43 (2.27)

n: Number of posts; SD: Standard deviation.

related posts were uploaded by pediatric dentists (90.9%). The type, uploader and purpose, and number of likes and comments in posts for each hashtag were shown in Table 2.

The languages of the posts about #pediatriczirconiacrowns hashtag were as follows: Turkish (139 posts), English (24 posts), Spanish (4 posts), Arabic (3 posts), and Russian (1 post). The languages of the posts about #pediatriccrowns hashtag were as follows: English (16 posts), Spanish (14 posts), Turkish (11 posts), and Arabic (1 post).

All posts were about #pediatriczirconiacrowns hashtag shared from Türkiye, and the first two were about #pediatriccrowns hashtag shared from the United States (13), followed by Türkiye (11). In Figure 2, the distribution of the countries where the posts were uploaded was examined.

For pediatric dentists, most of the posts on Instagram® were case reports of patients whom they had treated. Of the reviewed posts that contain the hashtag #pediatriccrowns, 156/171 (91.2%) contained preoperative and postoperative photo content, while the corresponding figure was 22/42 (52.4%) for the hashtag #pediatriccrowns. The location, type, and

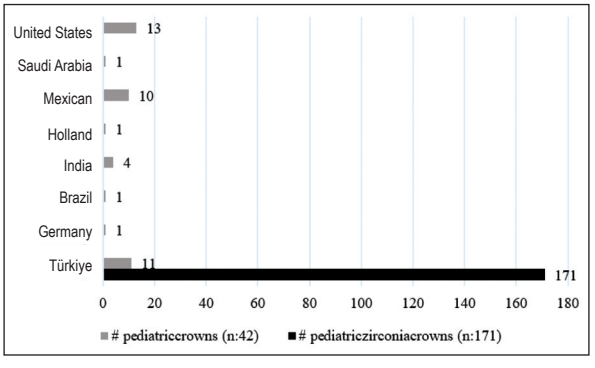

FIGURE 2: Distribution of Instagram® posts accordingly country of registration.

number of treated teeth content were mentioned in 96.5% of the posts using #pediatriczirconiacrowns hashtag and 50% of those using #pediatriccrowns hashtag. A total of 87.1% (149/171) of the treatments mentioned in posts shared with the hashtag #pediatriczirconiacrowns were localized in primary teeth and 94.7% (162/171) in the anterior region, representing 21/42 (50%) and 20/42 (47.6%), respectively, of the hashtag #pediatriccrowns. The following represented the distribution of 46.8% (80/171) the posts whose the treatment method was specified along the use of the hashtag #pediatriczirconiacrowns; 96.3%

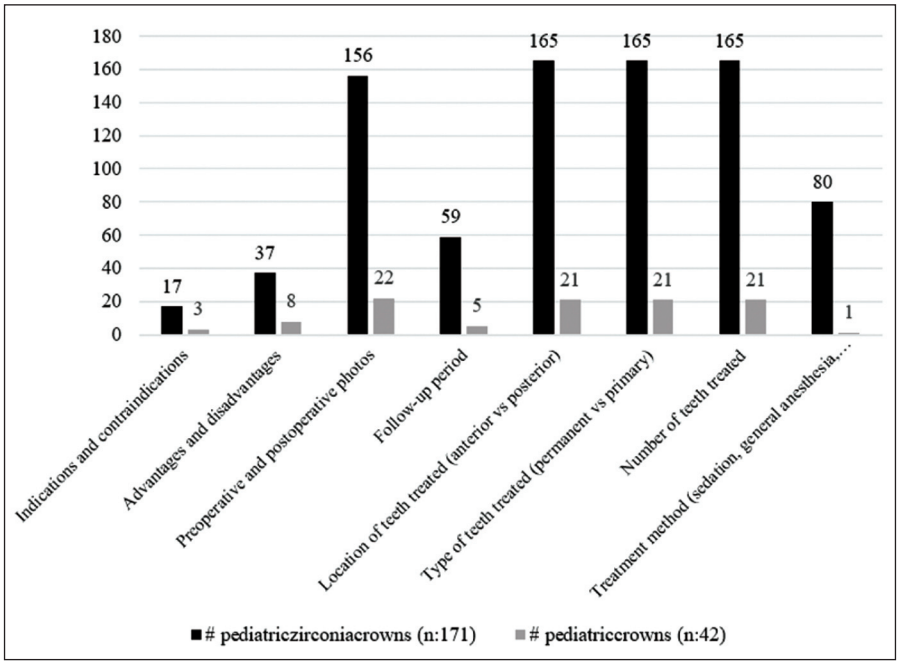

FIGURE 3: Topics reviewed on Instagram® posts.

general anesthesia (77/80), 2.5% sedation (2/80), and 1.3% clinical conditions (1/80). A follow-up period was reported in 34.5% of the shared posts for the #pediatriczirconiacrowns hashtag (Figure 3).

According to the utility score, 64.3% of the posts with the hashtag #pediatriczirconiacrowns were moderately useful, followed by very useful (32.2%). Only 3.5% of the posts were not useful for patients. 11.9% of the posts with the hashtag #pediatriccrowns were slightly useful, followed by moderately useful (45.2%). Only 4.8% of the posts were very useful for patients.

Posts about the hashtag #pediatriczirconiacrowns that uploaded by pediatric dentists had significantly more mean likes than those shared by dental clinics and commercials ($p<0.001$). There was no statistically significant difference in the number of likes or comments on the posts with the hashtag #pediatriccrowns among the uploaders ($p>0.05$). There was a statistically significant difference in the total utility scores for the hashtag #pediatriczirconiacrowns related to the purpose and uploader of the posts ($p<0.05$). Table 3 shows the comparison of the number of likes and comments, and total utility scores according to the purpose and uploader for each hashtag.

DISCUSSION

Instagram®, which is one of the most popular social media platforms, is used by dental professionals mainly for advertising purposes and by patients for seeking information and support about their treatment requests and sharing experiences.[15,16] The most important reason that patients visit a social media account related to dentistry is the before and after images of dental patients.[21] However, information obtained on Instagram® can lead to negative referrals due to misinformation.[18]

PZCs have recently been shown to be a promising alternative to other restorative materials and crowns, having shown similar results by various manufacturers in the field of pediatric dentistry.[7] They showed better gingival and periodontal health, less plaque accumulation, good retention, color stability, high parental acceptance, and good marginal adaptation.[9] Although PZCss have many advantages, there are no studies analyzing the content of posts shared on social media platforms. This re-

TABLE 3: Comparison of hashtag number of like and comment according to purpose and uploader.

	#pediatriczirconiacrowns						#pediatriccrowns					
	Like		Comment		Total utility score		Like		Comment		Total utility score	
Purpose	Mean (SD)	Median (minimum-maximum)	Mean (SD)	Median (minimum-maximum)	Mean (SD)	Median (minimum-maximum)	Mean (SD)	Median (minimum-maximum)	Mean (SD)	Median (minimum-maximum)	Mean (SD)	Median (minimum-maximum)
Educational	94.57 (59.18)	83.5 (5-297)	2.65 (2.42)	2 (0-12)	5.13 (1.1)	5 (0-7)	42.56 (31.25)	34 (8-114)	1.69 (2.36)	5 (0-8)	4.25 (1.57)	5 (1-7)
Advertisement	12.2 (14.22)	6 (0-36)	0.2 (0.45)	0 (0-1)	0.8 (1.79)	0 (0-4)	25.68 (17.14)	22 (6-66)	0.42 (0.61)	0 (0-2)	0.37 (1.17)	0 (0-5)
No text	78.3 (49.6)	70 (10-177)	1.75 (1.66)	2 (0-4)	4.17 (0.39)	4 (4-5)	22.57 (9.98)	23 (10-34)	2.43 (3.05)	1 (0-9)	3.86 (0.38)	4 (3-4)
p value	**0.002**		**0.015**		**<0.001**		0.200		**0.044**		**<0.001**	
Uploader												
Pediatric dentists	99.32 (57.53)	90.5 (5-297)	2.74 (2.41)	2.5 (0-12)	5.13 (1.01)	5 (0-7)	31.27 (24.52)	25 (6-114)	1.50 (2.3)	1 (0-9)	2.83 (2.18)	4 (0-7)
Dental clinics	26.87 (16.55)	25 (5-67)	0.93 (1.16)	1 (0-3)	4.27 (1.53)	4 (0-7)	33 (35.5)	13 (12-74)	1 (1.73)	0 (0-3)	2.33 (2.52)	2 (0-5)
Commercial	16.5 (14.82)	15 (0-36)	0	0	0	0	32.22 (21.59)	28 (8-66)	0.44 (0.73)	0 (0-2)	1.11 (2.21)	0 (0-5)
p value	**<0.001**		**<0.001**		**<0.001**		0.874		0.378		0.148	

Results of Kruskal-Wallis test; n: number of posts; SD: Standard deviation; p<0.05 was considered as statistically significant.

search highlights the importance of Instagram® use in the field of PZCs.

Like other studies of Instagram® in the literature, in the present study, Instagram® posts related to each hashtag were shared mostly by dental professionals.[17,20] In this study, 30 (71.4%) posts with the hashtag #pediatriccrowns and 152 (88.9%) posts with the hashtag #pediatriczirconiacrowns were shared by pediatric dentists. In the study of Buyuk and Imamoglu, in which they analyzed Instagram® posts on orthognathic surgery, the majority of posts were uploaded by patients.[17] In another study, the vast majority (99.6%) of Instagram® posts with the hashtag #dentalpain were shared on clinic/company profiles.[19] Qazi et al. reported that compared to healthcare professionals, nonprofessional healthcare workers use Instagram® more frequently to post bruxism-related information.[22]

For posts about PZCs to be educational and/or informative for patients, it may be important to include the treatment method (advantage/disadvantage, indication/contraindication) and details of the case (before/after images, follow-up period) in the comments. In this study, in comments shared on Instagram®, pediatric dentists showed that PZCs were one of the most aesthetic, durable, and biocompatible materials among treatments applied tochildren's primary teeth with excessive material loss. They maintained that PZCs were indispensable for dentists due to their excellent aesthetic appearance, gingival compatibility, and lower levels of plaque accumulation on the surface of the teeth. Compared to primary tooth fillings in the anterior region, PZCs are more resistant to fracture against biting and chewing forces and do not cause gingivitis. Although the advantages and indications of PZCs were mentioned in a few of the posts shared for both hashtags in our study, the comments were in line with the information in the literature.[7,9] In the literature, the disadvantages of treatment are high costs and the need for aggressive tooth reduction and technical precision. Its contraindications include severe tooth destruction, physiological or pathological root resorption involving more than two-thirds of the root, excessive bruxism, anterior crossbites, and severe crowding.[9,23] However, none of the posts evaluated in our study mentioned the disadvantages and

contraindications of the treatment. This is likely because physicians seek to attract more attention from Instagram® users by talking only about the positive aspects of PZC applications.

In the study, nearly all Instagram® posts containing the hashtag #pediatriczirconiacrowns (90.1%) were educational, and most were uploaded by pediatric dentists (90.9%). This result shows that the posts were intended to support individuals who did not know about the disease/treatment method. However, the posts that contained this hashtag did notmention the patients' treatment experiences. One likely reason may be that YouTube™ (Cherry Avenue, San Bruno, California, U.S.) is the most widely used social media platform for content on patient experiences with dental treatments.[24] Other possible reasons may be that PZC treatments are usually applied to pediatric patients in younger age groups and that social media posts could have been made by the patients' parents, who may not have used a hashtag.

Instagram® use in Türkiye has been reported to increase every year. There are at least 56.4 million active Instagram® users, and Türkiye ranks fifth in the world.[25] In this study, all posts with the hashtag #pediatriczirconiacrowns were shared from Türkiye, almost all written in Turkish (139/171). The fact that the largest number of posts containing this hashtag was in Turkish shows that this hashtag was used widely in Instagram® posts related to this treatment method by pediatric dentists whose native language was Turkish. This result shows that the physicians' tendency towards this problem in their social media accounts is gradually increasing. In addition, physicians should be aware of the principles, professional ethics (Primum non nocere) and responsibilities related to social media and correct their incomplete/incorrect posts.

In this study, the majority of posts with the hashtag #pediatriczirconiacrowns were uploaded as before-after images of patients being treated by pediatric dentists, but the follow-up period was stated in only 34.5% of the shared posts. This result may mean that before-and after-treatment images of completed cases attract more attention from Instagram® users because they show instantaneous aesthetic results.[21] In addition, pediatric dentists, in particular, try to support their colleagues with less treatment experience by sharing case examples. In our study, in the comments section of the posts containing case reports with follow-up images, it was stated that after the treatment, patients' smiles improved, their pain stopped, their sleep improved, their speech problems improved, and their appetite and self-confidence increased. The physicians emphasized that, in addition to preventing complications that can occur due to tooth extraction, they were happy to bring a beautiful smile to their patients. However, in most of the shared cases, no information was provided on the long-term success of the treatment or possible complications, and physicians presented only successful case reports on social media, which can cause misinterpretation among followers, making them to be misled. It is known that certain follow-up periods are important for discussing the success of treatments in dentistry.[26,27] For this reason, it is thought that these posts are not scientific and that this situation will lead to misinformation.

PZCs may be indicated for primary anterior and posterior teeth due to early childhood caries as well as hypomineralized and severely decayed young permanent molars.[5,28] In the posts evaluated in this study, PZCs were mainly applied to the anterior primary incisors. This may be due to limited use by physicians, as existing companies have introduced prefabricated PZCs for permanent teeth to the market. In the posts analyzed, particularly about the anterior region, pediatric dentists stated that restorations of early childhood caries with the right indication and the appropriate case bring back children's lost smiles, with happy results for children, parents, and physicians. An example of a post shared by a pediatric dentist was "Little pearls for little stars zirconia crowns bring back that beautiful smile you long to see on your child's face".

Enabling saliva and bleeding control in teeth treated with PZCs requires technical precision. The emergence of cooperation problems-since the patient group is made up of young children-makes it difficult to carry out the treatments in a clinical setting. Patient cooperation has been appropriate during treat-

ment, and sedation can help crown application in uncooperative patients.[29] Our study also supports this view, as 96.3% of the patients shown in the posts, whose treatment method was specified by the hashtag #pediatriczirconiacrowns, were treated with general anesthesia and 2.5% with sedation methods. Although general anesthesia is often necessary to complete all treatments in pediatric patients who need multiple urgent dental treatments, the risks of prolonged general anesthesia procedures at an early age (airway complications, neurodevelopmental disorders, attention deficit/hyperactivity disorder) are not mentioned in the posts, which can lead followers to think that this treatment is a simple procedure.[30-33]

The present study evaluated the number of likes and comments, and total utility scores of the posts shared with the #pediatriczirconiacrowns and #pediatriccrowns hashtags on Instagram®. According to the utility score, only 32.2% of the shared posts about the hashtag #pediatriczirconiacrowns included very useful content, but this rate was quite low for the hashtag #pediatriccrowns (4.8%). This means that the informational content of most of the Instagram® posts was insufficient to raise user awareness of PZCs. However, it should be noted that posts without hashtags were not evaluated. Buldur et al. reported that the content and information quality of the Instagram® posts about teeth whitening were insufficient and may lead patients to more interventional invasive treatment options.[34]

In this study, there were statistically significant differences between uploaders in terms of the number of likes, comments, and total utility scores with the hashtag #pediatriczirconiacrowns ($p<0.05$), but the differences were not statistically significant with the hashtag #pediatriccrown. The fact that the studies in the field of dentistry, in which the content of posts shared on social media platforms was evaluated, examined the content on the YouTube™ platform made it difficult to evaluate the results.[24] A study on Instagram®-based posts evaluated the content of posts with the hashtag #wisdomteeth and found no statistically significant differences between upload sources, number of comments, and usefulness scores.[14]

There were some limitations to our study, such as the evaluation of a small number of posts and the evaluation of posts in a single time frame because of the cross-sectional design. In literature, the main topics related to the use of Instagram® in oral health research are misinformation, patient experiences, education and ethical compliance.[35] In our study, the lack of data on the experiences of patients who were treated with PZCs or their parents is considered a deficiency. The fact that the study did not examine other hashtags that may be relevant to the topic may also be a limitation.

Despite these limitations, this was the first study to evaluate the content of posts about PZCs on Instagram®. Furthermore, the posts were not only in English but also in a variety of languages. Unlike many studies that examine different topics on Instagram®, in our study, classifying the content of posts according to certain criteria and assigning utility scores to each post constitute are important features.[12,13,15,17]

CONCLUSION

The study results showed that Instagram® posts on PZCs do not contain very useful content for Instagram® users. Further prospective studies of PZCs on other social media platforms are needed because of the varying user impacts.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

This study is entirely author's own work and no other author contribution.

REFERENCES

1. Selwitz RH, Ismail AI, Pitts NB. Dental caries. Lancet. 2007;369(9555):51-9. [Crossref] [PubMed]
2. Seow WK. Early childhood caries. Pediatr Clin North Am. 2018;65(5):941-54. [Crossref] [PubMed]
3. Huong DM, Hang LT, Ngoc VTN, Anh LQ, Son LH, Chu D, et al. Prevalence of early childhood caries and its related risk factors in preschoolers: result from a cross sectional study in Vietnam. Pediatr Dent J. 2017;27(2):79-84. [Crossref]
4. Innes NP, Evans DJ, Bonifacio CC, Geneser M, Hesse D, Heimer M, et al. The hall technique 10 years on: questions and answers. Br Dent J. 2017;222(6):478-83. [Crossref] [PubMed]
5. Rocha MCM, Inácio GC, Taira TM, Delgado RZR, Maciel SM, Frítola M. Zirconia crowns as an esthetic alternative for oral rehabilitation in pediatric dentistry: a review. Pediatr Dent J. 2021;31(3):224-34. [Crossref]
6. Ashima G, Sarabjot KB, Gauba K, Mittal HC. Zirconia crowns for rehabilitation of decayed primary incisors: an esthetic alternative. J Clin Pediatr Dent. 2014;39(1):18-22. [Crossref] [PubMed]
7. Alrashdi M, Ardoin J, Liu JA. Zirconia crowns for children: a systematic review. Int J Paediatr Dent. 2022;32(1):66-81. [Crossref] [PubMed]
8. El Shahawy OI, Azab MM. Fracture resistance of prefabricated versus custom-made zirconia crowns after thermo-mechanical aging: an in-vitro study. BMC Oral Health. 2022;22(1):587. [Crossref] [PubMed] [PMC]
9. Alzanbaqi SD, Alogaiel RM, Alasmari MA, Al Essa AM, Khogeer LN, Alanazi BS, et al. Zirconia crowns for primary teeth: a systematic review and meta-analyses. Int J Environ Res Public Health. 2022;19(5):2838. [Crossref] [PubMed] [PMC]
10. El Tantawi M, Bakhurji E, Al-Ansari A, AlSubaie A, Al Subaie HA, AlAli A. Indicators of adolescents' preference to receive oral health information using social media. Acta Odontol Scand. 2019;77(3):213-8. [Crossref] [PubMed]
11. Wikipedia [Internet]. [Cited: April 24, 2023]. Instagram. Available from: [Link]
12. Müftüoğlu O, Cesur E. Quality and interaction levels of Instagram posts related to orthodontic #clearaligners. J Stoma. 2023;76(1):54-8. [Crossref]
13. Yıldız S, Becet N, Buyuk SK. Quality of information on Instagram about masseter botox injection for bruxism. J Stomatol Oral Maxillofac Surg. 2023;124(1S):101279. [Crossref] [PubMed]
14. Guler AY. The effect of Instagram posts related to #Wisdomteeth on patients. J Stomatol Oral Maxillofac Surg. 2022;123(2):155-7. [Crossref] [PubMed]
15. Ayranci F, Kutalmis Buyuk S, Kahveci K, Sunar C. An analysis of Instagram posts about genioplasty. J Consum Health Internet. 2021;25(3):275-82. [Crossref]
16. Buyuk SK, Imamoglu T, Yavuz MC. Quality of information about accelerated orthodontics on Instagram. Balk J Dent Med. 2021;25:166-9. [Crossref]
17. Buyuk SK, Imamoglu T. Instagram as a social media tool about orthognathic surgery. Health Promot Perspect. 2019;9(4):319-22. [Crossref] [PubMed] [PMC]
18. Samani P, Dungarwalla M, Bailey E. #Wisdomteeth: an analysis of 100 social media posts and a survey on patient perception. Br Dent J. 2020;228(9):711-6. [Crossref] [PubMed]
19. Da Fonseca Cumerlato CB, Rotta RN, De Oliveira LJC, Corrêa MB. #Dentalpain: what do the Brazilian Instagram® users want to mean. Braz J Oral Sci. 2020;19:e208591. [Crossref]
20. Meade MJ, Dreyer CW. What's in a hashtag: a content evaluation of Instagram posts related to orthodontic retention and retainers. J World Fed Orthod. 2021;10(1):35-9. [Crossref] [PubMed]
21. Alalawi A, Aljuaid H, Natto ZS. The effect of social media on the choice of dental patients: a cross-sectional study in the city of Jeddah, Saudi Arabia. Patient Prefer Adherence. 2019;13:1685-92. [Crossref] [PubMed] [PMC]
22. Qazi N, Pawar M, Padhly PP, Pawar V, D'Amico C, Nicita F, et al. Teledentistry: Evaluation of Instagram posts related to bruxism. Technol Health Care. 2023;31(5):1923-34. [Crossref] [PubMed]
23. Bariker RH, Casián-Adem J, Segovia I. Clinical considerations for preformed zirconia crowns in early childhood caries: a case series and review of literature. Contemp Pediatr Dent. 2022:3(1):24-34. [Crossref]
24. 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. [Crossref] [PubMed] [PMC]
25. Data Reportal [Internet]. Digital 2022: Turkey, 2022. Accessed April 24, 2023. vailable from: [Link]
26. European Society of Endodontology. Quality guidelines for endodontic treatment: consensus report of the European Society of Endodontology. Int Endod J. 2006;39(12):921-30. [Crossref] [PubMed]
27. Qvist V, Manscher E, Teglers PT. Resin-modified and conventional glass ionomer restorations in primary teeth: 8-year results. J Dent. 2004;32(4):285-94. [Crossref] [PubMed]
28. Casián-Adem J, Cobos L, Waggoner WF, Fuks AB. Prefabricated zirconia crowns - a solution to treat hypomineralized permanent molars: report of a case. J Clin Pediatr Dent. 2021;45(1):8-11. [Crossref] [PubMed]
29. Lopez Cazaux S, Hyon I, Prud'homme T, Dajean Trutaud S. Twenty-nine-month follow-up of a paediatric zirconia dental crown. BMJ Case Rep. 2017;2017:bcr2017219891. [Crossref] [PubMed] [PMC]
30. Clinical Affairs Committee-Behavior Management Subcommittee, American Academy of Pediatric Dentistry. Guideline on Behavior Guidance for the Pediatric Dental Patient. Pediatr Dent. 2015;37(5):57-70. [PubMed]
31. Bordet F, Allaouchiche B, Lansiaux S, Combet S, Pouyau A, Taylor P, et al. Risk factors for airway complications during general anaesthesia in paediatric patients. Paediatr Anaesth. 2002;12(9):762-9. [Crossref] [PubMed]
32. Zhang H, Du L, Du Z, Jiang H, Han D, Li Q. Association between childhood exposure to single general anesthesia and neurodevelopment: a systematic review and meta-analysis of cohort study. J Anesth. 2015;29(5):749-57. [Crossref] [PubMed]
33. Sprung J, Flick RP, Katusic SK, Colligan RC, Barbaresi WJ, Bojanić K, et al. Attention-deficit/hyperactivity disorder after early exposure to procedures requiring general anesthesia. Mayo Clin Proc. 2012;87(2):120-9. [Crossref] [PubMed] [PMC]
34. Buldur M, Misilli T, Ayan G. Analyzing content and information quality of Instagram® posts about #teethwhitening. Cumhuriyet Dent J. 2023;26(3):268-75. [Crossref]
35. Oliveira LM, da Silva Pilecco K, de Souza DF, de Oliveira CA, Zanatta FB. Main uses of Instagram in oral health research-A scoping review. HPT. 2022;11(1):100605. [Crossref]