ORIGINAL RESEARCH

YouTube for Information on Childhood Constipation: Is It Reliable?

YouTube'da Çocukluk Çağı Kabızlığı Hakkındaki Bilgiler Güvenilir mi?

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Abstract

Objective: To determine the quality and reliability of videos obtained by searching the keywords "constipation in children" on YouTube.

Method: We obtained 73 videos by searching the keyword "constipation in children" on YouTube, which were evaluated and scored independently by two pediatricians using the scoring systems; "Global Quality Scale" and "quality criteria for consumer health information".

Results: When the mean scores of the viewers were evaluated, 54.8% of the videos were interpreted as poor, 13.7% as medium, and 31.5% as good quality according to "quality criteria for consumer health information" scoring, while 52.1% were interpreted as low, 19.2% as medium, and 28.7% as high quality according to "global quality scale" scoring. When video score ratings were compared with the duration, number of views, and likes of the videos, no significant relationship was found between the views of the videos and "quality criteria for consumer health information" and "global quality scale" scores of the first and second viewers (p=0.369, p=0.316, p=0.632, p=0.815 respectively). Similarly, no significant relationship was found between the number of likes and the "quality criteria for consumer health information" and "global quality scale" scores of the first and second viewers (p=0.367, p=0.407, p=0.645, p=0.931, respectively).

Conclusion: Most YouTube videos on childhood constipation are of very low quality, and the high number of views and likes does not correlate with high quality.

Keywords: Constipation, DISCERN, GQS, pediatrics, YouTube

Öz

Amaç: YouTube'da "çocuklarda konstipasyon" anahtar kelimeleri ile arama yapılarak elde edilen videoların kalite ve güvenilirliğini belirlemektir.

Yöntem: YouTube'da "çocuklarda kabızlık" anahtar kelimeleri ile arama yapılarak elde edilen 73 video, 2 bağımsız çocuk doktoru tarafından eş zamanlı olarak izlendi ve "küresel kalite ölçeği" ve "tüketici sağlık bilgileri için kalite kriterleri" puanlama sistemleri ile değerlendirildi.

Bulgular: İzleyicilerin ortalama puanları değerlendirildiğinde, videoların %54,8'i "tüketici sağlık bilgileri için kalite kriterleri" puanlamasına göre kötü, %13,7'si orta ve %31,5'i iyi kalite olarak yorumlanırken, "küresel kalite ölçeği" puanlamasına göre %52,1'i düşük, %19,2'si orta ve %28,7'si yüksek kalite olarak yorumlandı. Video puanları videoların süresi, izlenme sayısı ve beğenilme oranları ile karşılaştırıldığında, videoların izlenme oranları ile birinci ve ikinci izleyicilerin "tüketici sağlığı bilgileri için kalite kriterleri" ve "küresel kalite ölçeği" puanlamaları arasında anlamlı bir ilişki bulunmamıştır (sırasıyla p=0,369, p=0,316, p=0,632, p=0,815). Benzer şekilde, beğeni sayısı ile birinci ve ikinci izleyicilerin "tüketici sağlığı bilgileri için kalite kriterleri" ve "küresel kalite ölçeği" puanlamaları arasında anlamlı bir ilişki bulunmamıştır (sırasıyla p=0,367, p=0,407, p=0,645, p=0,931).

Sonuç: Çocukluk çağı kabızlığı ile ilgili YouTube videolarının çoğu çok düşük kalitededir ve yüksek görüntüleme ve beğeni sayısı yüksek kalite ile ilişkili değildir.

Anahtar kelimeler: DISCERN, GQS, kabızlık, pediyatri, YouTube

Introduction

Constipation is defined by the North American Society of Pediatric Gastroenterology (NASPGHAN) as uncomfortable difficulty or delay in defecation lasting ≥2 weeks and is one of the most common problems of childhood (1). Studies have shown that this condition affects 8.9% of the global pediatric population (2). Although factors such as metabolic and hormonal irregularities, cows' milk allergy, muscle tone, nervous system disorders, and medication use also play a role among the causes, the most common cause in children is functional constipation, and the Rome IV criteria are used for diagnosis (3). Because treatments generally include long-term approaches and lifestyle changes, parents are looking for alternative, fast-acting treatments, and with the increasing use of the internet, families frequently turn to the web for help.

According to a report investigating internet usage in the United States, 91.8% of the American public used the internet in 2023, and 23% of individuals between the ages of 25 and 34 using the internet in the United Kingdom are seeking health-related information (4,5). YouTube, a popular online video sharing and social media platform, has 118 million subscribers according to data shared in 2023, and approximately 65,000 new video clips are being added to the website daily by users, and nearly 100 million video clips are being watched (6,7).

There are numerous videos on YouTube about constipation, which is a common health problem in childhood. However, there are no previous studies regarding the reliability of these videos. Therefore, we aimed to evaluate the content of constipation videos on this widely used platform with objective and evidence-based information in terms of actuality and accuracy.

Materials and Methods

On a designated date, after clearing the search history, 73 videos on the YouTube platform, which were obtained by typing "constipation in children" in the search tab, were included in the study by calculating the simple random sample size among the videos with a view count of 10,000 or more and made in the last 5 years (with 95% reliability and 80% incidence rate). The videos were viewed by two independent pediatricians in separate locations within a week, and they were evaluated using two assessment tools. The evaluations were based on the latest ESPGHAN and NASPGHAN recommendations on functional constipation in childhood.

The duration of the selected videos, the number of views, comments, and likes, and whether the unloaders were health professionals or not were recorded. Videos containing advertisements, repetitive videos, videos that were irrelevant to the topic, and videos that were not in English were excluded from the study.

Open access modified DISCERN (quality criteria for consumer health information) and global quality scale (GQS) scores were used to determine the reliability of the videos.

Modified DISCERN Assessment Tool

The modified DISCERN assessment tool was used as a quality criterion measurement tool for measuring consumer health information. Based on 5 main items, the video is evaluated based on the clarity and comprehensibility of explanations, accessibility of references, balanced and unbiased information, indication of additional sources of information, and whether the video evaluates controversial or uncertain areas. It is stated that videos with a score below 3 should be ignored by patients (Table 1) (8).

GQS Assessment Tool

The GQS assessment tool is a GQS that rates videos with a minimum score of 1 and a maximum score of 5. Videos that are not useful for patients, are of low quality, and contain incomplete information receive 1 point; videos that are of limited benefit, low quality, and contain limited information receive 2 points; videos that are of moderate benefit and discuss only some important information receive 3 points; videos that are useful, have high-quality content and video flow, contain relevant information but do not cover some topics receive 4 points; very useful videos, of first-class quality, and cover all information receive 5 points; videos that score 1-2 points are considered low quality, 3 points are considered moderate quality, and 4-5 points are considered high quality (Table 2) (9).

No patients were included in the study. All of the scoring tools used in this study is freely accessible and do not require permission to use. The study was approved by

Table 1. Modified DISCERN assesment tool
Reliability of information (1 point for each yes, 0 points for each no)
The explanations given in the video are clear and understandable
Accessible and useful reference sources (publications, studies, etc.)
The information provided in the video is balanced and unbiased
Additional sources of information are mentioned
The video evaluates controversial or unclear information
≤2 points: Poor 3 points: Fair ≥4 points: Good

Medipol University Non-Invasive Clinical Research Ethics Committee of Medipol University (document number: E-43037191-604.01.01-12352).

Statistical Analysis

For normally distributed parameters, the independent samples t-test was used for comparisons between two groups, and the One-Way Analysis of Variance (ANOVA) test was used for comparisons between more than two groups. For non-normally distributed parameters, the Mann-Whitney U test was used for comparisons between two groups, and the Kruskal-Wallis test was used for comparisons of more than two groups. Pearson's chi-square test and Fisher's Exact chi-square test was used to compare categorical variables. The correlation between numerical variables was analyzed using Spearman's correlation coefficient. All analyses were performed in two-way and $p<0.05$ was considered statistically significant.

Results

We analyzed a total of 73 videos about constipation in children, which were released on the YouTube platform and in English.

When the contents of the videos were analyzed, 47.9% of the videos provided general information about constipation, 49.3% only mentioned treatment, and only 2.7% mentioned patient experiences (Figure 1). Forty-two videos (57.5%) were uploaded by health professionals, and 31 videos (42.5%) were uploaded by the community (Figure 2).

The average duration was 5.6±6.4 minutes, the average number of views was 182,505±433,060, and the average number of likes was 1.299±3.700. Since 14 videos were closed to comments, the average number of comments on the remaining 59 videos was 55.36±101.09, and the number of comments on the most commented videos was 513 (Table 3).

When the mean scores of the first and second viewers were evaluated, 54.8% of the videos were interpreted as
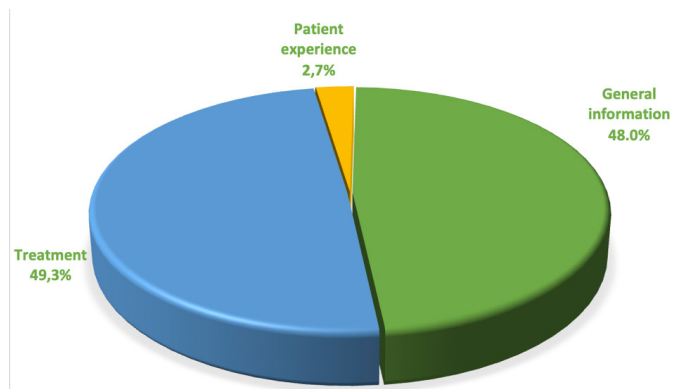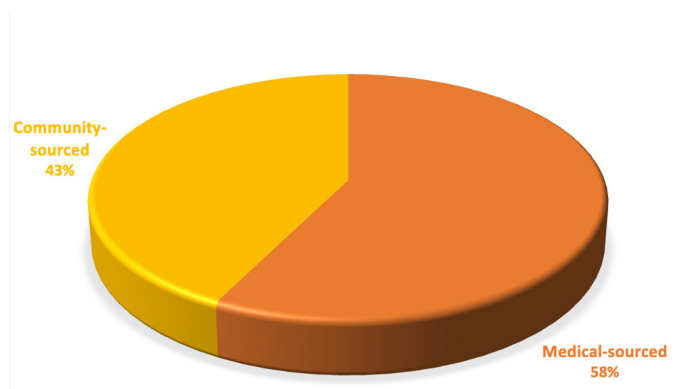

Figure 1. Video content

Figure 2. Evaluation of videos by source

Table 2. GQS assesment tool

GQS	Explanation
1	Inadequate Poor and weak information flow.
2	Overall poor quality. Some information was verified but many important issues were omitted. Insufficient and limited information for the audience.
3	Average quality. Inadequate flow. Some important information was covered but many important issues and points were not adequately addressed.
4	Good quality overall. Covered a lot of important information but some topics and points were not covered. Useful for the audience.
5	High quality and streaming. Very useful by the audience.
Evaluation	**≤2 points: Low quality 3 points: Moderate quality ≥4 points: High quality**

GQS: Global quality scale

Table 3. Statistics on the number of views, duration, likes and comments of videos

Video statistics	Mean ± SD	Median (min-max)
Number of views	182.505±433.060	68.000 (7.600-3.100.000)
Video duration, seconds	336.70±381.82	245 (42-3.056)
Number of likes	1.299±3.700	301 (0-27.000)
Number of comments	55.36±101.09	23 (0-513)

SD: Standard deviation

poor quality, 13.7% as medium quality, and 31.5% as good quality according to the DISCERN scoring, while 52.1% were interpreted as low quality, 19.2% as medium quality, and 28.7% as high quality according to the GQS scoring (Table 4).

The average DISCERN and GQS scores were significantly higher for videos uploaded by health professionals than those uploaded by the community (p<0.001). Of the videos from the community sources, 71.4% received the lowest score on the DISCERN scale and 71.5% received the lowest score on the GQS scale, and none of the videos were classified as good or high quality. In contrast, 54.9% of videos uploaded by healthcare professionals received a score of 4 or 5 on the DISCERN scale and 47.6% received a score of 4 or 5 on the GQS scale (Table 5).

Videos containing general information about constipation, such as definition and symptoms, had higher DISCERN and GQS scores. Videos that did not contain general information and focused only on treatment or patient experiences had low DISCERN and GQS scores (Table 6).

When the relationship between the number of views of the videos and the score ratings was analyzed, no significant relationship was found between the average DISCERN score and the number of views (p=0.352), whereas videos with an average GQS score of 4 had the highest number of views (p=0.028).

Inter-rater reliability was assessed by comparing the ratings of two viewers, and Cohen's kappa coefficient was calculated for evaluation. It was found to be $K=0.709$ for DISCERN scoring and $K=0.690$ for GQS scoring, and it was considered sufficiently reliable.

When video score ratings were compared with the duration, number of views, and likes of the videos, a significant positive correlation was found between the DISCERN evaluation score of the first and second viewers and the duration of the video (r=0.261, r=0.242/p=0.026, p=0.039,

Table 4. Average score of two viewers for DISCERN and GQS					
DISCERN	**Number (n)**	**Frequency (%)**	**GQS**	**Number (n)**	**Frequency (%)**
Poor	**40**	**54.8%**	**Low**	**38**	**52.1%**
1	28	38.4%	1	28	38.4%
2	12	16.4%	2	10	13.7%
Fair	**10**	**13.7%**	**Medium**	**14**	**19.2%**
3	10	13.7%	3	14	19.2%
Good	**23**	**31.5%**	**High**	**21**	**28.7%**
4	20	27.4%	4	16	21.9%
5	3	4.1%	5	5	6.8%
Total	**73**	**100.0%**	**Total**	**73**	**100.0%**

GQS: Global quality scale

Table 5. Comparison of mean DISCERN and GQS assessment scores by video source			
	Medical sourced	**Community sourced**	**p-value**
Mean DISCERN **1**	3 (7.1%)	25 (71.4%)	**<0.001****
2	8 (19.0%)	4 (13.0%)	
3	8 (19.0%)	2 (6.6%)	
4	20 (47.8%)	0 (0%)	
5	3 (7.1%)	0 (0%)	
Mean GQS **1**	3 (7.1%)	25 (71.5%)	**<0.001****
2	7 (16.6%)	3 (9.7%)	
3	12 (28.6%)	2 (6.5%)	
4	15 (35.7%)	1 (3.3%)	
5	5 (11.9%)	0 (0%)	

GQS: Global quality scale, Pearson's chi-square test was used in the comparisons and significant p-values are indicated with ** sign

Table 6. Relationship between video content and average score points

		Video content			
		General information	**Treatment**	**Patient experience**	**p-value**
DISCERN-mean	1	1 (2.9%)	26 (72.2%)	1 (50%)	<0.001**
	2	7 (20%)	4 (11.1%)	1 (50%)	
	3	9 (25.7%)	1 (2.8%)	0 (0%)	
	4	16 (45.7%)	4 (11.1%)	0 (0%)	
	5	2 (5.7%)	1 (2.8%)	0 (0%)	
GQS-mean	1	1 (2.9%)	26 (72.2%)	1 (50%)	<0.001**
	2	6 (17.1%)	3 (8.3%)	1 (50%)	
	3	12 (34.3%)	2 (5.6%)	0 (0%)	
	4	12 (34.3%)	4 (11.1%)	0 (0%)	
	5	4 (11.4%)	1 (2.8%)	0 (0%)	

GQS: Global quality scale, percentages in parentheses indicate row percentages. Pearson's chi-square test was used in the comparisons and significant p-values are indicated by **

respectively). Furthermore, there was a significant positive correlation between the GQS rating score of the first viewer and the duration of the video (r=0.264, p=0.024), whereas there was no correlation between the GQS rating score of the second viewer.

No significant relationship was found between the views of the videos and DISCERN and GQS scores of the first and second viewers (p=0.369, p=0.316, p=0.632, p=0.815 respectively). Similarly, no significant relationship was found between the number of likes and DISCERN and GQS by the first and second viewers (p=0.367, p=0.407, p=0.645, p=0.931, respectively) (Table 7).

Discussion

With growing internet access, the frequency of patients and their caregivers using YouTube platforms to obtain information about health conditions and to seek remedies has increased (4,5). However, despite the rapid increase in access, no supervision is possible regarding the content of videos on YouTube and the accuracy and objectivity of the information provided. In our study, we aimed to evaluate the videos on YouTube about one of the common problems of childhood, constipation, using objective and evidence-based scales in terms of accurate information. As a result of this evaluation, the reliability of the videos was found to be quite low.

According to the DISCERN scale, 23 of the videos analyzed in our study were of high quality, 10 of medium quality, and 40 of low quality. According to the GQS scale, 21 of the samples were found to be high quality, 14 were found to be medium quality, and 38 were found to be low quality. In a previous study examining videos about enuresis nocturna

using GQS, it was shown that 58% of the videos were of low quality, 16% were of medium quality, and 26% were of high quality (10). In a study published by Pamukcu and Izci Duran (11), videos demonstrating anakinra self-injection were examined, and 43.1% of these videos were of high quality, 35.3% were of medium quality, and the mean DISCERN score was 49 and the GQS score was 3. This difference between studies may be due to the fact that the majority of the videos were published by medical personnel or doctors in the studies with higher quality videos. Differences in the quality of community-based videos may be interpreted as different degrees of knowledge of the community about different diseases.

In various studies investigating videos about the administration of Botox, fibromyalgia, spondyloarthritis, psoriatic arthritis, food poisoning, and anakinra injection, it was reported that the majority of videos were shared by health care professionals (11-19). In our study, it was determined that 42 videos (57.5%) were of medical origin, whereas 31 videos (42.5%) were of community origin, which is consistent with previous data.

Although videos uploaded by medical professionals are generally found to be of higher quality, it is possible that these videos are not of sufficient standard. Although most videos were uploaded by medical professionals, some studies have shown that the outcomes were inadequate (20). In the study by Toprak and Tokat (10), even though most of the videos were uploaded by healthcare professionals, the quality level was generally low. In our study, 71.4% of the videos that scored 1 point in DISCERN scoring were community-originated, whereas this rate was quite low in medical-originated videos (7.1%). Similarly,

Table 7. Correlation between the number of views, duration, likes, comments and video scores

		Number of views	Video duration (sec)	Number of likes	Number of comments	DISCERN 1st viewer	GQS 1st viewer	DISCERN 2nd viewer	GQS 2nd viewer
Number of views	r	1	-0.088	0.963**	0.757**	-0.107	-0.119	-0.057	-0.028
	p		0.457	<0.001	<0.001	0.369	0.316	0.632	0.815
	n	73	73	73	59	73	73	73	73
Video duration (sec)	r	-0.088	1	-0.052	0.063	0.261*	0.264*	0.242*	0.185
	p	0.457		0.659	0.638	0.026	0.024	0.039	0.118
	n	73	73	73	59	73	73	73	73
Number of likes	r	0.963**	-0.052	1	0.758**	-0.107	-0.098	-0.055	-0.01
	p	<0.001	0.659		<0.001	0.367	0.407	0.645	0.931
	n	73	73	73	59	73	73	73	73
Number of comments	r	0.757**	0.063	0.758**	1	-0.22	-0.216	-0.228	-0.184
	p	<0.001	0.638	<0.001		0.095	0.1	0.083	0.163
	n	59	59	59	59	59	59	59	59
DISCERN-1st viewer	r	-0.107	0.261*	-0.107	-0.22	1	0.970**	0.935**	0.885**
	p	0.369	0.026	0.367	0.095		<0.001	<0.001	<0.001
	n	73	73	73	59	73	73	73	73
GQS-1st viewer	r	-0.119	0.264*	-0.098	-0.216	0.970**	1	0.924**	0.885**
	p	0.316	0.024	0.407	0.1	<0.001		<0.001	<0.001
	n	73	73	73	59	73	73	73	73
DISCERN-2nd viewer	r	-0.057	0.242*	-0.055	-0.228	0.935**	0.924**	1	0.913**
	p	0.632	0.039	0.645	0.083	<0.001	<0.001		<0.001
	n	73	73	73	59	73	73	73	73
GQS-2nd viewer	r	-0.028	0.185	-0.01	-0.184	0.885**	0.885**	0.913**	1
	p	0.815	0.118	0.931	0.163	<0.001	<0.001	<0.001	
	n	73	73	73	59	73	73	73	73

r: Pearson correlation coefficient, p: Two-way significance value, n: Number of videos evaluated, DISCERN-1st viewer: DISCERN score according to 1st viewer, GQS-1st viewer: GQS score according to 1st viewer, DISCERN-2nd viewer: DISCERN score according to 2nd viewer, GQS-2nd viewer: GQS score according to 2nd viewer, GQS: Global quality scale

71.5% of the videos with a score of one in the GQS scoring were community-originated, whereas this rate was 7.1% in medically-originated videos. It was determined that the scores of the videos sourced from healthcare professionals were significantly higher. We found that 47.8% of the medically sourced videos were at a high level in the DISCERN scoring, and 35.7% were at a high level in the GQS scoring. Although medical-sourced videos scored significantly higher than community-sourced videos, the number of videos that received a full score in terms of quality was only 7.1% according to DISCERN and 11.9% according to GQS.

In a review investigating the consequences of obtaining health information over the internet on the doctor-patient relationship, Luo et al. (21) showed that poor quality internet information, especially when shorter doctor-patient times were included, decreases confidence in the doctor, suggesting that improving the quality of information on the internet may increase this trust. In such cases, improving the quality of videos may not only provide families with reliable information but also strengthen the doctor-patient relationship.

The videos included in our study were categorized into three groups according to content: General information,

treatment, and patient experience. Of the videos, 49.3% contained information on treatment, 48% on general information, and 2.7% on patient experience. Videos containing general information were significantly more likely to be categorized as good, whereas videos focusing on treatment or patient experiences had significantly lower DISCERN and GQS scores.

The evaluation of videos on YouTube within the community is determined by the number of likes, comments, and views. In this study, the mean number of views, likes, and comments of the videos was 182.505, 1299, and 55.36, respectively, and no significant correlation was found between the number of views, likes, and comments of the videos and the DISCERN and GQS scores of the first and second viewers. Similar results were reported in another study that evaluated YouTube videos on food poisoning. In a study by Li et al. (18), the number of likes and views was not found to be associated with video quality. Toprak and Tokat (10) also found that the number of video likes, views, and comments did not reflect video quality. The fact that the most liked, viewed, and commented videos did not receive high scores suggests that society may not be able to evaluate the quality of videos accurately enough, which is concerning.

In their study, Toprak and Tokat (10) found a positive correlation between video duration and GQS and DISCERN scores. This may be explained by the fact that as the video length increases, the amount of information contained tends to increase. In our study, a positive, moderately significant relationship was found between the DISCERN score and the duration of the video, and a positive, moderately significant relationship was found between the DISCERN score and the duration of the video in the evaluation of the second viewer; however, no difference was observed between the GQS score of the second viewer and the duration of the video.

In our study, in videos evaluated by two different physicians, inter-rater reliability was calculated using Cohen's kappa coefficient, and the agreement rates were 70.9% for DISCERN and 69% for GQS. There are conflicting reports on the results of reliability calculations. Landis and Koch (22) defined 0-20 as low, 0.21-0.40 as fair, 0.41-0.60 as moderate, 0.61-0.80 as adequate and 0.81-1.0 as excellent, but these interpretations could not be supported by sufficient scientific evidence. Fleiss (23) defined values above 0.75 as excellent, 0.40-0.75 as excellent, 0.40-0.75 as average, and below 0.40 as poor. Although our study was evaluated as adequate according to Landis and Koch (22) and average

according to Fleiss (23) these evaluations have a low level of scientific evidence, and similar rates have been found in other studies.

Our study is the first to evaluate videos about constipation, which is one of the most common problems in childhood, despite the increasing use of the internet for health information and the high number of viewings of health-related videos. Independent evaluation of the videos by two viewers at separate locations and the use of two scales increases the objectivity of our study.

Study Limitations

Our study has some limitations. First, since only English videos were included in our study, some social and geographical differences may not have been incorporated. In addition, since our study was conducted on videos from the last five years, we may have fallen behind in following the information on YouTube, which contains constantly changing data and has a high number of daily video uploads; thus, the results obtained may be evaluated in terms of a limited period.

Conclusion

This study showed that most YouTube videos on childhood constipation were of very low quality according to both DISCERN and GQS assessment tools. Furthermore, the high number of views and likes did not correlate with high quality, and the use of these videos for medical information is not recommended.

Acknowledgments: We thank Dr. Servet Yüce for providing statistical support.

Ethics

Ethics Committee Approval: The study was approved by Medipol University Non-Invasive Clinical Research Ethics Committee of Medipol University (document number: E-43037191-604.01.01-12352).

Informed Consent: No patients were involved in the study.

Authorship Contributions

Surgical and Medical Practices: Y.E.Ö., R.T., A.Ö., Concept: Ö.B., Y.E.Ö., Ö.B.G., Design: Ö.B., Y.E.Ö., A.Ö., Data Collection or Processing: Ö.B., Y.E.Ö., Ö.B.G., A.Ö., Analysis or Interpretation: Y.E.Ö., Ö.B.G., R.T., Literature Search: Ö.B., Y.E.Ö., R.T., Writing: Ö.B., Y.E.Ö.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

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