Journal of
Kerman University of Medical Sciences

https://jkmu.kmu.ac.ir
doi:10.34172/jkmu.4018
JKMU 2026;33:4018

Original article

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Youtube™ as a Patient Awareness Resource for Cleft Lip and Palate

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Abstract

Introduction: Cleft lip and/or palate (CLP) are congenital craniofacial anomalies classified under orofacial clefts, affecting approximately 15 per 10,000 live births. With the growing use of social media for health information, YouTube™ (Trademark) has become a common source of patient education. However, the reliability of such content is uncertain; therefore, this study evaluated the quality and credibility of YouTube™ videos on cleft lip and palate.

Methods: This cross-sectional analysis was conducted in March 2024 using a cleared browsing history. The keywords "cleft lip," "cleft palate," and "cleft lip and palate" were searched on YouTube™, and the top 100 most-viewed English-language videos were included. Two calibrated dental professionals independently assessed all videos using a predefined checklist, followed by a consensus discussion to resolve discrepancies. Videos were categorized as excellent, moderate, or poor based on information quality. Statistical analyses were performed using ANOVA and Spearman's correlation tests.

Results: The mean number of views per video was 516,279.88, with average likes (5,069.79), dislikes (1,341.03), and comments (75.26) with mean viewing rate (341,437.68) and interaction index (0.656). Only 8% of healthcare professional–uploaded videos were rated excellent, while 56% were moderate and 36% poor. A strong correlation existed between viewers' interaction index and viewing rate ($r = 1.00$, $P < 0.0001$).

Conclusion: Most YouTube™ videos on cleft lip and palate lack scientific accuracy and completeness. As public reliance on online sources grows, promoting evidence-based, professionally produced educational videos is essential. Healthcare institutions and policymakers should promote digital literacy and direct viewers to reliable sources.

Keywords: Cleft lip, Cleft palate, Social media

Citation: Pavani NPM, Amirneni S, Sultana SP, Sravya BB, Srinivas R, Ponnamudi SVPJ, et al. Youtube™ as a patient awareness resource for cleft lip and palate. Journal of Kerman University of Medical Sciences 2026;33:4018. doi:10.34172/jkmu.4018

Received: October 26, 2025, **Accepted**: December 31, 2025, **ePublished**: March 3, 2026

Introduction

Cleft lip and/or palate (CLP) are among the most common congenital craniofacial malformations, affecting approximately 15 per 10,000 live births. Their development results from the failure of fusion of facial structures during early embryogenesis. Both genetic and environmental factors contribute to their occurrence, including vitamin deficiencies, and exposure to drugs, alcohol, or tobacco during pregnancy (1). CLP can occur as isolated cleft palate or cleft lip with or without palate involvement, and may be syndromic or non-syndromic. Beyond physical deformities, these conditions have profound psychological, social, and functional impacts, often affecting speech, nutrition, hearing, and quality of life for both children and their families(2).

Limited awareness about CLP often delays early diagnosis and timely treatment. With the increasing availability of the internet, people now rely heavily on online sources and social media for health information. While digital platforms have made access to medical knowledge easier, the accuracy of online content is frequently questionable. Many users instinctively search Google or YouTube™ for answers, trusting information that may not always be scientifically sound. This dependence on unverified online material can lead to misinformation and misinformed health decisions(3).

Global data show a 35% rise in online searches for terms such as "cleft lip," "cleft palate," and "cleft lip and palate" between 2004 and 2021(4). YouTube™, the world's second-largest search engine, hosts millions of videos that provide health-related information, including those on CLP. However, several studies have revealed that medical videos on this platform often contain inaccuracies or misleading information. Given the increasing reliance on YouTube™ as a source of health education, this study aimed to evaluate the reliability, accuracy, and quality of

YouTube™ videos related to cleft lip and palate (5).

Methods

A cross-sectional survey was conducted on YouTube™ in 2024, using a cleared browsing history to minimize personalization bias. The keywords "cleft lip," "cleft palate," and "cleft lip and palate" were searched on the platform. Relevant English-language videos were identified and sorted by view count using YouTube™ default "sort by view count" filter. A sample size of 100 videos was included, selected through Purposive sampling by analyzing the top 100 most-viewed videos. This approach is widely accepted in YouTube™ content analysis studies, as it enables evaluation of the most viewed and potentially most influential content. User ratings were not used as a selection criterion because view count serves as a more objective indicator of reach and impact, whereas ratings may be biased, manipulated, or inconsistently applied by viewers. Sorting by view count ensured inclusion of videos most likely to influence public perception, thereby providing a representative sample of highly viewed content.

After selecting the videos, the following parameters were documented: time since upload, duration (in minutes), format (live presenter or animation), number of views, likes/dislikes, number of comments, content, source of information, and viewer interaction. Viewer interaction was quantified using two formulas: interaction index = [(number of likes − number of dislikes) ÷ total number of views] × 100%, and viewing rate = [(total number of views ÷ number of days since upload) × 100%]. The authorship of each video was classified into four categories: mass media (television channels and journals), healthcare professionals (hospitals, medical centers, and public health organizations), user-generated content (individuals sharing personal opinions), and others (videos not falling into the above categories).

The main content of the videos was categorized into: (1) Definition/description, (2) Causes, (3) Types of cleft lip and palate, (4) Signs and symptoms, (5) Types of surgical procedures, (6) Indications and benefits of surgery, (7) Post-operative care and patient expectations, (8) Complications, (9) Patient journey (pre- and post-operative compilations), and (10) Prevention. The quality of information in the videos was evaluated based on pre-determined criteria adapted from a previously published study, which assessed accuracy, completeness, clarity, and relevance of the content, as no standardized or validated tool currently exists for YouTube™ content analysis. Each video was rated as excellent, moderate, or poor based on these criteria (6).

This study utilized publicly available online data, and no identifiable personal information was collected; therefore, formal ethical approval was not required according to previous research guidelines for internet-based content analysis (7).

Statistical analysis

The data were analyzed using statistical software (version 25, IBM SPSS, Armonk, NY). Descriptive analyses were done for frequencies, means, and standard deviations. ANOVA test was used to determine the differences between excellent, moderate, and poor information content videos, to know the differences in the content covered between different sources of upload. The Spearman's correlation coefficient was used to investigate potential associations of viewing rate and viewers' interaction index with information quality.

Duration of the study

The present study was conducted in March 2024.

Inclusion criteria

The videos which were in the English language, videos less than 10 minutes, videos with appropriate sound and visuals.

Exclusion criteria

The videos in languages other than English, videos more than 10 min, videos with no sounds or visuals, videos not showing likes and dislikes, duplicate videos, and not related videos.

Results

Table 1 summarizes the characteristics of YouTube videos addressing cleft lip and palate. The mean number of views across all videos was 516,279.88. Mean values for user engagement were as follows: likes = 5,069.79; dislikes = 1,341.03; comments = 75.26. The mean viewing rate (views per unit time) was 341,437.68 and the mean interaction index (defined as [likes + comments] divided by views, or similar) was 0.656.

Table 2 presents the information quality of videos stratified by upload source: health professionals, mass media, user-generated content, and other sources (e.g., Ted-Ed, Forbes). Among videos uploaded by healthcare workers, 8% were classified as having excellent informational content, 56% as moderate, and 36% as poor. Videos from mass media had 56.6% rated as poor, and among user-generated (layperson) uploads 80% were rated as poor.

Table 3 compares video parameters across poor-, moderate-, and excellent-information content groups. The time since upload, duration, format, source of information, and number of comments did not differ

Table 1. Descriptive data of the YouTube™ Videos about Cleft lip and palate.

Video Features (n = 100 videos)	Mean	Standard Deviation
Number of Views	516279.88	1518503.36
Number of Dislikes	1341.03	6614.068
Number of likes	5069.79	22624.151
Duration (minute)	3.48	2.204
Viewing Rate	341437.68	809626.123
Interaction Index	0.656	3.48
Number of Comments	75.26	272.087

Table 2. Distribution of YouTube™ video characteristics based on quality of information content

Video Source	Quality of the video			Total
	Excellent-Information Content Videos	Moderate-Information Content Videos	Poor-Information Content Videos	
Healthcare professionals	2 8%	14 56%	9 36%	25
Mass media	1 1.9%	20 37.7%	30 56.6%	51
User-generated content (Layperson)	0 0%	2 20%	8 80%	10
Other	1 7.1%	5 35.7%	8 57.1%	14

Table 3. Comparison of video parameters between poor, moderate, and excellent information content videos.

Parameters	Poor-Information Content		Moderate-Information Content		Excellent-Information Content		*P*-Value
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	
Time since video upload	258.30	137.30	298.30	149.75	258.00	66.46	0.31
Number of Views	395326.47	731836.95	568908.56	1647056.94	5089646.00	7175773.35	0.02*
Duration (minutes)	3.41	2.47	3.54	1.76	4.50	2.12	0.77
Format	1.88	.32	1.79	.40	1.50	.70	.221
Number of Likes	6655.44	20813.041	4088.10	9397.42	77436.00	109239.51	.000*
Number of Dislikes	2074.38	5080.38	1530.71	3690.87	25058.00	35416.15	.000*
Source of information	.06	.25	.07	.26	.50	.70	.087
Viewers' Interaction Index	119.76	301.25	138.26	231.58	34.00	48.08	.05*
Number of comments	1.31	4.18	.91	2.20	1.08	.07	.847
Viewing rate	358934.44	905569.96	257099.58	458246.37	1669876.28	2351100.52	.05*

ANOVA test, *$P \leq 0.05$ as statistically significant.

significantly among the three categories ($P > 0.05$). Significant differences were observed for the number of views ($P = 0.02$), likes ($P < 0.001$), dislikes ($P < 0.001$), viewers' interaction index ($P = 0.05$), and viewing rate ($P = 0.05$). Excellent-information videos recorded the highest mean number of views, likes, dislikes, and viewing rate, whereas moderate-information videos showed the highest interaction index.

Table 4 details the content elements addressed in the videos: 29% of videos included a definition or description of cleft lip and palate (totaling 29,445,567 cumulative views, representing 52.8% of all views); 26.0% addressed possible causes; 6.0% described types; 48.0% discussed symptoms; 52.8% mentioned indications and benefits of surgical treatment; 46.0% covered post-operative care; and only 7.0% discussed complications.

Table 5 reports the correlation between interaction index and viewing rate within the different information-quality groups. In the excellent-information category, there was a strong positive correlation ($r = 1.00, P < 0.0001$) between interaction index and viewing rate.

Discussion

This cross-sectional study aimed to describe the sources, lengths, view counts, and content of the most widely viewed YouTube™ videos related to cleft lip and palate, while also assessing the accuracy and reliability of the information presented. Cleft lip and palate are among the most prevalent congenital craniofacial abnormalities, characterized by the failure of the lip and/or palate to fuse properly at the midline during development, resulting in a visible deformity. Beyond its cosmetic impact, untreated clefts can lead to functional morbidity, including feeding difficulties, nasal regurgitation, fatigue, hearing impairment, speech and dental problems, and challenges with social integration (8). Surgical repair is performed using various techniques depending on the cleft type and surgeon preference, and lifelong follow-up with a multidisciplinary team is often required to manage complications such as middle ear disease, velopharyngeal dysfunction, and malocclusion (9).

Ideally, accurate information should be disseminated from reliable sources to positively influence public understanding of cleft lip and palate identification and treatment. YouTube™, as a widely accessible free video-sharing platform, is increasingly used by the public to seek health-related information (10). However, studies on health content, including emerging infectious diseases, have shown that many videos are uploaded by consumers or other non-professional sources, often containing inaccurate or incomplete information (11,12,13). YouTube videos on oral health and medical conditions such as rheumatoid arthritis, orthodontics, meningitis, and Zika virus have similarly been found to vary widely in quality and reliability (14,15,16).

This study is the first study that evaluated the accuracy and reliability of the most-viewed YouTube™ videos on cleft lip and palate. A total of 100 videos with a cumulative duration of 5.8 hours and a total viewership of 5,162,798 were analyzed. The findings revealed that 55% of videos

Table 4. Content about Cleft lip and palate covered by a number of videos, total views and proportion of cumulative views

Content covered	Total videos (N = 100)	Total views(51,62,79,88)	Proportion of cumulative views
Definition or description	29	2,84,45,567	52.8%
Causes	26	32,26,495	5.5%
Types of cleft lip and cleft palate	6	19,25,125	3.4%
Signs and Symptoms	48	2,75,28,285	51.2%
Types of surgical procedures	23	1,99,36,005	35.9%
Indications and benefits	29	2,84,45,567	52.8%
post-operative care and what patients should expect	46	3,13,99,735	58.1%
Complications	7	1,20,46,269	26.9%
Patient 'journey' (video compilations of photographs showing a patient pre- and post-operatively)	10	94,44,975	16.9%
Prevention	34	3,07,32,169	55.1%

Table 5. The Spearman's correlation coefficients between viewers' interaction index and viewing rate in different information content groups

Quality of the content	Viewers' Interaction Index vs viewing rate	*P*-value
Poor-Information Content	0.234	0.7
Moderate-Information Content	0.408*	0.05*
Excellent-Information Content	1.00**	0.01*

** The Spearman's Correlation is significant at the 0.01 level (2-tailed).
* The Spearmen's Correlation is significant at the 0.05 level (2-tailed).

were of poor quality, 41% were of moderate quality, and only a small fraction was of excellent quality. These results are consistent with previous studies: Korkmaz & Buyuk reported 54% moderate-quality videos, (17) while Srivastav et al. observed 45.2% poor-quality content (18).

Viewer engagement analysis showed that interaction index values in this study were higher than those reported by Korkmaz & Buyuk,(17) with poor-quality videos receiving an interaction index of 119.76, moderate-quality of 138.26, and excellent-quality of 34. The viewing rate for excellent-quality videos (1,669,876) was comparable to previous findings (19,228.71), indicating that the most-viewed videos are not necessarily the most informative.

Developing official, evidence-based YouTube™ channels or playlists managed by national health authorities provide accurate information on cleft lip and palate. Collaborate with cleft care centers and professional dental associations to produce standardized, multilingual educational content, implementing digital health communication policies to monitor and flag misinformation on social media platforms, promoting partnerships between government health departments and digital platforms to ensure visibility of verified medical content, and integrating media literacy modules into public health campaigns to help families critically evaluate online health information are effective.

Families seeking information about cleft lip and palate should rely on videos and materials produced by reputable sources such as hospitals, cleft care teams, or certified healthcare professionals. While YouTube™ can offer helpful visual explanations, much of its content lacks medical accuracy. Viewers are encouraged to verify the credibility of the source before trusting or sharing such information. Consulting a qualified healthcare provider remains the safest way to receive accurate guidance on diagnosis, treatment, and post-operative care for cleft conditions.

This study reflects YouTube™ content and engagement metrics at a single time point, consistent with the dynamic nature of online platforms. The inclusion of the top 100 most-viewed videos follows established methodology to evaluate content with the greatest public reach, while allowing scope for broader inclusion in future studies. A structured, study-specific video quality assessment was applied uniformly across all videos, supporting reproducibility and enabling future methodological refinement.

Conclusion

YouTube™ stands out as a remarkable patient awareness resource for cleft lip and palate. Its global accessibility, engaging content, and community-building capabilities contribute significantly to education and support. However, viewers must exercise discretion when selecting content, prioritizing information from reputable sources such as healthcare organizations, medical professionals, and recognized advocacy groups.

Acknowledgements
None.

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Competing Interests
The authors declare that they have no conflict of interests.

Data Availability Statement
All data analyzed in this study were obtained from publicly accessible YouTube™ videos.

Ethical Approval
Ethical approval for this study was obtained from the Institutional Review Board (IRB), Approval No. 84/IRB/SIBAR/24.

Funding
None.

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