Family Medicine and Vaccines in Digital Publishing: A Youtube Evaluation

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ABSTRACT

Objective: The implementation of successful immunization programs has significantly reduced deaths and severe health problems caused by vaccine-preventable diseases. This study aims to evaluate the validity and quality of YouTube videos related to family medicine and vaccines.

Methods: The term "vaccines in family medicine" was searched on YouTube on October 18, 2024. Videos in languages other than Turkish, duplicates, and those unrelated to the search terms were excluded. The first 50 videos were reviewed. The presenter of the video, the type of channel publishing the video, the type of vaccines, Modified DISCERN score, JAMA score, and the visible statistics of the videos were recorded.

Results: All 50 videos reviewed were found to be useful. The average Modified DISCERN score was 3.2±0.83, and the average JAMA score was 1.98±0.51. Of the videos, 48% (n=24) were presented by family physicians, followed by pediatricians at 32% (n=16) and infectious disease specialists at 8% (n=4). Regarding the YouTube channels that published the videos, 54% (n=27) were health-related channels, and 40% (n=20) were news channels. Childhood vaccines were discussed in 56% (n=28) of cases and adult vaccines in 44% (n=22). The average number of views was 255,563.90 ± 57,926.06, while the average number of comments was 60.02 ± 173.70. The average video duration was 11.86±17.60 minutes. Videos had an average of 269.26±854.33 likes and 10.16±27.33 dislikes. The averages of engagement index, view ratio, and video power index were 2.40±3.57, 1559.42±3261.78, and 97.84±5.85, respectively.

Conclusion: While YouTube videos appear to be useful, there are aspects that need improvement according to valid and reliable evaluation tools. Additionally, although family physicians have limited visibility on YouTube, it would be beneficial for them to represent themselves with higher-quality content both in terms of quantity and quality.

Keywords: Vaccine, family medicine, internet, vaccine hesitancy

INTRODUCTION

Vaccines are among the most effective tools in public health for controlling and preventing infectious diseases. According to the World Health Organization (WHO), vaccination programs save millions of lives annually and help prevent numerous diseases that pose threats to public health (1). However, in recent years, vaccine hesitancy and anti-vaccination movements have been on the rise globally. In 2019, WHO identified vaccine hesitancy as one of the top threats to global health (2). This issue has become increasingly complex due to the rapid spread of misinformation, particularly through the internet and social media platforms, which significantly influence individuals' decision-making processes. The dissemination of misinformation about vaccines, especially on social media, can occur at an alarming pace, negatively affecting public perceptions and decisions (3).

Today, individuals increasingly turn to the internet to access health information. Studies conducted in Turkey indicate that approximately 70% of patients use the internet to seek health-related information (4). Digital platforms have thus become vital sources for health information. YouTube, in particular, stands out as a widely used platform for health education and information dissemination (5). However, the accuracy and reliability of the content available on this platform are often questionable. Unlike

traditional media, social media content does not usually undergo rigorous scientific or editorial review processes. Instead, personal opinions often dominate the narratives. With the rapid dissemination capabilities of social media, misinformation can reach vast audiences more quickly than ever before (6).

Family medicine plays a critical role as the first point of contact in individuals' access to healthcare services. Therefore, the visibility of family physicians on digital platforms and the quality of the content they provide have the potential to positively influence public health (7). The representation of healthcare professionals on digital platforms is crucial for ensuring that the public has access to accurate information. As the cornerstone of primary care services, family physicians play a key role in guiding individuals toward reliable health information. However, the limited visibility of family physicians and other healthcare professionals in digital spaces leaves the public more vulnerable to misinformation (7). By actively participating on digital platforms and delivering scientific and accurate content, healthcare professionals—especially family physicians—can enhance their positive impact on public health.

This study aims to evaluate the validity and quality of Turkish-language YouTube videos related to family medicine and vaccines. The findings aim to provide recommendations for improving quality standards in digital health communication and strengthening the representation of healthcare professionals in this domain.

METHODS

This study was designed to evaluate the validity and quality of Turkish-language YouTube videos on family medicine and vaccines. The research process was structured based on criteria identified through a comprehensive literature review.

Data Collection Process

On October 18, 2024, a search was conducted on YouTube using the keyword “aile hekimliğinde aşı” (“vaccination in family medicine” in Turkish). To ensure that previous searches did not affect video results and rankings, a new YouTube account was created, and the browser history and cookies of the internet browser (Google Chrome) used for the search were cleared. Based on predetermined inclusion and exclusion criteria, the first 50 videos obtained through the search were included in the study. The criteria were as follows:

Inclusion Criteria

-The video was created in Turkish.

-The video was directly related to vaccination.

-The video presented original content.

Exclusion Criteria

-The video was in a language other than Turkish.

-The video contained duplicate content.

-The video was an advertisement or irrelevant to the search terms.

Video Analysis

The videos were analyzed based on various variables such as content provider, video type, target audience, and technical features. The examined variables included:

Presenter of the Video: The professional identity of the video presenter (e.g., family physician, pediatrician, infectious disease specialist) was recorded.

Publisher Type: The type of channel publishing the videos was determined, such as channels belonging to healthcare professionals, news outlets, or other categories.

Vaccine Types: Vaccines mentioned in the videos were categorized as childhood or adult vaccines.

Video Scores: The quality and validity of the videos were assessed using the following standards:

Modified DISCERN Score: This scale evaluates the reliability and accuracy of informational content. Each "yes" response to the evaluation questions scored 1 point, and "no" responses scored 0. Higher scores indicated greater reliability of the content (8-9). Each video was scored on a scale of 1 to 5. Two researchers independently scored the videos, and in cases of discrepancies, the final score was determined in consultation with a third researcher (Table 1).

Table 1. Modified DISCERN Score Questions

Question	Scoring
Are the objectives clear and met?	Yes = 1, No = 0
Are reliable sources used (e.g., is the speaker a physician)?	Yes = 1, No = 0
Is the information consistent and unbiased?	Yes = 1, No = 0
Are additional resources for patient reference provided?	Yes = 1, No = 0
Are areas of uncertainty discussed?	Yes = 1, No = 0

JAMA Score: Based on the criteria of the Journal of the American Medical Association (JAMA), the ethical and scientific accuracy of the content was rated on a scale of 0 to 4. These criteria evaluate authorship, sourcing, copyright, and currency. Higher scores indicate greater accuracy and reliability (10). The JAMA criteria were applied to all videos by two independent observers, and

discrepancies were resolved through consultation with a third researcher (Table 2).

Table 2. JAMA Scoring Criteria

Criterion	Description	Scoring
Authorship	The identities and affiliations of authors and contributors are provided.	Yes=1, No=0
Sourcing	All sources are listed, and copyright is disclosed.	Yes=1, No=0
Copyright	Website ownership, sponsorship, advertising, insurance, commercial support, and potential conflicts of interest are explicitly and fully disclosed.	Yes=1, No=0
Currency	The date of publication and the most recent update are provided.	Yes=1, No=0

Video Engagement Metrics: Metrics such as the number of views, comments, likes, dislikes, upload date, and video duration were recorded.

Video Engagement Indices: To evaluate the social media performance of the videos, the following indices were calculated:

Engagement Index: This index, indicating the level of audience interest in the video, was calculated using the formula: (Likes+Dislikes)/TotalViews × 100.
View Rate: The average daily view count of the video was determined using the formula: TotalViews/DaysSinceUpload.
Video Power Index: This index evaluates the video's interaction level and popularity, calculated as: (LikeRate×ViewRate)/100.

Data Analysis

The data were analyzed using SPSS 25.0 software. Descriptive statistics were used to calculate the mean and standard deviation for each variable. Correlation analyses were also performed to assess the relationships between video validity and quality.

Ethical Approval

The study was conducted in accordance with ethical research principles. Since YouTube is a publicly accessible platform, no specific ethical committee approval was required. Additionally, none of the videos or content used in the study were directly associated with individuals' identities, and the video uploaders consented to share their content publicly. So, no informed consent was necessary.

RESULTS

In our study, a search was conducted on YouTube using the keyword "aile hekimliğinde aşı" ("vaccination in family medicine" in Turkish), and the first 50 videos meeting the inclusion criteria were evaluated and were shown in Table 3.

Table 3. Video Analysis

Category	Subcategory	Percentage (%)	Count (n)
Presenters	Family Physician	%48	24
	Pediatrician	%32	16
	Infectious Disease Specialist	%8	4
Youtube Channel	Health Channel	%54	27
	News Channel	%40	20
Vaccine Type	Childhood Vaccines	%56	28
	Adult Vaccines	%44	22

According to the findings in this study, 48% (n=24) of the videos were presented by family physicians, followed by pediatricians at 32% (n=16) and infectious disease specialists at 8% (n=4). 54% (n=27) of the videos were published on health channels, while 40% (n=20) were on news channels. 56% (n=28) of the videos focused on childhood vaccines, and 44% (n=22) discussed adult vaccines.

The average view count for the videos was 255,563.90 ± 57,926.06. The average number of comments was 60.02 ± 173.70, and the average video duration was 11.86 ± 17.60 minutes. The average number of likes was 269.26 ± 854.33, while dislikes averaged 10.16 ± 27.33. The calculated indices showed the following averages: engagement index, 2.40 ± 3.57; view rate, 1,559.42 ± 3,261.78; and video power index, 97.84 ± 5.85. The average Modified DISCERN score was 3.2 ± 0.83, and the average JAMA score was 1.98 ± 0.51 (Table 4).

Table 4. Video Engagement Indices and Quality Scores

Criteria	Average	Standard Deviation (±)
View Count	255,563.90	57,926.06
Comment Count	60.02	173.70
Video Duration (minutes)	11.86	17.60
Like Count	269.26	854.33
Dislike Count	10.16	27.33
Engagement Index	2.40	3.57
View Rate	1,559.42	3,261.78
Video Power Index	97.84	5.85
Modified DISCERN Score	3.2	0.83
JAMA Score	1.98	0.51

All the evaluated videos were deemed beneficial and did not contain information that could lead to vaccine hesitancy. It was observed that 54% of the videos were uploaded between 2019 and 2021.

Among the Modified DISCERN scores, only one video achieved the maximum score of 5, which was about childhood vaccines and presented by a pediatrician. However, no video received a full score in the JAMA evaluation. While no video had a Modified DISCERN score of 1, seven videos had a JAMA score of 1. There were no videos with a score of 0 in any evaluation.

DISCUSSION

This study aimed to evaluate the quality and validity of Turkish content related to family medicine and vaccinations on the YouTube platform. The findings reveal that while YouTube is a significant source of digital health communication, the quality of its content needs improvement.

The mean Modified DISCERN score was found to be 3.2 ± 0.83, and the mean JAMA score was 1.98 ± 0.51. These results indicate that while the videos possess a moderate level of quality, there are shortcomings in reliability. Similar studies have highlighted that much of the health-related content on YouTube is scientifically deficient and has the potential to mislead the public (5, 11, 12). Enhancing the presence of healthcare professionals on this platform could improve access to reliable information. Initiatives like South Korea's "YouTube Health," where universities provide reliable content through hospital-affiliated channels, can serve as a model (13). Physicians recommending high-quality videos and channels related to their areas of expertise to patients could be beneficial.

Although the keyword “aile hekimliğinde aşı” was used, only 48% of the videos were presented by family physicians. This indicates that despite their critical role in primary healthcare, family physicians have limited representation on digital platforms. Larson et al. emphasized that increasing the visibility of healthcare workers in digital environments can reduce the public's exposure to misinformation. Encouraging healthcare professionals to create content and supporting it with scientific information could positively impact public health (3).

The study also found that 56% of the content focused on childhood vaccinations, while 44% addressed adult vaccinations. This highlights relatively lower awareness of adult vaccinations and underscores the need for more informative content in this area. However, it should be noted that a significant portion of the videos was uploaded between 2019 and 2021, coinciding with the COVID-19 pandemic, which likely influenced the higher focus on adult vaccinations during this period.

The average interaction index (2.40±3.57) and video power index (97.84±5.85) of the videos were found to be at a low level. This indicates that health content on YouTube has not established a strong connection with its audience and requires more effective communication strategies. It has been noted that videos incorporating creative techniques, such as visuals and storytelling, have a more positive impact on viewers (14). Therefore, educating healthcare professionals on the use of social media could be beneficial.

Healthcare professionals producing more content on social media platforms and sharing scientifically accurate information could serve as an effective tool in addressing the public’s information gaps regarding vaccination. Public health authorities organizing educational programs to enhance digital media literacy could facilitate individuals' access to correct information. Enriching videos with visual and interactive elements could help them reach a broader audience.

According to the findings of our study, no video was found to contain information that could cause vaccine hesitancy or negative information about vaccines. However, it is known that YouTube’s algorithm makes it easier to access more reliable videos at higher ranks and blocks videos containing harmful content (15).

Limitations of the Study

In this study, only the first 50 videos from the search results were analyzed, so the general findings may not represent all YouTube content. Since internet searches are typically shaped by users' previous searches, the selected videos may differ for each individual. It should also be noted that internet users can filter content on platforms like YouTube based on view count, date, and other criteria. Moreover, only Turkish-language videos were evaluated, and content in other languages was not analyzed. Furthermore, since YouTube is an ever-growing platform where new videos are added and view, like, and dislike counts change in real time, the results can only be associated with the time the study was conducted. Future studies could yield more comprehensive results by analyzing larger datasets, examining specific time periods, and studying multilingual content.

CONCLUSION

The results of this study suggest that YouTube videos on family medicine and vaccination can be useful for public health but need to be improved in terms of quality and reliability. The more active presence of health professionals on digital platforms can enhance

access to accurate information and positively impact public health. Developing digital media training programs for family physicians could increase their representation on digital platforms.

DECLARATIONS

Contributions: All authors were involved in the conceptualization and design of the study. MB, SK, and DA conducted the search and performed the video evaluation and data extraction. MAN wrote the drafts of the manuscript and all other authors critically revised the manuscript. All authors read and approved the final manuscript.

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Conflict of Interest Statement: There are no potential conflicts of interest in this study.

Data Availability Statement: The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

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