Original Article

Rabies in Social Media Videos: Comparison of Instagram and YouTube

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Abstract

Objective: This study aims to elucidate the informational content related to post-exposure patient education for this disease, emphasizing the significance of social media platforms as sources of information. The goal is to uncover and compare the information available on various social media platforms. **Methodology:** Searches were conducted on Instagram and YouTube using the search terms "Rabies," "Rabies disease," and "Rabies vaccine." A total of 274 videos were examined, with 150 from YouTube and 124 from Instagram. The content of the videos was assessed based on 10 criteria determined by researchers according to the National Rabies Prophylaxis Guidelines, and a scoring system was applied. **Results:** Instagram videos had more exclusion criteria. When examined based on uploader characteristics, the number of healthcare professionals on Instagram was higher than on YouTube. For questions related to "What is rabies," "What are the symptoms in animals," and "How should pre-exposure prophylaxis be," Instagram videos received higher scores. Videos uploaded by healthcare professionals received higher scores in questions related to "What is rabies," "How does it spread to humans," "How should wound care be," "Pre-exposure prophylaxis," "Post-exposure prophylaxis," and total score compared to videos uploaded by other independent users. **Conclusion:** A significant portion of the videos uploaded by various users on social media about rabies were found to be unrelated and lacking in informative content. It was observed that videos on Instagram were more informative compared to YouTube. Health professionals were found to provide more informative and directive content in videos related to rabies.

Keywords: *Health knowledge, rabies, rabies vaccine, social media*

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Introduction

Rabies is one of the most well-known zoonotic diseases from ancient times to the present day. The disease, dating back to approximately 4000 years in human history, is responsible for the deaths of around 70.000 people annually.[1] Half of the world's population resides in regions where rabies is endemic, with dogs being more frequently mentioned as reservoirs, especially in Asian and African countries. Dogs are also the dominant reservoir for rabies in Turkey.[2] Rabies is transmitted through contact with the secretions of infected animals and is almost always fatal once contracted. Currently, the only proven treatment modality is appropriate wound care and vaccination. Developing countries, including Turkey, face an increasing risk of rabies exposure.[3] While there are approximately 250.000 risky contacts in Turkey annually, the actual number of confirmed rabies cases is limited to one to two cases.[2] Individuals with any risky contact require health services, leading to a significant population seeking hospital admission.

Most people conduct individual research for health information, and while the types and methods of research vary between societies, internet searches are a common research method. Social media platforms, including Instagram, Facebook, and YouTube, have become prevalent sources of information for individuals.[4-6] These platforms not only actively provide information

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but also passively expose individuals to information. When considering active information sources, YouTube and Instagram applications stand out.[7] In the literature, numerous studies have examined the quality of health content on YouTube.[8] However, there is limited research comparing the content quality of these interactive social media applications where people spend more time. In our literature review, we did not come across any studies comparing the content related to rabies disease.

Rabies is a disease with high mortality rates, especially in children, in developing countries in Asia and Africa. For this reason, vaccination of pets, wound cleaning after contact with the agent, cell culture vaccines, and human rabies immunoglobulin applications (HRIG) are of vital importance.[9]

Despite being a widespread and feared condition that leads to numerous hospital admissions, there is limited information on ways to acquire information about rabies and recommendations. In our study, we aimed to compare the content related to rabies disease on the social media platforms, such as Instagram and YouTube, as these platforms are actively used by individuals for information seeking.

Materials and Methods

To prevent any influence from past results, a new YouTube account was created. On October 1, 2023, a search was conducted using the search term "Rabies." To prevent the exclusion of videos related to rabies in the search results, the scope was expanded. After clearing previous data, the search terms "Rabies disease" and "Rabies vaccine" were also included in the search. The first 50 videos from each term were saved in separate files. A total of 300 videos were screened, comprising 150 from YouTube and 150 from Instagram. Non-Turkish videos were not included, as the evaluation focused on videos related to rabies in Turkey. Videos not related to rabies and those shorter than 30 seconds were also excluded. Duplicate videos were identified and removed.

The uploaders of the videos on YouTube and Instagram were recorded and categorized as healthcare institution, healthcare professional, veterinary doctor, news channel, and independent user. Metrics, such as view counts, durations, time since upload, and likes, were recorded. In case of disagreement between the two evaluators, a decision was reached through further discussion.

The content of the videos was evaluated based on 10 criteria determined by researchers according to the National Rabies Prophylaxis Guidelines.[10] Questions included in the scale covered "What is rabies," "Which animals transmit it," "What are the symptoms in animals," "How does it spread to humans," "How should wound care be," "When should one seek medical attention," "Pre-exposure prophylaxis," "Post-exposure prophylaxis," "What are the symptoms of the disease," and "What are the side effects after vaccination." This scale was scored as a full answer (2 points), partial answer (1 point), and no answer (0 points), creating a total score out of 20 [Supplementary 1]. The Cronbach's alpha internal consistency coefficient for this scale was found to be 0.79. The obtained data were compared among themselves and according to two different platforms.

Statistical analysis

Statistical analyses were conducted using the SPSS (Statistical Package for the Social Sciences) 22.0 computer program. The normal distribution of the data obtained from the study was assessed using the Kolmogorov–Smirnov test. Descriptive statistical methods, including frequency (n), percentage (%), median, and Q25–Q75 (first and third quartile values) (for non-normally distributed numerical data), were employed.

For statistical significance, the Chi-square test was used for the comparison of non-normally distributed categorical data, the Mann–Whitney U test was employed for nonparametric comparisons, and Spearman's correlation analysis was used for correlation analysis. The statistical significance level was set at $P < 0.05$.

Ethics

Publicly available videos on YouTube and Instagram were evaluated. No intervention or participant inclusion was made. Therefore, ethical committee approval was not deemed necessary, consistent with similar studies.[11,12]

Results

From the initial 300 videos in the screening list, 16 repetitive and 10 non-Turkish videos were excluded, resulting in 274 videos for further examination. Additionally, 152 videos were excluded due to irrelevant content (n = 75), scenes from TV series (n = 30), news content (n = 44), and advertisements (n = 3). Consequently, 122 videos were included in the study [Figure 1].

In the study, a total of 274 videos were examined, with 150 from the YouTube platform and 124 from Instagram. Due to irrelevant content, scenes from TV series, news, and advertisements, 67 videos were excluded from YouTube, and 85 videos were excluded from Instagram.

As a result, 122 videos were included in the study. Interestingly, Instagram videos had a higher exclusion rate, and this difference was found to be statistically significant ($P < 0.001$) [Table 1].

When examined based on the characteristics of video uploaders, the number of healthcare professionals on Instagram was higher than on YouTube. However, the number of news channels and independent users on YouTube was higher than on Instagram ($P < 0.001$). The view count, video duration, and time since upload were higher in YouTube videos ($P < 0.001$, $P = 0.010$, and $P = 0.037$, respectively) [Table 2].

Cohen's kappa analysis was conducted to examine the agreement between evaluators. The kappa value for Instagram videos was found to be 0.83, while for YouTube videos, it was 0.80.

Researchers identified 10 topics related to the content of the videos based on the National Rabies Prophylaxis Guidelines. Regarding questions about what rabies is, the symptoms in animals, and how pre-exposure prophylaxis should be, Instagram videos received higher scores ($P = 0.004$, $P = 0.014$, and $P < 0.001$, respectively). However, for the question of which animal transmits rabies, YouTube videos scored higher ($P = 0.001$).

The videos were categorized into two groups based on the uploaders: healthcare professionals and other independent users. It was observed that videos uploaded by healthcare professionals received higher scores than those by other independent users for questions related to "What is rabies," "How does it transmit to humans," "How should wound care be," "Pre-exposure prophylaxis," "Post-exposure prophylaxis," and the total score (p = 0.001, $P = 0.002$, $P = 0.001$, $P < 0.001$, $P = 0.002$, and $P < 0.001$, respectively) [Table 3].

As the duration of the videos increased, the views and video duration also increased ($P < 0.001$, $P = 0.005$, respectively). As the number of likes increased, the number of views also increased ($P < 0.001$). However, as the video duration increased, the number of likes decreased ($P = 0.023$). An increase in the time since

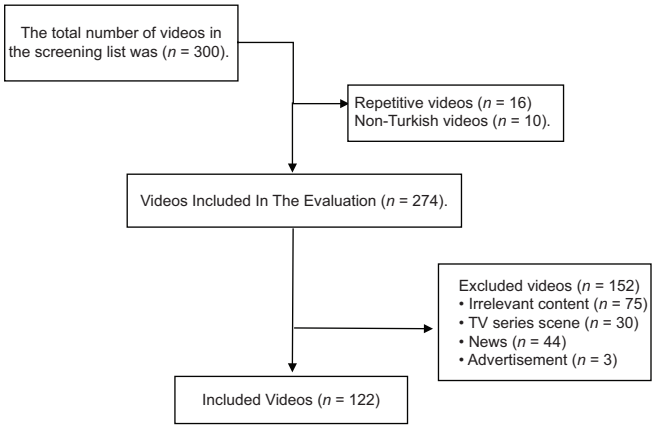

Figure 1: Flowchart

Table 1: Distribution of excluded videos according to platforms

	YouTube	Instagram	*P**
Excluded	67	85	<0.001
Irrelevant content	14	61	
TV Series scenes	27	3	
News	24	20	
Advertisements	2	1	
Included	83	39	
Total	150	124	

The *P* value was determined according to the Chi-square test

Table 2: Distribution of included video characteristics according to platforms

	General	YouTube	Instagram	*P*
Uploader				
Health institution	8	6	2	<0.001
Health professional	38	15*	23*	
Veterinary doctor	20	10	10	
News channel	31	30*	1*	
Independent user	25	22*	3*	
Views	10200 (1176–59000)	20000 (3400–70000)	1166 (903–8516)	<0.001[a]
Median (Q25–Q75)				
Video duration (s)	77,5 (41–242)	131 (46–351)	66 (35–88)	0.010[a]
Median (Q25–Q75)				
Time since upload	12 (5–24)	12 (7–24)	11 (2–12)	0.037[a]
Median (Q25–Q75)				
Likes	95 (29–460)	205 (23–474)	58 (32–115)	0.176[a]
Median (Q25–Q75)				

**P* values were determined by the Chi-square test, **Z* test, [a]Mann–Whitney U test

Table 3: Distribution of scores for information content on rabies disease according to platforms

	Total median (%25–75)	YouTube median (%25–75)	Instagram median (%25–75)	Health professionals median (%25–75)	Independent user median (%25–75)
What is Rabies?	0.5 (0–1.5)	0 (0–1)	1 (0.5–1.5)	1 (0–2)	0 (0–1)
			0.004	0.001	
From which animals can it be transmitted?	1 (0.5–1.5)	1 (1–2)	0.5 (0.5–1)	1 (0.5–1.5)	1 (0–1.25)
			0.001	0.149	
What are the symptoms in animals?	0.5 (0–1)	0 (0–1)	1 (0.5–1)	0.5 (0–1)	0.75 (0–1)
			0.014	0.357	
How does it transmit to humans?	1 (0.5–2)	1 (0–2)	1 (0.5–1.5)	1.5 (1–2)	1 (0–1.5)
			0.611	0.002	
How should wound care be?	1 (0–2)	0 (0–2)	1 (1–2)	1.5 (1–2)	0 (0–2)
			0.087	0.001	
When should one consult a doctor?	1 (0–1.5)	0.5 (0–1.5)	1 (0.5–1.5)	1 (0.5–1.5)	0.5 (0–1.5)
			0.167	0.053	
Pre-exposure prophylaxis?	0 (0–1)	0 (0–0.5)	1 (0.5–1)	0.5 (0–1.5)	0 (0–0.5)
			<0.001	<0.001	
Post-exposure prophylaxis?	1 (0–1)	1 (0–1)	0.5 (0–1)	1 (0.5–1.5)	0.5 (0–1)
			0.664	0.002	
What are the symptoms of the disease?	0 (0–1)	0 (0–1)	0 (0–1)	0 (0–1)	0 (0–1)
			0.524	0.756	
What are the side effects after vaccination?	0 (0–1)	0 (0–0)	0 (0–0)	0 (0–0)	0 (0–0)
			0.503	0.798	
Total Score	7 (3.5–10)	7 (2.5–10)	7.5 (5–10)	9 (6–12)	6 (2.5–8)
			0.122	<0.001	

*Mann–Whitney *U* test

Table 4: Correlation analysis between video characteristics and total score of information content

		Views	Video duration	Time since upload	Likes	Total puan
Views	*r*	1				
	P	.				
Video duration	*r*	-0.087	1			
	P	0.358	.			
Time since upload	*r*	0.375	0.261	1		
	P	<0.001	0.005	.		
Likes	*r*	0.793	-0.212	0.204	1	
	P	<0.001	0.023	0.024	.	
Total puan	*r*	-0.229	0.526	0.096	-0.245	1
	P	0.014	<0.001	0.292	0.007	.

P-values were determined by the Spearman's correlation analysis

upload was associated with an increase in the number of likes ($P = 0.024$). As both views and likes increased, the total score decreased ($P = 0.014$, $P = 0.007$, respectively). Moreover, an increase in video duration was associated with an increase in the total score ($P < 0.001$) [Table 4].

Discussion

In the scoring of information content determined according to the National Rabies Prophylaxis Guidelines for rabies, Instagram videos received higher scores for questions, such as "What is rabies," "What are the symptoms in animals," and "How should pre-exposure prophylaxis be." This may be because health professionals share more on Instagram. In the question "From which animal can it be transmitted?", YouTube videos received a higher score. This could be attributed to the higher number of news-related videos on YouTube. However, there was no significant difference in the total score of information content about rabies, and the scores were low. This might be due to both platforms not being used at a sufficient level to provide information.

Many users rely on social media to obtain information about health-related topics. This raises concerns about the reliability of information and contributors on social

media in terms of health. It has been emphasized that content related to health on social media should be produced by health professionals or individuals knowledgeable in health topics.[12-15] In this study, regarding rabies, videos uploaded by health professionals received higher scores for questions, such as "What is rabies," "How is it transmitted to humans?", "How should wound care be?", "Pre-exposure prophylaxis," "Post-exposure prophylaxis," and the total score, highlighting the importance of content created by health professionals. Especially in developing countries where rabies is more common, reliable information should be provided on social media about post-exposure wound cleaning, vaccination, and immunoglobulin applications.[9] There is a growing need for content produced by health professionals, especially for infectious diseases like rabies.

Videos posted by doctors and nonprofit organizations on social media platforms are found to be more comprehensible.[12] Besides healthcare professionals, users other than health professionals also share videos providing health information on social media. These videos raise concerns about the quality of information and the possibility of misinformation.[13] It has been emphasized that content related to health on the internet should be created more by healthcare professionals.[4] In the study, videos uploaded by healthcare professionals were more prevalent on Instagram. On YouTube, however, the number of news and advertisement-related videos was higher. This indicates that there are more qualified users in terms of providing health information on Instagram.

We did not come across any publication in the literature regarding the average duration of YouTube and Instagram videos about rabies. In this pioneering study, the number of views, lengths, and duration of YouTube videos was higher compared to Instagram videos. This could be due to YouTube being more widely used for video sharing compared to Instagram. The longer duration of stay on YouTube may also have influenced the number of views on videos.

In previous studies, it has been observed that as the duration of a video increases, the viewership also increases, and as the video duration increases, the retention time also increases.[14,16] Our study aligns with these findings, indicating that an increase in retention time has a positive impact on viewership and video duration.

People tend to prefer videos with higher views and likes when researching information, assuming that these are more accurate. Therefore, views and likes positively influence each other. On the other hand, people seek ways to access information more quickly, which is why they tend to prefer shorter videos. In previous studies, it has been observed that as the length of videos increases, likes decrease, and as views increase, likes also increase.[16,17] In our study, in line with the literature, as the number of likes increased, the number of views also increased, and as the video duration increased, the number of likes decreased. Videos intended for providing information should be kept short. To increase viewership, more engaging and high-quality content should be included.

A study on YouTube videos about premature ejaculation treatment revealed that more reliable videos received fewer comments.[18] In a study on COVID-19 and rheumatic diseases, it was found that high-quality videos had more views, but there was no significant difference between likes and quality.[19] However, in our study, as likes and views increased, the total score decreased. The number of likes and views is a result of YouTube and Instagram algorithms. It should be noted that these algorithms aim to increase views rather than highlight quality videos. Additionally, as video duration increased, the total score also increased. For videos to provide more information, their duration should not be too short. However, considering that the number of likes decreases as the video duration increases, videos of ideal duration will enhance quality. We lacked sufficient data for the ideal video duration, and future studies may provide guidance in this regard.

Limitations of the study

This study had its limitations. Only Turkish-language videos were included in the study. Despite adhering to specific criteria and having two independent evaluators, the evaluation may have been subjective. Videos not adhering to the specified keywords may have been excluded. YouTube and Instagram search results are variable. The ranking of videos can change based on views and likes. Only videos from a specific date were included in the study, and a study conducted at a different time might yield different results.

Conclusion

In conclusion, it was observed that there are numerous videos on social media about rabies uploaded by various users. However, a significant portion of these videos was found to be irrelevant and lacked informative content. There is a need to increase the number of more informative and high-quality videos. The conclusion was drawn that videos on Instagram are more informative than those on YouTube. It was found that health professionals provide more informative and directive content in videos about rabies. Healthcare professionals

are uploading more videos to Instagram. Therefore, more informative videos, especially about infectious diseases, such as rabies, need to be produced by healthcare professionals. This is crucial as topics, such as how a deadly disease like rabies can be transmitted and what should be done after exposure, are vital for at-risk groups. As the number of likes and views increased, the level of information provided in the videos decreased. When health professionals upload videos, they should focus on providing information rather than increasing likes and views. The quality of these videos is crucial for public health and preventive medicine.

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Conflicts of interest

There are no conflicts of interest.

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Supporting Information-Video Evalution Form

	It is explaining the topic (2 points)	Partially addressing it (1 point)	Not mentioning it at all (0 points)	There is incorrect information about the topic
1. What is Rabies?				
2. Which Animals Can Transmit Rabies?				
3. What Are the Symptoms in Infected Animals?				
4. How Does it Transmit to Humans?				
5. How Should Wound Care Be Administered?				
6. When Should I Seek Medical Attention?				
7. Who Should Receive Pre-Exposure Prophylaxis?				
8. Who Should Receive Post-Exposure Prophylaxis?				
9. What Are the Symptoms of Rabies in Humans?				
10. What Are the Side Effects of the Rabies Vaccine?				