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ORIGINAL ARTICLE

Evaluation Of YouTube Information Quality About Pes Planus

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Background: The aim of this study is to measure the quality of information about 'flatfoot' and 'pes planus' presented online on the social media site YouTube and to determine the trends of viewers to medical information on YouTube.

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Methods: 'flatfoot and pes planus' was typed into the YouTube search module. From the search results, videos with 50000 views or more, longer than 45 seconds, containing information about flatfoot and pes planus disease were selected. DISCERN, JAMA scoring, daily average views, number of likes, number of comments were collected from 53 videos that met the criteria. The profession of the sharer was evaluated in terms of the information quality of the sharing and the orientation of the audience.

Results: The mean number of views per day of the examined videos was 2047. Mean video presentation time was 8 minutes 50 seconds. The mean JAMA score was 2/4 and the mean DISCERN score was 38.16/75. According to the DISCERN score according to the professions, the video quality was moderate in doctors (41.44±12.99), moderate in physiotherapists (41.91±9.04), poor in coaches (32.78±7.87), poor in patients (34.50±5.32) and weak in others (34.89±14.00). According to the Spearman correlation between DISCERN score and mean daily viewing significant relationships were found in the doctors group p:0.0102 and the others group p:0.0033, however, no significant relationships were observed in the physiotherapists group p:0.1073, the flatfoot patients group p:0.5363 and the coaches group p:0.9111. There were significant relationships between like and comment counts in all groups (doctors p:0.0088, coaches p:0.0069, physiotherapists p:0.0007, others p:0.0018, patients p:0.0066).

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Conclusions: Looking at previous studies, it was observed that the quality of online health information was historically inadequate. Likewise, in our study on YouTube, we found that the quality of flatfoot and pes planus information was poor to moderate.

Although pes planus is a disease known as flatfoot among the people, it is actually a group of diseases with many different etiologies. Pes planus can be defined as the pressure of the long arch on the inner side of the foot and loss of height during loading in the medial longitudinal arch (1,2). Loss of height of the medial longitudinal arch of the foot may be accompanied by pronation of the foot, heel valgus, and achilles shortness in 25% of cases. Even if there is a medial longitudinal arch in the standing position without pressing the floor, the medial arch may collapse in standing position due to ligament laxity. Although its exact incidence is not known in children, it is reported to occur at a rate of 20-25% in adults (3). This frequency shows us that the disease is also a public health problem. Existing deformity may cause pain, instability and severe functional limitations or may not cause any complaints.

People generally search for general information about diagnosis, treatment methods and diseases on the internet (4). One of the social media channels broadcasting on the internet, designed in different structures to serve different purposes, is YouTube. YouTube, a social media site, is one of the most common providers of video information on the internet (5,6). The YouTube video sharing site offers individuals and organizations the opportunity to upload and

create unique images to share their stories (7). Although it is a data provider created only for

sharing videos, over time it has become a tool for people to access information. The number of

registered users on YouTube is more than 1.5 billion. It is a platform where approximately 2880

minutes of videos are uploaded every hour and more than 140 million people spend an average

of 4 hours a week watching online videos. It provides viewers with more than 1 billion hours of

sharing every day. Social media studies on many diseases in the literature (5,6,8). However, the

lack of information quality and imaging analyzes on social media of flatfoot and pes planus,

which is characterized by both cosmetic and discomfort complaints among the public, was a

major shortcoming. This study we have done is a first in the literature on flatfoot and pes

planus.

Information quality of the posts about flatfoot and pes planus on YouTube and to

evaluate the orientation of the viewers to health-related posts.

Materials and Methods

On 22-02-2022, a search was made by typing 'flatfoot and pes planus' in the YouTube search

button. The number of views is 50000 or more, the video is not shorter than 45 seconds, the

language used is english, the videos that do not contain product advertisements, the main idea

is flatfoot and pes planus were included in the study. Video duration, number of views, upload

time, occupation of the person sharing, likes count , comment count , subject, DISCERN(9) and

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JAMA(10) values were recorded by two different physicians. The two doctors independently recorded their values in an excel file. DISCERN, JAMA and the parameters of daily average views (11), number of likes, number of comments were used to determine whether the literature information on the diagnosis and treatment of flatfoot and pes planus overlaps with the information in the YouTube posts and to determine the audience's interest in the sharing. Video sharers were grouped by occupation. Scientific trends in doctor shares were tried to be determined. In the light of the recorded data, Spearman correlation coefficient was used for the quality of information and the orientation of the audience, and statistical significance was taken as $p<0.05$, and statistical results were obtained. Thus, it has been tried to determine the value given by the society to the quality of information and audience orientations, and to discuss the advantages and disadvantages of health shares in social media .

Results

In our study, there were 53 video images that matched the criteria. The subject of the excluded videos was generally seen to be about either dance technique or driving technique. 14 videos made in a non-english language were excluded from the study.

53 video posts on YouTube included in the research were created by 5 groups (11 physiotherapists, 9 coaches, 18 doctors (4 non-specialists, 4 orthopedic surgeons, 8 podiatrists, 2 physiotherapy doctors), 6 flatfoot patients, and 9 others (profession unknown) (Figure 1).

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The mean duration of the videos is 8 minutes 50 seconds. The mean number of daily views of the videos is 2047. The videos had mean DISCERN score of 38 (poor) and a JAMA score of 2 (Table 1).

Intra-observer correlation parameters for DISCERN, JAMA scores were 0.913 (95% confidence interval (CI), 0.763-0.960), 0.975 (95% CI, 0.906-0.991).

JAMA and DISCERN scores were compared with Pearson in all groups . Accordingly, in p-Value were 0.0123 in the doctors group and 0.0182 in the other group. These results showed us that there were strong positive correlations between JAMA and DISCERN scores in these groups. That is, one variable increased while the other increased, or it was observed that while one of the variables decreased, the other decreased. There were no significant differences between JAMA and DISCERN scores in the coachs, patients and physiotherapists groups.

'Like' count and 'Comment' count were compared with Pearson in all groups and significant results were obtained. Accordingly, the p-value of 0.0088 was reached in the doctors. This result showed us a moderately significant positive correlation. The p-values were 0.0007 in physiotherapists, 0.0069 in coaches, 0.0066 in patients, 0.0018 in the others group. These results showed us that there were a strong positive correlations between like counts and comment counts in these groups (Table 2).

Mean daily viewing and video duration were compared with Pearson in all groups and significant results were obtained. Accordingly, the p-value was 0.7331 in the doctors. This result

showed us that a weak positive correlation was reached (this result was obtained according to the distance of the nb. value from zero). P-value was 0.0047 in the physiotherapists. This result showed us that there was a strong positive correlation between mean daily viewing and video duration in this group. On the other hand, the p-value were 0.8132 in the coaches, 0.3154 in the patients, 0,5047 in the others group. These results showed us that there were weak negative correlations between mean daily viewing and video duration in these groups. In other words, it was weakly observed that as one variable increased, the other decreased, or as one variable decreased, the other increased (Table 2)

'Like' count and JAMA score were compared with Pearson in all groups. Accordingly, the p-value was 0.9896 in the doctors group. This result showed us that there was a weak negative correlation between 'like' count and JAMA score in this group. On the other hand, the P-Value was 0.1172 in the others group. This result showed us a moderately significant positive correlation. There were no significant differences between JAMA scores and 'like' count in coachs, patients and physiotherapists groups (Table 2).

Compared to pearson between JAMA score and comment count. Accordingly, p-value was 0.9943 in the doctors group. This result showed us that there was a weak positive correlation between JAMA and comment in this group. P-value was 0.0468 in the others group. This result showed us a moderately significant positive correlation. There were no significant

differences between JAMA scores and comment count in coachs, patients and physiotherapists groups (Table 2).

Compared with Pearson between JAMA score and mean daily views. Accordingly, the p-value was 0.9049 in the doctors group. This result showed us that there was a weak positive correlation between JAMA and mean daily views in this group. The p-value was 0.0472 in the others group. This result showed us a moderately significant positive correlation. There were no significant differences between JAMA scores and mean daily views in coachs, patients and physiotherapists groups.

Compared with Pearson between JAMA score and video duration. Accordingly, the p-values were 0.3879 in the doctors group, 0.5899 in the others group. These results showed us that there were weak positive correlations between JAMA and video duration in these groups. There were no significant differences between JAMA scores and video duration in coachs, patients and physiotherapists groups.

DISCERN score and 'like' count were compared with pearson in all groups and significant results were obtained. Accordingly, p-values were 0.0000 in doctors group, 0.0000 in the others group. These results showed us that there were strong positive correlations between like count and DISCERN scores in these groups. P-value was found to be 0.6432 in coaches. This result showed us that there was a weak positive correlation between like count and DİSCERN scores in this group. P-value was 0.0250 in the physiotherapists. This result showed us a moderately

significant positive correlation. On the other hand, P-value was 0.5787 in patients group. This result showed us that there was a weak negative correlation between 'like' count and DISCERN scores in this group.

DISCERN score and comment count were compared with Pearson in all groups and significant results were obtained. Accordingly, p-values were 0.8280 in the doctors group, 0.2728 in the coachs group. These results showed us that there were weak positive correlations. P-value was 0.0031 in the others groups. This result showed us that there was a strong positive correlation between comment and DİSCERN scores in this group. P-value was 0.0513 in physiotherapists. This result showed us a moderately significant positive correlation. On the other hand, p-value was 0.7654 in patients. This result showed us that there was a weak negative correlation between comment count and DISCERN scores in this group.

DISCERN scores and mean daily views were compared with pearson in all groups and significant results were obtained. Accordingly, p-values were 0.0102 in doctors, 0.1073 in physiotherapists. These results showed us moderately significant positive correlations. P-value was 0.0033 in the others group. This result showed us that there was a strong positive correlation between mean daily views and DISCERN scores in this group. On the other hand, p-value were 0.9111 in the coaches, 0.5363 in the patients. These results showed us that there were weak negative correlations between DISCERN scores and mean daily views in these groups.

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DISCERN score and video duration were compared with Pearson in all groups and significant results were obtained. Accordingly, p-values were 0.1303 in coaches, 0.2227 in patients, 0.0245 in physiotherapists. These results showed us moderately significant positive correlations in these groups. P-value was 0.5202 in the doctors group. This result showed us that there was a weak positive correlation between DISCERN score and video duration in this group. On the other hand, p-value was 0.8979 in the others group. This result showed us that there was a weak negative correlation between video duration and DISCERN scores in this group (Table 2).

48 of the videos were given under the title of flatfoot and 5 of them were given under the title of pes planus. It was observed that 15 of 18 doctor videos were made under the title of 'flatfoot' instead of 'pes planus'.

It was seen that the video shares generally contained general information. Only 8 of the 53 videos included in the study shared their surgical technique information. The DISCERN mean score of the videos about the surgery was 36.5 and the JAMA mean score was 1.875. That is, the surgical information provided did not contain sufficient quality information. Additionally, the mean daily views of surgical videos was 16. This showed us that viewers did not find surgical content attractive.

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Discussion

The fact that the Pearson correlation analysis between JAMA and DISCERN scores did not show a significant relationship in coaches, patients and physiotherapists showed that these parameters, which show the quality of the video, emphasize different points of the information quality and evaluate independent parameters.

Pearson correlation analysis between like and comment count showed positive significant relationships in all groups, showing that there are interrelated parameters that show the video's viewing and impact power.

Mean daily views and video duration shows positive or negative relationship according to the groups, it has been shown that the viewer's videos of experts in their fields such as doctors and physiotherapists increase even if they are long, while the views of non-specialist posts such as patients and coaches decrease as the video durations increase.

Pearson correlation analysis between JAMA score and mean daily views, between comment count and like count did not show significant relationships in coaches, patients and physiotherapists groups. The lack of significant relationships in patients and physiotherapists showed that keeping the video duration long did not have an effect on the video quality. Comment and like counts, which show the traceability of sharing with DISCERN, were negatively correlated in patients, while the quality of information decreased in the patients group which shared their own experiences, the traceability increased. On the other hand, the quality of

information in the videos increased, so did the watchability in the doctors, others, and physiotherapists groups.

The Internet has changed the methods of accessing information in today's society. It is seen that people primarily benefit from the Internet to access information (12–16).

We looked at many studies on health on YouTube and the internet. The information quality of these videos was determined to be of low quality in general (17–21). Conclusion from Silberg et al. 1997 article on assessing, controlling and securing the quality of medical information on the Internet: When it comes to medical information, the Internet is more like a cocktail conversation than an effective healthcare communication and decision-making tool (20). Conclusion from Staunton et al. 2015 article in Spine on assessing, controlling and securing the quality of medical information on the Internet: their study shows that the quality of scoliosis information is low in an environment such as YouTube where there is no peer review process (10). Similar to previous publications, we did not find a different result in terms of publication quality in our study. But the main problem was that there was no improvement in the quality of information despite the intervening 25 years.

Looking at the studies in the literature; The orthopedic information obtained from the internet is inappropriate, incomplete and unreliable (22–26).

Another shortcoming seen in video sharing: Most of the videos used for the diagnosis of pes planus, rather than x-ray, tomography and mri, considered only the examination to be

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sufficient. Medial arch loss was considered sufficient for diagnosis in most videos. There were very few videos that gave information about the etiology. However, x-ray, tomography and mri are necessary methods for the etiology of many diseases such as tarsal coalition, arthritis, accessory navicular. Treatments performed in this way without clarifying the etiology carry both a waste of time and a risk of progression of the disease. Also the video talking about surgical treatment was only 8. However, surgery should not be avoided in symptomatic patients unless there are contraindications such as morbid obesity, excessive smoking, uncooperative patient. Appropriate surgery should be decided according to the underlying cause and the degree of deformity. For this reason, we think that the benefits of surgical treatment should be explained in a more understandable and interesting way without going into details.

In our study, we questioned what kinds of subjects people are interested in and the academic value of these subjects. In the literature review , many studies were found on the information value of sharing about medical diseases on social media (17–19). But our study of 'pes planus' was the first to examine a common disease that affects many members of the community.

Conclusions

As a result of our study, regarding the flatfoot direction; Accessed through search engines. It was concluded that the resources were insufficient to inform the patients.

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This tells us that if the diagnosis and treatment of a complicated disease such as pes planus is not fully investigated and if the cause is passed over with insufficient information, as in many video content, the disease may become complicated and its treatment may become more difficult.

In order to evaluate the quality and accuracy of health information content in social media, practical, understandable and easy measurement criteria should be established and presented to the audience as a scale. We think that associations, hospitals, universities and physicians should take an active role in establishing these criteria.

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Conflict of Interest: None reported.

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Table 1: The mean of the evaluated parameters of the five groups

Mean	Like	Comment	Daily mean views	JAMA	DISCERN	Video duration
Doctors	1649,67	156,17	94,32	2,22	41,44	424,67
Coachs	11177,67	512	439,48	2	32,78	452,56
Others	2583,11	155	295,62	1,56	34,89	707
Patients	98850	4138,5	16229,62	2	34,5	773,67
Physiotherapists	5356,36	395,09	256,32	2	41,91	488,27
Total	15199,26	716,81	2047,37	2	38,16	530,05

Table 2: Statistical results of the parameters evaluated for the five groups

P-Value	Doctors	Coachs	Others	Patients	Physiotherapists
DISCERN & JAMA	0.0123↑↑↑	ND	0.0182↑↑↑	ND	ND
Like & Comment	0.0088↑↑	0.0069↑↑↑	0.0018↑↑↑	0.0066↑↑↑	0.0007↑↑↑
Daily views & Duration	0.7331↑	0.8132↓	0.5047↓	0.3154↓	0.0047↑↑↑
JAMA & Like	0.9896↓	ND	0.1172	ND	ND
JAMA & Comment	0.9943↑	ND	0.0468↑↑	ND	ND
JAMA & Daily view	0.9049↑	ND	0.0472↑↑	ND	ND
JAMA & Duration	0.3879↑	ND	0.5899↑	ND	ND
DISCERN & Like	0.0000↑↑↑	0.6432↑	0.0000↑↑↑	0.5787↓	0.0250↑↑
DISCERN & Comment	0.8280↑	0.2728↑	0.0031↑↑↑	0.7654↓	0.0513↑↑

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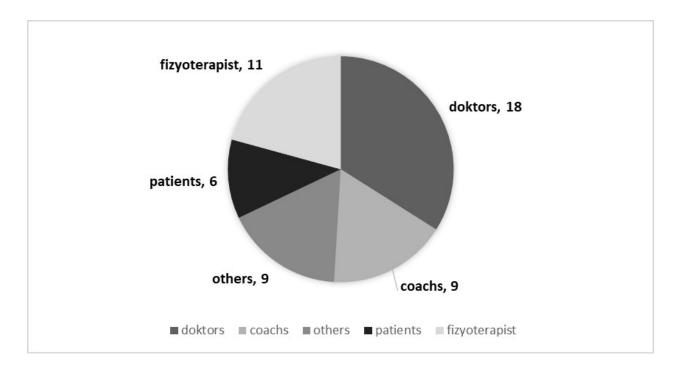| DISCERN & Daily views	0.0102↑↑	0.9111↓	0.0033↑↑↑	0.5363↓	0.1073↑↑
DISCERN & Duration	0.5202↑	0.1303↑↑	0.8979↓	0.2227↑↑	0.0245↑↑

Figure 1: YouTube share counts in the five groups created