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ASSESSMENT OF 'PHYSICAL THERAPY FOR ELDERLY PEOPLE' VIDEOS ON YOUTUBE

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ABSTRACT

Objective: *In this study, we aimed to investigate reliability and utility of videos accessed with 'Senior Physical Therapy' term on YouTube in terms of medical information.*

Material and Method: *'Senior Physical Therapy' term was screened on YouTube. The non-english videos, advertisements, videos shorter than 45 seconds, repeated two or more times, and the videos with an irrelevant content were excluded, and the most viewed 50 videos were evaluated by two independent orthopedists according to DISCERN (Quality Criteria for Consumer Health Information) and JAMA (Journal of the American Medical association) scoring systems. The correlation between the observers was assessed with Spearman Correlation Analysis, and the compliance with Krippendorff α. According to the normality results, non-parametric Kruskal-Wallis Variance Analysis test was applied. $p<0.05$ values considered statistically significant ($p<0.017$ values at Bonferroni-Correction Mann-Whitney U test).*

Results: *The videos was most commonly upload by health channels (66%) and physiotherapists (14%). A strong statistically significant correlation was found between DISCERN (r:0.971, $p<0.001$) and JAMA (r:0.808, $p<0.001$) scores of the observers. The compliance between two observers was high in DISCERN scores (Krippendorff α.: 0.970) and moderate in JAMA scores (Krippendorff α.: 0.792). DISCERN scores of the videos uploaded by physiotherapist were highest. Of the 50 videos, 70% was determined as poor, 28% very poor and 2% fair in terms of the information content.*

Conclusion: *Preparation of the videos with medical contents by specialized person and based on references may increase the quality of information obtained via the social media.*

Keywords: *Information, internet, social media, youtube, senior, physical therapy*

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YOUTUBE 'YAŞLILARA YÖNELİK FİZİK TEDAVİ' VİDEOLARININ DEĞERLENDİRMESİ

ÖZET

Amaç: Bu çalışmada, YouTube'da "Yaşlılarda Fizik Tedavi" terimiyle erişilen videoların tıbbi bilgi açısından güvenilirliğini ve kullanılabilirliğini araştırmayı amaçladık.

Materyal ve Metot: YouTube'da "Yaşlılarda Fizik Tedavi" terimi tarandı. İngilizce olmayan videolar, reklamlar, 45 saniyeden kısa videolar, iki veya daha fazla kez tekrarlanan ve konuyla alakasız içeriğe sahip videolar çalışma dışı bırakıldı ve en çok izlenen 50 video iki bağımsız ortopedi uzmanı tarafından DISCERN (Tüketici Sağlık Bilgisi Kalite Kriterleri) ve JAMA (Amerikan Tabipler Birliği Derneği) puanlama sistemlerine göre değerlendirildi. Gözlemciler arasındaki korelasyon Spearman Korelasyon Analizi ve gözlemciler arası uyum Krippendorff α uyum analizi ile değerlendirildi. Normallik sonuçlarına göre nonparametrik Kruskal-Wallis Varyans Analizi testi uygulandı. $p<0,05$ olduğu durumlar (Bonferroni Düzeltmeli Mann-Whitney U testinde <0,017) istatistiksel olarak anlamlı kabul edildi.

Bulgular: Videolar en çok sağlık kanalları (%66) ve fizyoterapistler (%14) tarafından yüklenmişti. Gözlemcilerin DISCERN (r: 0,971, $p<0,001$) ve JAMA (r: 0,808, $p<0,001$) puanları arasında istatistiksel olarak anlamlı güçlü korelasyon saptandı. İki gözlemci arasındaki uyum, DISCERN puanlarında (Krippendorff α: 0,970) yüksek ve JAMA puanlarında (Krippendorff α: 0,792) orta düzeyde idi. Fizyoterapistler tarafından yüklenen videoların DISCERN puanları en yüksekti. Bilgi içeriği açısından 50 videonun % 70'i zayıf, % 28'i çok zayıf ve % 2'si orta düzeyde tespit edildi.

Sonuçlar: Tıbbi içerikli videoların uzman kişilerce ve referanslara dayanarak hazırlanması sosyal medya aracılığıyla elde edilen bilgilerin kalitesini artırabilir.

Anahtar kelimeler: Bilgi, internet, sosyal medya, youtube, yaşlı, fizik tedavi

INTRODUCTION

It is estimated that world population over 60 years will increase from 12% to 22% between 2015 and 2050. In other words, in the near future world elderly population will be doubled.[1] Within this context, elderly health emerges as an important public problem. Prolonged life expectancy and increased elderly population worldwide bring additional health problems. In this period, especially physical activity is restricted, and physical therapy may be used in by healthcare professionals in the treatment of emerging physical disability. Regular exercise both shows a positive effect on chronic diseases, and increases physical function.[2-4] In this respect, effect of regular exercise and physical activity on additional health problems developing by ageing is remarkable.

In today's world, internet and social media are an important part of daily life, and provide a great facility to access information on health area. Having information via the internet is accepted as one of the most modern approach methods.[5] More than half of the world population is using internet, and the frequency of using internet is increasing day by day among elderly population.[6,7] This may be interpreted as that the frequency of having information via the internet and social media is increasing also among elderly people. However, although everyone can access information via the internet, utility and accuracy of the information obtained via the social media is debatable.[8] Furthermore, it is not possible for everyone to assess quality and accuracy of the existing information.

YouTube, which was developed in 2005 and accessed by more than 30 million active users daily is among the most used social media websites.[9] 'YouTube' especially has a wide video archive through which people have information in the health area.[10,11] Visual information draws more attention than readable knowledge.[12] Looking from this aspect, YouTube can be accepted as a great source accessed via the internet. However, 'YouTube' is a social media site established for entertainment rather than education.

In this study, we aimed to investigate reliability and utility of the videos that can be accessed with 'Senior Physical Therapy' keyword on YouTube which is one of the most commonly used social media sites.

MATERIAL AND METHOD

Methodologic planning of the study was made by reviewing the studies by Erdem, Samuel, and Gokcen *et al.*[10,11,13,14] 'Senior Physical Therapy' keyword was screened on YouTube at 28/03/2019 and 'View count' was selected as a ranking criterion among the standard search options. The first 250 videos listed as a result of the searching were respectively recorded with video titles. Each video recorded with titles for the evaluation were watched by two orthopedist at the same time and same setting. The videos were evaluated according to DISCERN (Quality Criteria for Consumer Health

Information) and JAMA (Journal of the American Medical association) scoring systems. In order to provide objectivity, DISCERN and JAMA scores were recorded independently and invisibly from each other. The non-english videos, advertisements, videos shorter than 45 seconds, repeated two or more times, and the videos with an irrelevant content were excluded. The videos without exclusion criteria were included in the study. Inclusion or exclusion of each viewed video was determined by common decision of the both orthopedists. The video evaluation was ended when the first 50 video was reached among the 250 videos with titles recorded. In addition, videos' view count, date of upload, comment count, like count, dislike count, video length, video content, and uploader characteristics were recorded. Access addresses and uploaders of the evaluated videos are shown in Table 1.

DISCERN scoring system: is a scoring system consisting of 15 items in which each question is evaluated within a range of 1-15 points (minimum-maximum: 15-75 points). The scoring system aims to evaluate knowledge about treatment options. In scoring system 8 questions about the reliability of the information and 7 questions about treatment information.[15] As reported by Gokcen and Gumussuyu, Weil *et al.* DISCERN scores are classified as 'excellent' between 63 and 75 points, good between 51 and 62 points, fair between 39 and 50 points, poor between 27 and 38 points, and very poor by scores <27.[13] Knowledge quality about treatment options increases as the scores increase.

JAMA scoring system: is a quality assessment tool used to evaluate information obtained from health related internet websites (minimum-maximum: 0-4 points). This scoring system consists of 4 criteria including 'Authorship', 'Attribution', 'Disclosure' and 'Currency'. Each criteria is evaluated as 0 point (does not meet the searched criterion) and 1 point (meets the searched criterion). High points obtained from the scoring system evaluated as increased quality of information evaluated.[16]

Table 1. Access addresses and uploaders of the evaluated videos

Access addresses	Uploaders	Access addresses	Uploaders
1-https://www.youtube.com/watch?v=BNC4bi3Ucac	Pt	26-https://www.youtube.com/watch?v=7mEJ4oO6e3k	Hc
2-https://www.youtube.com/watch?v=atMJ2opvCvo	Pt	27-https://www.youtube.com/watch?v=Aojyae1CtVO	Hc
3-https://www.youtube.com/watch?v=yTYdrAOKNcA	Hc	28-https://www.youtube.com/watch?v=pzuF7yPe24U	Pt
4-https://www.youtube.com/watch?v=4GjKk7ZtJsE	Hc	29-https://www.youtube.com/watch?v=6MON7drKOS4	Hc
5-https://www.youtube.com/watch?v=oQ-6pfTH-MO	Nc	30-https://www.youtube.com/watch?v=pn9JPiLGEBc	Pt
6-https://www.youtube.com/watch?v=h5oZV2ns1nQ	Hc	31-https://www.youtube.com/watch?v=S4Fe330j9OY	Pt
7-https://www.youtube.com/watch?v=8RDstxLV1Ig	Hc	32-https://www.youtube.com/watch?v=FBFDsmSUxFc	Hc
8-https://www.youtube.com/watch?v=tZo0UI7rcf8	Hc	33-https://www.youtube.com/watch?v=T56Tow5F7FE	Fc
9-https://www.youtube.com/watch?v=8Ge9Ed7mMQI	Hc	34-https://www.youtube.com/watch?v=cBUEgZDdAMO	Hc
10-https://www.youtube.com/watch?v=eo4g6eRTd-w	Hc	35-https://www.youtube.com/watch?v=-1yWXqizWMQ	Hc
11-https://www.youtube.com/watch?v=xQ86-7YOnLk	Nhc	36-https://www.youtube.com/watch?v=zdX0sJdFQEE	Hc
12-https://www.youtube.com/watch?v=4wIcw1IUi7I	Hc	37-https://www.youtube.com/watch?v=bwPb9uy6APs	Hc
13-https://www.youtube.com/watch?v=06ayiJ8XS9s	Hc	38-https://www.youtube.com/watch?v=ZMEY5c07AYO	Tcc
14-https://www.youtube.com/watch?v=x1HxclakOMs	Hc	39-https://www.youtube.com/watch?v=-Fz_PokJUb4	Hc
15-https://www.youtube.com/watch?v=j99cSAw9DAw	Pt	40-https://www.youtube.com/watch?v=AM8stlhQ_rE	Hc
16-https://www.youtube.com/watch?v=0rR6PTSF9YO	Hc	41-https://www.youtube.com/watch?v=DDsuQazxzTI	Hc
17-https://www.youtube.com/watch?v=SrvHoADZes8	Hc	42-https://www.youtube.com/watch?v=He5NOmB_iN4	Hc
18-https://www.youtube.com/watch?v=9UoYAKfWMsY	Hc	43-https://www.youtube.com/watch?v=zxWk3WfZIWg	Nhc
19-https://www.youtube.com/watch?v=xd0uVTV-YHc	Hc	44-https://www.youtube.com/watch?v=N5O26IUm1Ic	Nc
20-https://www.youtube.com/watch?v=E-8Kc7excDI	Hc	45-https://www.youtube.com/watch?v=vqT2Z_ULBpO	Nc
21-https://www.youtube.com/watch?v=cg5HGOMQidI	Hc	46-https://www.youtube.com/watch?v=86AebFCnBs8	Pt
22-https://www.youtube.com/watch?v=IU8P8rRIm9Q	Hc	47-https://www.youtube.com/watch?v=VV13NAsD-VY	Hc
23-https://www.youtube.com/watch?v=5p1zuun4Q44	Hc	48-https://www.youtube.com/watch?v=Wa94zUZghnQ	Hc
24-https://www.youtube.com/watch?v=T99iy191-0Q	Cc	49-https://www.youtube.com/watch?v=b4hcTU-7LUE	Fc
25-https://www.youtube.com/watch?v=w_7omx7m8BA	Hc	50-https://www.youtube.com/watch?v=c0OPcthvAPI	Pc

Pt: Physical therapist, **Hc:** Health channel, **Nc:** News channel, **Nhc:** Nursing home channel, **Cc:** Chiropractor channel, **Fc:** Fitness coach, **Tcc:** Tai chi coach, **Pc:** Pilates coach

DISCERN and JAMA scoring systems are shown in Table 2.

Statistical Analysis

Data of the study were analyzed using statistical package software SPSS version 20.0. Data are expressed as number, percentage, mean, standard deviation, median, minimum, and maximum values. Video Power Index (VPI) value was calculated to determine popularity of the videos [(number of likes/number of likes+number of dislikes)*100]. By this way, video popularity was evaluated over 100 points. In order to minimize the bias which might be resulted from the videos' duration of existing on YouTube, the mean daily view counts of the videos were calculated [total view count determined during viewing of the video by the observers / date of view of the video by the observers-date of video uploading on YouTube (days)]. The mean DISCERN score for each video was calculated by averaging DISCERN scores given by the observers [(DISCERN score calculated by the Observer 1 + DISCERN score calculated by the Observer 2)/2], and the mean JAMA score for each video was calculated by averaging JAMA scores given by the observers [(JAMA score calculated by the Observer 1 + JAMA score calculated by the Observer 2)/2]. The mean DISCERN scores were categorized as <27 points: very poor, 27-<39 points: poor, 39-<51: fair, 51-<63: good and 63-75 points: excellent. In order to examine correlation of DISCERN and JAMA scores calculated by the observers, Spearman's correlation analysis was applied according to the result of normality test. In evaluation of the correlation coefficients; a coefficient between 0.10 and 0.29 was interpreted as low correlation, between 0.30 and 0.49 as moderate correlation and higher coefficients as high correlation.[17] Krippendorff α value was calculated in order to evaluate the compliance between the observers. An alpha value higher than 0.80 indicated high compliance, between 0.67 and 0.80 moderate compliance and lower than 0.67 weak compliance.[18] Non-parametric Kruskal Wallis One Way ANOVA Test was applied based on the results of normality. $p<0.05$ was considered statistically significant. In the Bonferroni-Correction Mann-Whitney, $p<0.017$ was considered statistically significant.

RESULTS

There was a high statistically significant correlation between DISCERN (r:0.971, $p<0.001$) and JAMA (r:0.808, $p<0.001$) scores of the two observers. There was a high compliance between DISCERN (Krippendorff α: 0.970) and a moderate compliance between JAMA (Krippendorff α: 0.792) (Table 3).

Table 2. DISCERN and JAMA Scoring System

Quality Criteria for Consumer Health Information							
Question Number	**What Is Investigated?**	**Question Rating**					
		No		**Partially**		**Yes**	
1	Are the aims clear?	1	2	3	4	5	
2	Does it achieve its aims?	1	2	3	4	5	
3	Is it relevant?	1	2	3	4	5	
4	Is it clear what sources of information were used to compile the publication (other than the author or producer)?	1	2	3	4	5	
5	Is it clear when the information used or reported in the publication was produced?	1	2	3	4	5	
6	Is it balanced and unbiased?	1	2	3	4	5	
7	Does it provide details of additional sources of support and information?	1	2	3	4	5	
8	Does it refer to areas of uncertainty?	1	2	3	4	5	
9	Does it describe how each treatment works?	1	2	3	4	5	
10	Does it describe the benefits of each treatment?	1	2	3	4	5	
11	Does it describe the risks of each treatment?	1	2	3	4	5	
12	Does it describe what would happen if no treatment is used?	1	2	3	4	5	
13	Does it describe how the treatment choices affect overall quality of life?	1	2	3	4	5	
14	Is it clear that there may be more than 1 possible treatment choice?	1	2	3	4	5	
15	Does it provide support for shared decision making?	1	2	3	4	5	

JAMA: Journal of the American Medical Association	
Authorship	Authors and contributors, their affiliations, and relevant credentials should be provided
Attribution	References and sources for all content should be listed clearly, and all relevant copyright information should be noted
Disclosure	Website "ownership" should be prominently and fully disclosed, as should any sponsorship, advertising, underwriting, commercial funding arrangements or support, or potential conflicts of interest
Currency	Dates when content was posted and updated should be indicated

Table 3. Interobserver Reliability of the DISCERN and JAMA scores

Quality Criteria for Consumer Health Information					
DISCERN score (Observer 1)		**DISCERN score (Observer 2)**			
Mean± SD	**Median (Min-Max)**	**Mean± SD**	**Median (Min-Max)**	**r, p**	**Krippendorff α**
29.1±6.2	31.0 (16.0-39.0)	29.0±6.1	31.0 (16.0-39.0)	0.971, <0.001	0.970
JAMA score (Observer 1)		**JAMA score (Observer 2)**			
Mean± SD	**Median (Min-Max)**	**Mean± SD**	**Median (Min-Max)**	**r, p**	**Krippendorff α**
2.0±0.2	2.0 (2.0-3.0)	2.1±0.2	2.0 (2.0-3.0)	0.808, <0.001	0.792

There was a high level of compliance between the 2 researchers in terms of DISCERN scores (Krippendorff α: 0.970).
There was a moderate level of compliance between the 2 researchers in terms of DISCERN scores (Krippendorff α: 0.792)
Min: Minimum, **Max:** maximum, ***p:*** level of statistical significance, **r:** Spearman correlation coefficient, **SD:** standard deviation

Table 4. Video uploaders, content and classification of the DISCERN score

Variables	n (%)
Video uploaders	
Health channel	33 (66.0)
Physiotherapist	7 (14.0)
News channel	3 (6.0)
Fitness coach	2 (4.0)
Nursing home channel	2 (4.0)
Chiropractor channel	1 (2.0)
Tai chi coach	1 (2.0)
Pilates coach	1 (2.0)
Video content	
Balance exercise	12 (24.0)
General promotion	6 (12.0)
Core strength exercise	6 (12.0)
Bed exercise	5 (10.0)
General exercise	5 (10.0)
Exercise with ball	2 (4.0)
Aqua therapy	2 (4.0)
Chair exercise	2 (4.0)
Tai chi physical exercise	2 (4.0)
Shoulder exercise	1 (2.0)
Arm and trunk exercise	1 (2.0)
Post operative exercise	1 (2.0)
Yoga exercise	1 (2.0)
Arthrosis exercise	1 (2.0)
Patient experience	1 (2.0)
Lower back exercise	1 (2.0)
Thermotherapy promotion	1 (2.0)
Classification of the DISCERN score*	
Very poor	14 (28.0)
Poor	35 (70.0)
Fair	1(2.0)

n: Number, %: percent, ***:** each video was included in DISCERN score classification according the mean DISCERN scores of the observers

The videos were most commonly uploaded by health channels (66%) and physiotherapists (14%). The first three most common contents included balance exercise (24%), general promotion (12%) and core strength exercise (12%). Most of the viewed videos (70%) were found to be 'poor' and 28% of the videos were 'very poor'. One video was determined as 'fair' (Table 4).

The mean DISCERN score of the viewed videos was 29.1±6.1 (median: 31, min-max:16-40), and the mean JAMA score was 2.1±0.2 (median: 2, min-max:2-3). The other features of the viewed videos are shown in Table 5.

In evaluation of DISCERN scores according to the features of the uploaders; there was a statistically significant difference between the videos uploaded by health channel, physiotherapists and other attributions of the other video uploaders (p=0.003). In the comparison of the mean DISCERN scores according to the Bonferroni-Correction Mann Whitney U test, no significant difference was found between the videos uploaded by health channels and physiotherapists (p=0.021), and no significant difference was found between the health channels and other video uploaders (p=0.025). There was a statistically significant difference between the videos uploaded by physiotherapists and other uploaders (p=0.003). Although the mean and median DISCERN scores were higher than the other groups; all 7 videos in the physiotherapist groups were found to be 'poor'. Most of the videos (72.7%) in the health channel groups were determined as 'poor'. One video which scores highest among all the videos with 40 points was uploaded by a health channel and only this video was determined as 'fair'. Whereas, majority of the videos (60%) uploaded by the other persons were found as 'very poor' (Table 6). The highest mean DISCERN score (40 points) was given to a 'chair exercise' video. The lowest mean DISCERN score (16 points) was given to a 'general promotion' video. When 4 videos with the highest DISCERN scores were examined, the scores of these videos were in the range of 36.5-40 points. These videos were uploaded by health channels and physiotherapists. Contents of these videos were found to be about balance, bed, and chair exercises. View counts of these videos differed in a wide range from 2233 to 391.393. VPI values were higher than 90 in all videos.

JAMA scores, VPI and daily view counts were compared according to the attribution of the uploaders. There was a statistically significant difference between JAMA scores of the videos uploaded by health channels and other uploaders (p<0.001).In the comparison made according to Bonferroni Correction Mann Whitney U test, no significant difference was found between the videos uploaded by health channels and other uploaders (p:1.000), no significant significant difference was found between the videos uploaded by physiotherapists and other uploaders (p=0.028), while there was a statistically significant difference between the health channels and physiotherapist groups (p<0.001). All videos in the health channel and other uploader groups were evaluated as '2' JAMA points by both the observers. There was no statistically significant difference among all three groups in comparison of video power index and daily view count values (Table 7).

DISCUSSION

A quality information access should be provided and facilitated in order to establish a strong public health system.[19] Today one of the most important method to access information is internet and social media. Therefore, utility and sufficiency of the information obtained through the internet and social media are important. In this study, the videos screened by 'Senior Physical Therapy' keyword on YouTube which is one of the most commonly used social media platforms, and had a highest view count were examined, and majority of the videos were found as 'poor' in terms of the information quality. 70% of the videos were found as 'poor', 28% as 'very poor', and only one was determined as 'fair'. There was no any video among the examined videos higher than 'fair' in terms of the information quality. This result indicated that videos in a commonly used social media site on this issue were insufficient in order to provide information to people. However, 'YouTube' is an entertainment social media site rather than an education site, and thus the results obtained should be carefully interpreted.

Internet and social media are among the most important tools in obtaining information, but it is of paramount importance to obtain the information from the correct sources. Within this context, internet users have the most important responsibility in terms of obtaining medical information and reliability of this information. Internet users should carefully evaluate the information here according to the fact that YouTube and similar websites are rather for entertainment. However, probably it is mostly not possible for internet users to evaluate this information for utility and reliability. In addition, knowledge obtained from the source with low-quality information may mislead people. This may negatively affect the relationship between clinicians and patients.[20]

Prevention or postponing of physical restriction which emerges with ageing, is an important public health problem. A general drop is seen in musculoskeletal system and sensory systems that play a role in postural control, with ageing.[21] Risk of falling is also increased by decreased extremity strength, and hip and similar fractures are more commonly seen. In addition, sedentary lifestyle and osteoporosis may be developed. Exercise and physical activity have positive effects in terms of the prevention all of these situation and falling, by providing the balance.[22] Increased physical activity and regular exercise program decrease adverse effects and loss of functional capacity brought by ageing.[23,24] According to a meta-analysis, the risk of falling significantly decreased in elderly who exercise regularly.[25]

Table 5. Evaluation of the videos viewed and scores of the observers

Variables	Mean±Standard Deviation	Median (Minimum-Maximum)
Video length (seconds)	281.1±334.6	144.0 (54.0-1688.0)
View count	15.495.7±55.727.2	1286.0 (71.0-391393.0)
Time from video uploading (day)	1579.7±805.5	1515.0 (136.0-3219.0)
View count (daily)	16.6±69.6	1.5 (0.1-483.2)
Comment count	6.0±29.3	0.0 (0.0-205.0)
Like count	149.1±717.9	7.5 (0.0-5000.0)
Dislike count	5.9±28.6	0.0 (0.0-199.0)
VPI (Video Power Index)	87.0±30.5	100.0 (0.0-100.0)
Mean DISCERN score of the observes*	29.1±6.1	31.0 (16.0-40.0)
Mean JAMA score of the observes**	2.1±0.2	2.0 (2.0-3.0)

***:** Mean DISCERN score of the observes was calculated by averaging DISCERN scores of the two observes,
****:** mean JAMA score of the observes was calculated by averaging JAMA scores of the two observes

Table 6. DISCERN scores according to video uploaders

Video uploader	Mean DISCERN score*		DISCERN score class**	n (%)
	Mean±SD	Median (Min-Max)		
Health channel (n:33)	29.4±5.8	31.0 (17.0-40.0)	Very poor (<27) Poor (27- <39) Fair (39- <51)	8 (24.3) 24 (72.7) 1 (3.0)
Physiotherapist (n:7)	34.2±2.7	35.0 (30.5-37.5)	Poor (27- <39)	7 (100.0)
Others (n:10)	24.5±6.1	23.5 (16.0-33.0)	Very poor (<27) Poor (27- <39)	6 (60.0) 4 (40.0)
p		0.003		

Min: Minimum, **Max:** maksimum, **n:** mumber, **SD:** standard deviation, **%:** column percentage among the video uploader group, ***:** mean DISCERN score of the observes was calculated by averaging DISCERN scores of the two observes, ****:** Each video was included in DISCERN score classification according the mean DISCERN scores of the observers, ***p:*** Kruskal Wallis variance analysis test

Balance and strength exercises are among the exercise types that have proven effects on providing the balance and prevention of falling by increasing muscular strength in elderly.[26] One of the sensory pathway of the balance control is disrupted with the impaired proprioception, and thus an increase is seen in the risk of falling.[27-30] The risk of falling may be decreased by half with balance exercises in elderly women and men.[31] Balance exercises aim to provide dynamic muscular stabilization and to increase cognitive control of the joints in each position and movement.[32] Studies with patients having knee osteoarthritis have shown significant improvement in proprioception with balance exercise.[33,34] Therefore, effect of balance exercises on physical activity is critical in elderly people. Whereas strength exercises have been shown to provide increases in muscle strength and walking speed, and to improve daily life activities and ability to ascend a stair even in very old persons.[25,35] Strength exercises increase strength and endurance, and improve mobility and

Table 7. Comparison of JAMA scores, VPI and daily view count according to video uploaders

Variables	Video uploaders						*p*
	Health channel (n:33)		Physiotherapist (n:7)		Others (n:10)		
	Mean±SD	Median (Min-Max)	Mean±SD	Median (Min-Max)	Mean±SD	Median (Min-Max)	
Mean JAMA score of the observes *	2.0± (-)	2.0 (-)	2.4±0.5	2.00 (2.0-3.0)	2.0± (-)	2.0 (-)	<0.001
Video Power Index (VPI)	89.4±28.8	100.0 (0.0-100.0)	98.8±1.7	100.0 (96.2-100.0)	70.8±41.0	95.5 (0.0-100.0)	0.438
Daily view count	5.5±10.7	1.6 (0.1-59.8)	87.4±179.1	2.3 (0.1-483.2)	3.8±7.9	0.2 (0.1-22.9)	0.070

***:** Mean JAMA score of the observes was calculated by averaging JAMA scores of the two observes, **Min:** Minimum, **Max:** Maximum, **n:** Number, **SD:** Standard Deviation, **p:** Kruskal Wallis Variance Analysis Test

balance.[36,37] These exercises provide increase both in spine and hip bone mineral density.[38] Therefore, many studies have proven effects of strength exercises on elderly people. In our study also, a considerable part of the videos examined included balance exercises (n:12) and core strength exercises (n:6). In terms of information quality, 10 of the balance exercise videos was found as 'poor' and 2 as 'very poor'. All of the core strength exercises videos were determined as 'poor'. Only one 'chair exercise' video has 'fair' information quality, while the other videos were evaluated as 'very poor' or 'poor'. These exercise types are used under the control of a specialist in order to improve physical activity and balance status of elderly. However, videos with poor information quality may cause people to not obtain sufficient efficiency or on the contrary to have negative results in line with missing and/or wrong information.

The mean and median DISCERN scores were higher especially in the physiotherapist group. The lowest mean and median DISCERN scores were found in the videos uploaded by the persons other than health channels and psychotherapists. However, although the mean and median DISCERN scores were higher in the physiotherapist group, all of these videos were 'poor' according to DISCERN classification. When the videos by the highest DISCERN score were examined, two balance exercise videos had higher DISCERN scores than most videos (37.5 and 37). Two health channels videos had higher DISCERN scores than most videos included in the study. Contents of these videos were chair and bed exercises. Both two chair exercise videos in the study were evaluated with 32 and 40 DISCERN points and the video with 40 points was the videos with the highest DISCERN score in the study. In a study conducted to improve daily life activities of elderly people using wheelchair, nutrition status of the patients was improved depending on the improvement in activity status.[39] Exercise is important in elderly people using wheelchair, and importantly the video with highest DISCERN score in this study include this content.

Information quality was higher especially in the videos uploaded by physiotherapists and included balance exercises compared to the most of other videos. Health channels videos also had higher DISCERN points than the videos uploaded by persons other than physiotherapists. This may be interpreted as that the videos uploaded by person or persons with higher medical attribution may be slightly better in terms of information quality. In fact, in daily medical practice physiotherapy is applied with a multidisciplinary approach including physicians and physiotherapists.

VPI and daily view count values were higher in the videos uploaded by health channels and physiotherapists than the other videos. Higher VPI and daily view counts of the videos with higher DISCERN scores may be attributed to that videos with higher information quality draw more attraction. However, it should be remembered that majority of the videos included in the study were determined as 'poor' in terms of information quality and this was a general evaluation. Namely, a video with an older uploading date causes higher likelihood of viewing for that video. Videos with higher view counts may be watched more since they viewed more by internet users. This is a vicious circle and videos with low information quality may also be watched by continuous internet users within the vicious circle.

Study Limitations

Factors such as uploading date of a video on a social media, and number of subscribers affect view count. Therefore, videos that were less viewed, but have higher information quality might not be included in our study. Inability of sampling all videos on the relevant topic prevent as to draw a definitive conclusion about YouTube videos. Nevertheless, internet users mostly viewed a few pages as a result of their search. This indicated that the videos that may be viewed by most people can be examined with the methods of this study.

CONCLUSION

In this study, medical information level of the videos that can be searched on a social media site with 'Senior Physical Therapy' keyword and most viewed was found as poor. It is reasonable for elderly people to obtain information via the internet and social media sites for physical activity and health life. Creation of medical information by specialized persons can provide minimizing missing and/or wrong information. In our study, higher mean and median DISCERN scores of 'Senior Physical Therapy' videos uploaded by physiotherapists and health channels, support this interpretation. Therefore preparation of medical-content videos by relevant specialist and increase the information content based on references are important.

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*The authors declare that there are no conflicts of interest.

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