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Can Youtube Videos Be Instructive for Self-Injection of Enoxaparin Subcutaneously in Patients?[1]

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ABSTRACT

The aim of this study is to examine the most watched videos about the application of enoxaparine on Youtube in terms of quality, reliability, usefulness and comprehensiveness. The reason for examining the videos of the broadcasts on Youtube in the study is that Youtube is a digital information source that people can access easily. In the evaluation of the videos, the video power index was calculated based on both views and likes. The quality of the videos was evaluated according to the Global Quality Score-GQS score, and the reliability was evaluated according to the DISCERN scale scores. A total of 400 videos were watched in the study and analyzes were carried out with the remaining 34 videos after the exclusion criteria. 16 of these videos were uploaded by patients, 13 by healthcare professionals, and 5 by other individuals/ institutions. 25 (73.5%) of the videos contain useful information and 9 (26.5%) misleading information. According to the quality scores of the videos calculated by GQS scoring, 15 were low, 6 were medium, and 13 were high quality videos. It was determined that the reliability and comprehensiveness scores of the videos were moderate. The results of the research revealed that Youtube videos are not an adequate instructional resource regarding the quality, safety and comprehensiveness of teaching self-injection of enoxaparine.

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INTRODUCTION

Enoxaparine is a low molecular weight heparin widely used in the prevention and treatment of various thromboembolic disorders (Noble, Peters, & Goa, 1995). There are areas of use such as prophylactic in patients with high thromboembolism risk after surgery, traumatic brain injuries and intensive care units, and for therapeutic purposes in deep vein thrombosis (Bıyık, 2020; Taylor et al., 2022; Vaughns et al., 2020). The drug is administered as intravenous and subcutaneous injection (Igbal & Cohen, 2011). It is important that patients who use enoxaparine regularly learn to self-medicate subcutaneously in order to facilitate the administration of the drug whenever and wherever they want without consulting a health center. When the use of the drug is started, patients are trained by healthcare professionals about self-administration (Pamukçu & İzci-Duran, 2021). However, patients may experience uneasiness and confusion during self-administration at home, especially during the first use. In such cases, patients seek information about subcutaneous administration of the drug (Rittberg, Dissanayake, & Katz, 2016). Within the scope of lifelong learning, it is among the important educational goals that patients, such as individuals of many different age groups and living conditions (Şaşmazören & Şahin, 2023), receive training on certain subjects during their illness. patients actively use internet-based resources as information sources. Pew Research Center reports that 59% of American adults have used the Internet to obtain health-related information in the past year (Fox & Duggan, 2013). While individuals use e-health resources, they also use videos as a source of information as they provide both visual and verbal information transfer. Youtube videos are also frequently preferred by all people as an educational material and source of information (Camm, Sunderland, & Camm, 2012). In the literature, there are studies that use Youtube as an educational resource for the acquisition of some therapeutic skills by healthcare professionals (Duncan, Yarwood-Ross, & Haigh, 2013; Logan, 2012; Sharoff, 2011). However, a problem brought about by the use of digital content from an educational point of view is that not all of these video contents are of the desired educational quality and content (Osman et al., 2022). Therefore, it is considered important to evaluate the content of videos on health-related topics on Youtube.

From this point of view, in this study, it is aimed to examine the most watched videos about self-administration of enoxaparine on Youtube in terms of popularity, viewing rate, power indexes, usefulness, quality, reliability and comprehensiveness. Within the scope of the study, the quality, reliability and comprehensiveness of the videos will be compared according to the uploaded source. Examining the videos on Youtube in the study is due to the widespread use and high preference rate of internet-based browsing related to health (Li et al., 2020). In addition, despite its widespread use, there is limited research on the educational use of Youtube on health-related issues. This study is expected to contribute to the literature in this respect.

METHOD

In this study, the document analysis method, one of the qualitative research methods, was used. Searching on YouTube (https://www.youtube.com) on August 20, 2023 with the words “how to make a self-blood thinner”, “how to make an enoxaparin injection”, “how to make an oxapar injection”, “how to make a Cleksan injection” done. Since it was shown in similar studies in the literature that viewers watched the first videos the most, only the first 5 pages of the videos related to each keyword were analyzed (Azer et al., 2013; Murugiah et al., 2011; Tutar et al., 2023). Thus, a total of 400 videos, 100 of each keyword, were evaluated within the scope of the study. The videos were evaluated independent of each other by two anaesthesiologists. In cases where there was a disagreement between these two anesthesiologists, a decision was made by obtaining expert opinion from a third anesthesiologist. Among these videos, videos (366 videos) that are irrelevant, contain advertisements, do not contain medical content, are repeated, have content in a language other than Turkish, although the name is in Turkish, and contain images but not sound. Analyzes were conducted with the remaining 34 videos after the exclusion criteria. As of the research type, it is a

document analysis and is out of the scope of ethics committee approval.

Usefulness

The usefulness of the videos was evaluated by using the four-category system that Pamukçu and Izci-Duran (2021) used in their studies. The four-fold categorization in this system is presented below.

1. Useful information (Group 1): Videos that contain useful and accurate information. Videos showing how to use the enoxaparin syringe and useful for learning self-injection,

2. Misleading information (Group 2): Videos that contain false information or do not contain information on how to use and self-administer enoxaparin injection,

3. Useful patient opinion (Group 3): These videos contain the patient's current or past personal experiences and/or feelings about enoxaparin syringe use. Self-injection videos showing how to use an enoxaparin syringe,

4. Misleading patient opinion (Group 4): Videos that contain false information from a patient or do not contain information on how to use and self-administer an enoxaparin injection.

Video quality

The Global Quality Scale (GQS) was used for the quality analysis of the videos. It is a five-point (1-5) scale that measures the quality, flow, and usefulness of a video. Accordingly, four or five points indicate high quality, three points indicate medium quality, and one or two points indicate low quality (Bernard et al., 2007; Pamukçu & İzci-Duran, 2021). The quality evaluation standards of videos according to GQS are presented below.

1 point=Video is low quality, poorly streamed, contains incomplete information and is therefore not helpful for patients,

2 points=The video is generally of poor quality and although some information is given, it contains limited information for patients to use.

3 points=The video is of medium quality. The videos contain both correct and incorrect information,

4 points=Video quality and fluent. The video contains the most relevant, useful information for patients and presents largely accurate information, but contains minor shortcomings,

5 points=The video is of excellent quality and flowing perfectly and contains very useful and completely accurate information for patients.

Reliability

It was determined by the DISCERN scale. Each video is evaluated with 5 questions on the DISCERN scale and scored between 0-5. It is evaluated by giving 1 point for each item that is answered yes. The questions in the scale are as follows.

1. Are the explanations given in the video clear, concise and understandable?
2. Are valid sources given? (Publication cited, current guidelines)
3. Is the information provided balanced and unbiased?
4. Can the audience benefit from the additional information sources listed?
5. Does the video consider controversial/ambiguous areas? (Pamukçu & İzci-Duran, 2021).

Comprehensiveness

The comprehensiveness of the video was also evaluated on a 5-point scale to evaluate the instructions for enoxaparine agent injections. It was evaluated by giving 1 point for each item that was answered yes in the video (Tolu et al., 2018). Depending on the comprehensiveness of the video, 0-5 points can be obtained from the scale. A high score indicates high comprehensiveness.

1. Preparation of pen/syringe and consumables (alcohol swab, cotton or gauze, cutting tool container)
2. Selecting an injection site and cleaning with an alcohol swab
3. Demonstration of injection application
4. Throwing the pen/syringe into the cutting toolbox
5. Pressing a cotton ball or gauze pad on the injection.

Data Analysis

The analysis of the obtained data was made using the SPSS 22.0 statistical package program. Numerical variables are presented as minimum, maximum, arithmetic mean and standard deviation values. Frequency, percentage, number (n), percentage (%) values of the data are presented. The Kruskal Wallis-H test was used for statistical comparisons. Bonferroni-corrected Mann Whitney U Test was used in paired comparisons to determine between which groups there was variation in cases where there was variation between groups. A p value of <0.05 was considered statistically significant in the analyses.

FINDINGS

The keywords determined within the scope of the study were written in the search section of the Youtube site, and a total of 400 videos were evaluated, 100 videos on the first 5 pages related to each word. 366 of the videos were excluded according to the exclusion criteria. Of these, 157 were irrelevant, 6 had images but no sound, 6 had Turkish titles but were in a different language, and 197 were repeated videos. A total of 34 videos were included in the study. The ratio of the videos included in the study to the total videos is 8.5%. 24 of them are related to the keyword group “how to make self blood thinner”, 8 are related to the keyword group “how to make an enoxaparin injection”, 1 is related to the keyword group “how to make an oxapar injection” and 1' i were videos about the keyword group “how to make a cleksan needle”. When the videos were examined in terms of the uploader, 16 (Group 3) were uploaded by patients, 13 (Group 1) by healthcare professionals, and 5 (Group 2) by other people/institutions. The view rate, popularity and power index of the videos were calculated with the formulas presented in the method section based on the number of views, the number of likes, the number of dislikes, and the loading time parameters. Descriptive information about the videos is presented in the table below.

Table 1. *Descriptive statistics of the videos included in the study*

	Min	**Max.**	**Mean**	**Standard deviation**
Loading time (days)	16.00	2973.00	1046.11	620.12
Length (sec)	42.00	963.00	237.35	218.19
Views	82.00	1150255.00	138140.26	24462.74
Number of shares	.00	.00	.00	.00
Number of comments	.00	564.00	63.85	120.57

Number of likes	.00	4800.00	583.64	1174.48
Number of dislikes	.00	.00	.00	.00
Video view rate	.15	829.91	140.30	123.82
Video popularity	100.00	100.00	100.00	.00
Video power index	.15	829.91	140.30	123.82

When Table 1 is examined, the upload times of YouTube videos about self-subcutaneous injection of enoxaparin vary between 16 days and 2973 days, the length of the videos is between 42 seconds and 963 seconds, the average number of views is 138140.26, the videos do not receive any shares, the average number of likes is 583.64, dislikes It is seen that the number is zero for all videos. Since the number of dislikes was zero, the viewing rates and video power indexes of the videos were calculated equally (x=140.30). The popularity of the video was also calculated as 100 depending on the number of dislikes being zero.

Findings on the Usefulness, Quality, Reliability, and Comprehensiveness of Videos

According to the four-fold categorization of the usefulness of the videos, 17 videos were evaluated in the useful information category, 2 in the misleading information category, 8 in the useful patient opinion category, and 7 in the misleading patient opinion category. In total, 25 (73.5%) of the videos contain useful information and 9 (26.5%) misleading information. Information on the quality, reliability and comprehensiveness of the videos is presented in table 2.

Table 2. *Results of the quality, reliability and comprehensiveness analysis of the videos*

	Min	**Max.**	**Mean**	**Standard deviation**
Quality (GQS)	.00	5.00	2.85	1.78
Reliability (DISCERN)	.00	5.00	2.23	1.41
Comprehensiveness	1.00	5.00	2.67	1.55

When Table 2 is examined, the average quality of the videos calculated by GQS scoring is 2.85, the mean of reliability calculated by DISCERN tool is 2.23, and the mean of comprehensiveness is 2.67. In addition, according to the GQS low, medium, high categorization, 15 of the videos were low, 6 were medium, and 13 were high quality videos.

Comparisons of the quality, reliability and comprehensiveness of the videos according to the uploading source are presented in table 3.

Table 3. *Comparison of videos by uploader source*

		Mean	**Sd**	**Test statistics**	**P (Significance)**
Quality (GQS)	Group 1	4.00	1.08	14.027	0.001**
	Group 2	2.60	1.67		(Group 1- Group 2;
	Group 3	2.06	1.12		Group 1-Group 3)
Reliability	Group 1	3.23	1.23	11.766	0.003**
(DISCERN)	Group 2	1.34	0.61		(Group 1- Group 2;
	Group 3	1.31	1.05		Group 1-Group 3)
Comprehensiveness	Group 1	3.69	1.60	11.857	0.003**
	Group 2	2.40	1.14		(Group 1- Group 2;

Group 3	2.50	1.46	Group 1-Group 3)

*Note: **p<0.005; Sd=Standard Deviation; Group 1=Healthcare workers; Group 2= Other persons; Group 3=Patients*

When Table 3 is examined, it is seen that the quality (p=0.001), reliability (p=0.003) and comprehensiveness (p=0.003) of YouTube videos about self-injection of enoxaparin differ according to the uploading source. Post hoc analysis results for determining the source of differentiation revealed that the videos uploaded by healthcare professionals obtained statistically significantly higher results than the videos uploaded by other people/institutions and patients in terms of quality, reliability and comprehensiveness.

DISCUSSION

In this study, it is aimed to examine the most watched videos about self-administration of enoxaparine on Youtube in terms of popularity, view rate, power indices, usefulness, quality, reliability and comprehensiveness. In recent years, videos are used as a source of information on many health-related topics (symptoms of diseases, treatment, drug applications, etc.) due to the advances in digital technologies and the widespread use of internet access (Li et al., 2020). However, the fact that the videos shared on the YouTube video platform do not have a certain standard in terms of content, videos can be easily uploaded to the platform without requiring any control, and misleading / deceptive information about the subject in some videos cause the video content to be questioned (Nason, Donnelly, & Duncan, 2016, Tutar et al., 2020). In this study, the ratio of the videos (n=34) included in the study to the total videos (n=400) is 8.5%. The low rate of videos that meet the inclusion criteria in the study can be interpreted as the existing videos do not meet the expectations in terms of title-content compatibility. The results of the research were calculated as 140.30, since the viewing rates and video power indexes of the videos were zero, since the number of dislikes was zero. The popularity of the video was also calculated as 100 depending on the number of dislikes being zero. It is noteworthy that the number of dislikes in all videos reviewed here is zero. However, similarly, in studies examining youtube videos in the field of health, it is seen that the number of dislikes is either absent or very low (Öztürk & Gümüş, 2021; Tutar et al., 2020). This has been interpreted as people living in our country prefer not to express their opinions contrary to the situations they like when they encounter a content they do not like on the internet.

The analysis results on the usefulness of the videos revealed that 73.5% of the videos contain useful information and 26.5% contain misleading information. Online platforms are effective in spreading false information as well as correct information. Especially in recent years, the spread of misleading information about health from online and offline sources is an issue that attracts the attention of the scientific world and is brought to the agenda by health-related organizations (Bilişli, 2022). When the subject is health, the misleading content of the information presented can reveal vital consequences (Gonsalves & Staley, 2014). For this reason, the fact that 26.5% of the videos examined in the study contain misleading information has been interpreted as the videos should be carefully examined in terms of content.

The results of the study revealed that the mean reliability of the videos calculated with the DISCERN tool was 2.23 and the mean of comprehensiveness was 2.67. Considering that the minimum score that can be obtained from the measurement tools used in the assessment of reliability and comprehensiveness is 0 and the maximum score is five, it is seen that the reliability and comprehensiveness scores of the videos are moderate.

According to the analysis results of the quality of the videos, according to the categorization of low, medium, high based on the GQS score (Bernard et al. 2007; Pamukçu and Izci-Duran, 2021) 15 (44.2%) of the videos were low, 6 (17.6%) were medium, 13' (38.2%) are high-quality videos. In the literature, there are conflicting results regarding low-medium-high quality in studies based on youtube video analysis on health issues (Duran & Kızılkan, 2021; Koçyiğit & Akaltun, 2019;

Pamukçu & İzci-Duran, 2021). However, when evaluated from the perspective of the vital importance of the issue and the conclusion that Pamukçu and Izci-Duran (2021) obtained in his study that the patients could not distinguish high-quality videos from low-quality videos, the results of the current study regarding the video quality of the videos related to self-administration of enoxaparine should be reviewed and supervised. and interpreted as needing improvement.

Within the scope of the study, the quality, reliability and comprehensiveness of the videos were compared according to the uploaded source. It has been determined that the videos uploaded by healthcare professionals have statistically significantly higher results than the videos uploaded by other people/institutions and patients in terms of quality, reliability and comprehensiveness. In the study of Pamukçu and Izci Duran (2021), similar to the results of this study, it was determined that the videos uploaded by healthcare professionals had significantly higher results than others in terms of GQS and DISCERN scores. The result of the study is an expected result due to the education of healthcare professionals, their routine practice of enoxaparin and similar subcutaneous injections in their professional lives. In parallel with similar studies, it has been demonstrated again that the most appropriate source of information in the videos published on health is health workers.

CONCLUSION AND RECOMMENDATIONS

Research results revealed that Youtube videos are not an adequate resource for quality, safety and comprehensiveness in teaching self-injection of enoxaparine. In terms of social benefit, it is recommended that the videos on the subject be broadcast on Youtube after a certain inspection in terms of content, scope, quality and reliability. In addition, while using any health-related video as a source of information, awareness raising studies should be carried out to take into account some criteria (such as uploaders) in order to reach accurate and useful information.

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