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Original Research

The Evaluation of YouTube™ English Videos' Quality About Coronary Artery Bypass Grafting

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Abstract

Objectives: The aim of the study was to clarify the reliability and quality of English videos about Coronary artery bypass grafting on YouTubeTM.

Methods: The study was performed between July 16 and July 30. A cardiovascular surgeon searched for terms including "coronary artery disease," "coronary artery treatment," "coronary artery bypass" and "coronary artery bypass surgery," in YouTubeTM. All videos were classified into two groups according to the source who uploaded the video as professional videos and non-professional videos. Video characteristics including duration of video on YouTube™, length of video, and view numbers for each video were recorded. Moreover, the numbers of "comments," "likes," and "dislikes" were noted. Furthermore, the target audience of the videos (professional health care worker and patients) was analyzed, DISCERN score and Global quality score (GQS) were calculated for each video.

Results: Totally, 812 videos were divided into two groups according to upload sources; 448 videos were categorized as professional videos and 364 videos were categorized as non-professional videos. The mean number of views was 3220.5 for professional videos and 2216.5 for non-professional videos (p=0.001). In addition, the mean "like" numbers and mean comment numbers were significantly higher for professional videos (p=0.001 and p=0.001). The mean DISCERN score was 2.6 for professional videos and 1.5 for non-professional videos (p=0.001). Similarly, the mean GSQ was significantly higher for professional videos (3.5 vs. 2.5, p=0.001).

Conclusion: YouTube™ videos which are shared by professional healthcare workers have better quality and reliability with significantly higher DISCERN score and GQS.

Keywords: Coronary artery bypass, DISCERN score, English videos, GQS score, YouTubeTM

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Coronary artery bypass grafting (CABG) has a pivotal role in the management of acute coronary syndrome and stable ischemic heart diseases.[1] According to statistical data, almost 800,000 people undergo CABG surgery every year. In addition, the number of patients who require CABG is increasing every year due to the increase in the average age and the increase in diseases such as hypertension and diabetes.[2] Despite the improvements in surgical techniques and medical facilities, the in-hospital mortality rate of patients who undergo CABG is reported to be up to 1%.[3] With advances in communication facilities, many patients and patient relatives are willing to obtain information about their disease from more than one source such as newspapers, television, and social media platforms.

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The previous studies investigated the role of online platforms for patient counseling, and found that more than 50% of patients and patient relatives tried to obtain information from websites, e-libraries, and social media platforms.[4,5] In addition, most patients preferred sources with visual content compared to written texts and audio sources.[6] Today, YouTube™ is the biggest social media platform, and billions of videos are shared on this platform. Furthermore, some authors have become interested in public attention to YouTube™ videos and specific diseases.[4,7] The quality and reliability of YouTube™ videos about hypertension were analyzed by Kumar and colleagues, and they demonstrated that videos with misleading information had higher view rates.[4] In another study, Bora et al.[5] investigated the reliability of YouTube™ videos about Zika virus, and the authors stated videos had low quality.

Although, the previous studies analyzed the reliability and quality of YouTube™ videos in different medical disciplines. In this study, we aimed to evaluate the reliability and quality of English videos about CABG on YouTubeTM.

Methods

The study was performed between July 16 and July 30. A cardiovascular surgeon with 12 years of experience searched for terms including "coronary artery disease (CAD)," "coronary artery treatment," "coronary artery bypass," and "coronary artery bypass surgery," in YouTubeTM. Videos that were on YouTube™ for more than 3 months and videos with 2–15 min duration were analyzed for inclusion in the study. Personal propaganda videos, videos in languages other than English, and videos without information about CABG were excluded from the study. Final evaluation found 1287 videos matched the study inclusion criteria and a playlist which included 812 videos was created. Because of no patient data being analyzed, ethics committee approval was not required for the present study.

All videos were classified into two groups according to the source who uploaded the video as professional videos and non-professional videos. Professional videos were uploaded by professional healthcare workers and legal health institutions, and non-professional videos included videos shared by patients, patient relatives, and news agencies. Video characteristics including duration of video on YouTubeTM, length of video, and view numbers for each video were recorded. Moreover, the numbers of "comments," "likes," and "dislikes" were noted. Furthermore, the target audience of the videos (professional health care worker and patients) was analyzed, DISCERN score and Global quality score (GQS) were calculated for each video.

DISCERN Score

The DISCERN questionnaire was developed for objective assessment of video quality and reliability, and previous studies externally validated the DISCERN score for the evaluation of YouTube™ videos.[8] The questionnaire contains five "yes" or "no" inquiries, and videos receive one point for each "yes" answer and zero points for each "no" answer. Five points is the maximum and shows the high quality. The DISCERN score is calculated by summing the scores for the five questions.

GQS

The GQS is a five-point scale used to assess video quality, presence of adequate information, flow and usefulness of videos.[9] The GQS of each video ranged from one to five (from worst to best). Videos which are very useful for patients and excellent quality have five points.

Statistical Analysis

The Statistical Package for the Social Sciences version 25 (SPSS IBM Corp., Armonk, NY, USA) program was used for statistical analysis. Normal distribution of the variables was analyzed by the Shapiro-Wilk test. Independent Student-t test was used for the comparison of normally distributed variables, and Mann–Whitney U test was used in the assessment of non-normally distributed data. Quantitative data are presented as mean±standard deviations. Categorical variables were compared using the χ^2 test. The data were analyzed at 95% confidence level and $p<0.05$ was accepted as statistically significant.

Results

Finally, 1287 videos were evaluated for inclusion in the study, and 475 videos did not match the study inclusion criteria. A total of 144 videos had inappropriate duration, 298 videos were not in English, and 33 videos had inappropriate content. The remaining 812 videos were divided into two groups according to upload sources; 448 videos were categorized as professional videos and 364 videos were categorized as non-professional videos (Fig. 1).

The mean number "views" of all videos was 2770.4, and the mean video length was 7.0 min. The mean duration on YouTube™ of 812 videos was 451 days. Videos had a mean 80.1 "likes" and mean 9.8 "dislikes." The mean comment number was 20.1 for each video. The mean GSQ and DISCERN scores were 3.1 and 2.1, respectively. In addition, according to target audience, 139 (17.1%) videos were uploaded for professional health-care providers and 673 (82.9%) videos were shared for patients or patient relatives. Characteristics of videos are summarized in Table 1.

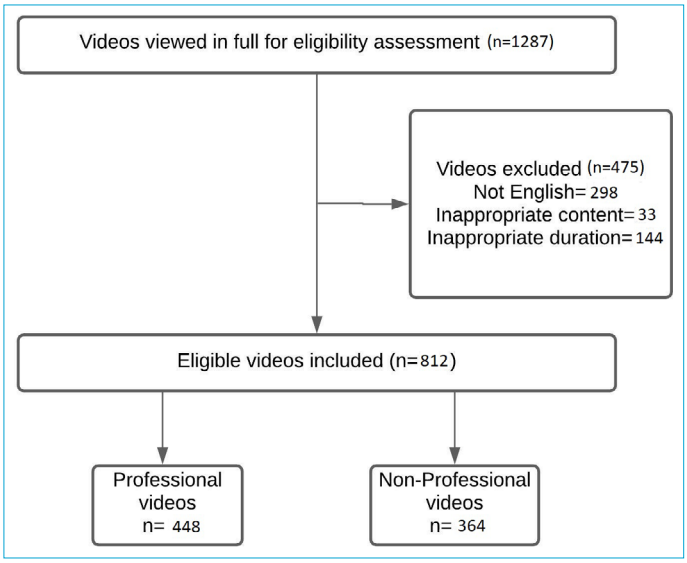

Figure 1. Flowchart of study.

Table 1. General features of all videos

Characteristics	
Number of videos	812
Audience interaction parameters*	
Number of views	2770.4±1449.9
Video length (min)	7.0±4.0
Duration on YouTube (days)	451.1±145.6
Likes	80.1±46.1
Dislikes	9.8±6.1
Comments	20.1±12.8
Global quality score*	3.1±1.8
DISCERN score*	2.1±1.2
Target audience	
For doctors and healthcare providers	139 (17.1%)
For patients	673 (82.9%)

*: mean±standard deviation.

Comparison of professional and non-professional videos revealed that video length and duration of videos were comparable between groups (p=0.539 and p=0.776). In addition, "dislike" numbers and target audience were similar (p=0.845 and p=0.081). However, the mean number of views was 3220.5 for professional videos and 2216.5 for non-professional videos, and the difference was statically significant in favor of professional videos (p=0.001). In addition, the mean "like" numbers and mean comment numbers were significantly higher for professional videos (p=0.001 and p=0.001). The mean DISCERN score was 2.6 for professional videos and 1.5 for non-professional videos (p=0.001). Similarly, the mean GSQ was significantly higher for professional videos (3.5 vs. 2.5, p=0.001) (Table 2).

Discussion

YouTube™ videos about health issues are very popular among professional health care providers and patients, due to the easy, fast and free access to this platform.[10] According to YouTube™ statistics, more than 90% of internet users watch videos in YouTubeTM, and English is most common language on this platform.[11] Thus, we aimed to clarify the quality and reliability of YouTube™ videos about CABG, one of the most common surgeries performed in cardiovascular surgery practice. We determined that professional videos had a significantly high number of views, high number of "likes" and high number of comments. In addition, professional videos had significantly higher GQS and DISCERN scores.

Previous reports demonstrated the practicability of DISCERN score and GQS in the assessment of YouTube™ video quality and utility. Yuksel and Cakmak used DISCERN score in the evaluation of YouTube™ video quality about pregnancy and COVID-19, and the authors stated that most YouTube™ videos had poor quality.[12] In another study, Ferhatoglu et al.[13] analyzed YouTube™ videos about sleeve gastrectomy, and videos uploaded by professional healthcare workers had higher DISCERN score in comparison to videos shared by non-professional individuals. In parallel, Kılınc and Sayar assessed the quality and reliability of YouTube™ videos about orthodontics, and showed that YouTube™ videos about orthodontics had low GQS.[14] Gupta et al.[15] evaluated YouTube™ videos about CABG and showed that content uploaded by surgeons had higher DISCERN scores compared to media-sourced content. In present study, we used DISCERN score and GQS for the 1st time to evaluate YouTube™ English videos about CABG, and YouTube™ English videos about CABG had low quality. Nevertheless, YouTube™ English videos uploaded by professional healthcare workers had significantly better DISCERN score and GQS.

YouTube™ statistics show that YouTube™ videos with higher "like" numbers and comment numbers receive more interaction from YouTube™ users.[16] Yuksel and Cakmak did not find any significant difference between professional and non-professional videos in regards to "like" numbers and comment numbers.[12] In another study, Sevgili and Baytaroglu stated that "like" numbers and comment numbers on YouTube™ videos about peripheral artery disease were similar between YouTube™ videos uploaded by professional healthcare workers and non-professional individuals.[17] In the present study, "like" numbers and comment numbers were significantly higher for YouTube™ English videos uploaded by professional healthcare workers. Patients requesting information from professional healthcare

Table 2. Analysis of video features by category

Characteristics	Professional	Non-professional	p
Number of videos	448	364	
Audience interaction parameters*			
Number of views	3220.5±1588.6	2216.5±1015.6	0.001
Video length (min)	7.1±4.2	6.9±3.6	0.539
Duration on YouTube (days)	449.8±145.5	452.7±145.9	0.776
Likes	103.7±44.3	51.1±28.7	0.001
Dislikes	9.8±6.2	9.7±6.0	0.845
Comments	23.7±14.5	15.7±8.7	0.001
Global quality score*	3.5±1.7	2.5±1.7	0.001
DISCERN score	2.6±1.0	1.5±1.1	0.001
Target audience			
For doctors and healthcare providers	86 (19.2%)	53 (14.6%)	0.081
For patients	362 (80.8%)	311 (85.4%)	

*: mean±standard deviation.

worker may be the reason for this outcome.

When uploading a video to YouTube servers, especially non-professionals should be aware that the videos reach many people. Patients and their relatives describing their own experiences should avoid unscientific or biased information. Surgeons should engage in an evidence-based risk-benefit discussion. Adding videos or images of the surgery can increase the intelligibility of the videos.

The present study has some limitations. Our research did not include YouTube™ videos in any language other than English; however, English is the most preferred language while using YouTubeTM. In addition, only four words were selected while searching YouTube™ videos, but these four words are the most-commonly used words about CAD and CABG. The fact that the videos were evaluated by a single surgeon can also be considered as a limitation. Finally, the present study analyzed only a certain time interval, but videos about CABG are constantly uploaded to YouTubeTM.

Conclusion

Our study demonstrated YouTube™ English videos are attainable information sources about CABG for professional healthcare workers and non-professional individuals. Our findings revealed that YouTube™ English videos about CABG have low quality and reliability. However, YouTube™ English videos which are shared by professional healthcare workers have significantly higher DISCERN score and GQS. We recommend that professional healthcare workers uploading more videos will increase the quality of YouTube™ videos about CABG.

Disclosures

Ethics Committee Approval: Because of no patient data being analyzed, ethics committee approval was not required for the present study.

Peer-review: Externally peer-reviewed.

Conflict of Interest: None declared.

Authorship Contributions: Concept – H.K.C.; Design – H.K.C., I.K.; Supervision – T.D.; Materials – M.Z.; Data collection &/or processing – M.Z.; Analysis and/or interpretation – I.K.; Literature search – I.K.; Writing – H.K.C.; Critical review – T.D.

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Supplementary 1. Modified DISCERN Instrument. 1 point per question answered yes

Modify discern (1 point per question answered yes)
1. Is the video clear, concise, and understandable?
2. Are valid sources cited? (from valid studies, physiatrists, or rheumatologists)
3. Is the information provided balanced and unbiased?
4. Are additional sources of information listed for patient reference?
5. Does the video address areas of controversy/uncertainty?

Supplementary 2. GQS scale to assess the quality of the content of videos

Score	**Global score description**
1.	Poor quality, poor flow of the site, most information missing, not at all useful for patients
2.	Generally poor quality and poor flow, some information listed but many important topics missing, of very limited use to patients
3.	Moderate quality, suboptimal flow, some important information is adequately discussed but others poorly discussed, somewhat useful for patients
4.	Good quality and generally good flow, most of the relevant information is listed, but some topics not covered, useful for patient
5.	Excellent quality and excellent flow, very useful for patients