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Youtube Kaynaklı Türkçe "Temel Yaşam Desteği" ve "Kalp Masajı" Videolarının Değerlendirilmesi

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Özet: Temel yaşam desteği, hastanın değerlendirilmesi, hastane öncesi acil müdahalenin başlatılması ve kardiyopulmoner resüsitasyon'un (CPR) sistematik olarak uygulanmasını kapsamaktadır. Amerikan Kalp Derneği (AHA) 'nın 2015 CPR kılavuzu, eğitimsiz insanların kalp masajı yapmasını teşvik etmektedir. Birçok insan, sağlık alanında bilgi edinmek amacıyla internete başvurmaktadır. Dünyada yaklaşık 1 milyar izleyeni olan YouTube, en popüler video yayın sitesi olup, bilgilerinin doğru, güvenilir ve güncel olması önem arz etmektedir. CPR Kılavuzunun 2015 yılında yenilenmiş olması, güncel kılavuz referans alınarak yeni çalışmalar yapılması ihtiyacı doğurmuştur. Bu sebeplerle araştırmamızda AHA 2015 CPR kılavuzu sonrası Türkçe olarak yayınlanan YouTube videolarının kalite, içerik ve güncelliğini değerlendirmeyi amaçladık. YouTube internet sitesinde, 'Kalp masajı' ve 'Temel yaşam desteği' terimleri kullanılarak, 29 Nisan 2019'da, arama yapıldı. Her bir kelime için, ilk 100 video değerlendirildi. Pediatrik, tıp alanı dışı, 2015 yılı öncesi, akademik, reklam içeren ve Türkçe olmayan videolar çalışma dışı bırakıldı. Videolar; özellik, güvenilirlik, kalite, bilgi doğruluğu, güncellik ve içeriklerine göre iki anestezist tarafından değerlendirildi. Ulaşılan toplam 200 videonun 39'u değerlendirmeye uygun bulundu. Tüm videolar değerlendirildiğinde sadece 3 videonun güncel kılavuzlara uygun ve doğru bilgiler içerdiği bulundu. Tüm videoların güvenilirliği az (2,62±0,14), kalitesi düşük (2,87±0,76) ve bilgi içeriği yetersizdi (56,6±21,3). Bu durum sağlık profesyoneli (n=23) ve sağlık profesyoneli olmayan kişiler (n=16) tarafından yüklenen videolarda istatistiksel olarak benzerdi (p>0.05). Araştırmamızda; çok az sayıda videonun CPR eğitimi için uygun kriterleri karşıladığı, uygun olan videoların ise %10,3'ünün güncel kılavuza göre hazırlandığı; videoların güvenilirlik, kalite, bilgi doğruluğu ve içeriklerinin yetersiz olduğunu bulduk. Belirttiğimiz durumlar YouTube'nin CPR eğitimi ve bilgilendirilmesi amaçlı kullanımını kısıtlayabilir. CPR eğitimiyle ilgili YouTube videolarının güncel kılavuzlara uygun olarak konuyla ilgili uzman sağlık profesyonelleri veya derneklerce hazırlanmasının yanı sıra CPR'la doğrudan ilişkili videolara kolay erişim için YouTube sağlık linki oluşturulmasını önermekteyiz.

Anahtar Kelimeler: Kalp masajı, Temel yaşam desteği, CPR, TYD, YouTube

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Evaluation of YouTube-based 'Basic Life Support' and 'Cardiopulmonary Resuscitation' Videos in Turkish

Abstract: Basic life support (BLS) includes patient evaluation, initiation of pre-hospital emergency intervention and systematic implementation of cardiopulmonary resuscitation (CPR). The CPR guidelines encourage untrained people to perform cardiac massage. Many people consult online sources to acquire information in the field of health. YouTube is the most popular video broadcasting site, and it is important that the information therein is accurate, reliable and up-to-date. The renewal of the American Heart Association (AHA) CPR guidelines in 2015 has led to the need for further studies based on the current guidelines. Thus, we aimed to evaluate the quality, content, and up-to-dateness of YouTube videos published in Turkish after the CPR guidelines. The YouTube website was searched in April, using the terms 'CPR' and 'BLS'. For each term, the first 100 videos were evaluated. Videos were evaluated by two anaesthesiologists based on their features, reliability, quality, information accuracy, up-to-dateness, and content. A total of 39 out of 200 videos were found to be eligible for evaluation. When all the videos were evaluated, only three videos were found to comply with the current guidelines and contained accurate information. All videos had low reliability (2.62 ± 0.14), poor quality (2.87 ± 0.76) and insufficient information content (56.6 ± 21.3). This situation was statistically similar in videos uploaded by health professionals (n = 23) and non-health professionals (n = 16) ($p > 0.05$). In our research, very few videos were found to meet the appropriate criteria for CPR training and 10.3% of the eligible videos were prepared according to the current guidelines; further, the reliability, quality, accuracy and content of the videos was insufficient. This situation specified above may limit YouTube's use for CPR training and informational purposes. We recommend creating a YouTube health link for easy access to videos directly related to CPR, as well as creating YouTube videos for CPR training by specialized health professionals or associations in accordance with the current guidelines.

Keywords: Cardiopulmonary resuscitation, Basic life support, CPR, BLS, YouTube

INTRODUCTION

Cardiopulmonary arrest (CPA) is a condition that causes high morbidity and mortality and is characterized by the inability of the respiratory and circulatory system to function effectively (1). Each year, approximately 0.1% of the US population and 0.04%–0.1% of the European population experience sudden CPA (2). The survival rate after CPA varies between 2% and 49%, which is associated with the patient's initial cardiac rhythm and early onset of CPR. Performing an accurate and high-quality CPR is known to at least double the survival rate (3). BLS includes patient evaluation, initiation of pre-hospital emergency intervention and, when necessary, application of CPR in accordance with the guidelines (4). The CPR guidelines encourage untrained people other than healthcare professionals to perform cardiac massage (5).

With the advancement of technology, many people turn to the information pages on the Internet for information in the field of health. A study reported that approximately 80% of the Internet users in the US use the Internet to search for health information (6). Another study revealed that approximately 4.5% of the Internet searches are health-related (7). And again, more than half of the individuals who used the Internet in the field of health were reported to use the information obtained from these sites actively in medical matters (8). With nearly 1 billion viewers worldwide, YouTube is the most popular video broadcasting site. It is important that the information available on YouTube, which is so popular and easily accessible, should also be reliable, up-to-date and accurate. Studies have been conducted previously to evaluate the content and quality of YouTube training videos concerning cervical cancer, mammography and CPR (9-13).

The renewal of the CPR guidelines in 2015 has led to the need for further studies based on the current guidelines. There are no studies showing the extent to which revised guidelines are reflected in the YouTube videos uploaded in Turkish. Thus, in the current study, we aimed to evaluate the quality, content, and timeliness of the YouTube videos published in Turkish after the American Heart Association (AHA) 2015 CPR guidelines.

MATERIALS and METHODS

The YouTube (https://www.youtube.com) video search engine was searched in April 2019 using the terms 'CPR' and 'BLS'. For each word, the first 100 videos were evaluated. The videos were evaluated independent of each other by two anaesthesiologists, based on the information in the AHA 2015 CPR guidelines, in terms of their features, reliability, quality, information accuracy, up-to-dateness and content. When there was a difference of opinion between the two doctors, a third doctor was included and a consensus was reached and the videos were categorized as follows.

Video exclusion criteria

-Videos on pediatric CPR
-Non-medical, non-CPR-related videos
-Videos uploaded in 2015 and before
-Academic videos made for health professionals only
-Videos made for advertising
-Videos published in a language other than Turkish
-Videos on 'CPR' and 'BLS' without performance or application
-Funny videos
-Repetitive videos
-Videos containing real-life examples without an educational format

Evaluation of videos in terms of information accuracy, up-to-dateness and content

All videos were evaluated independent of each other by two anaesthesiologists, based on the information in the AHA 2015 CPR guidelines, in terms of information accuracy, up-to-dateness and content (table 1).

The scope of the video content was assessed on a ten-point scale to evaluate CPR steps. One point was given for each command in the video (table 1). When there was a difference of opinion between the two doctors, a third doctor was included and a consensus was reached.

Classification of video features

The videos were divided into two groups according to the origin of upload: (1) Videos created by health professionals and (2) Videos created by non-health professionals.

The videos were divided into two groups according to the gender of the speaker as male and female.

The videos were divided into four groups according to the type of the speaker: (1) Doctor; (2) Non-physician health volunteer; (3) Personal video; (4) Voice-over speaker.

For each video, the rank of the video, the total number of views, the length of the video, the number of views per day, the time of broadcasting on YouTube (months) and the number of likes/dislikes were recorded.

The reliability of the videos was scored using the modified DISCERN scale (table 2)(14).

The overall quality of all videos was rated using a five-point global quality scale (GQS). The GQS scale has been developed as an evaluation tool for website resources and evaluates the flow and ease of use of online information and the quality of videos (table 2)(15).

Statistical analysis

Statistical analysis of this article has been made by using R programming language. Numerical variables were presented as mean ± standard deviation or median and interquartile range (IQR) values. Normal distribution of the data was checked using the Shapiro-Wilk test. The independent samples t-test was used for variables meeting the normality assumption, while the Mann–Whitney U test test were used if the normality assumption was not met. Categorical variables were presented as number (n) and percentage (%). In the comparison of categorical variables, the Chi-square and Fisher's Exact tests were used. A value of $p<0,05$ was considered as statistically significant.

RESULTS

A total of 161 videos of the 200 videos analysed were excluded from the study as they were non-CRP related videos (n = 72), academic videos (n = 5), non-voiced videos (n = 11), non-Turkish videos (n = 6), on pediatric CPR (n = 45), published in 2015 and before (n = 11) and repetitive (8 out of 19 videos were included in the study). In 39 videos included in the study, 3 (7.7%) were classified as the group of 'videos with accurate information' and 36 (92.3%) as the group of 'videos with inaccurate information'.

The analysis of video features, information accuracy and comparisons based on the origin of the video upload are shown in Table 3. On the analysis of video features, the total number of views, the length of the video, the number of daily views, the time (months) of broadcasting on YouTube and the number of likes were found to be higher in the group of videos uploaded by health professionals, but the difference was not statistically significant ($p > 0.05$). In addition, when the 'rank of the videos' was evaluated, the videos uploaded by health professionals ranked higher in the YouTube search ($p = 0.01$) and again 'the number of dislikes' was lower in the videos uploaded by health professionals, but this difference was not statistically significant ($p = 0.13$). The mean reliability and quality scores were higher in the videos uploaded by health professionals ($p = 0.14$ and $p = 0.09$, respectively), while the mean percentage of content was higher in the videos uploaded by non-health professionals ($p = 0.73$). While four (10.3%) of the videos evaluated in the present study were in compliance with the 2015 AHA CPR Guidelines, accurate information was available in only three (7.7%) of the videos, and there was no statistically significant difference between the two groups ($p = 0.13$ and $p = 0.49$, respectively).

The evaluation of the videos based on their contents is shown in Table 4. There were videos where important steps for a correct CPR application such as 'assessment of consciousness', 'assessment of respiration', 'assessment of circulation' and 'performing CPR to the right area' were not included. When the videos were

compared based on the origin of the upload, there was no statistically significant difference between the two groups for all parameters in which the video contents were evaluated ($p > 0.05$). In addition, 'a chest compression at a rate of 100–120 per minute', 'a compression depth of 5–6 cm' and 'automated external defibrillator (AED)' parameters were mentioned rather inadequately in both groups. In addition, there were six (15.4%) videos that did not include the recommended '30 compressions and 2 rescue breaths' in all guidelines since the AHA 2015 CPR guidelines.

DISCUSSION

In our research conducted by using the descriptive terms 'CPR' and 'BLS', very few videos were found to meet the appropriate criteria for CPR and BLS training, 10.3% of the appropriate videos were prepared according to the current guidelines, and the reliability, quality, information accuracy and content of the videos were inadequate.

The Internet, which has become an essential part of human life today, contains many materials prepared to inform patients in the field of health. Patient information texts presented on the Internet can be used to help patients by explaining indications, benefits and possible risks of medical applications (16). At the same time, it was shown that these texts can be effective in solving health problems with benefits such as informing the society, ensuring patient–physician communication and facilitating patient's compliance with treatment (17). It was reported that approximately 70% of Canadians first obtain information from the Internet before contacting a doctor to get information on medical and health-related issues (18). Founded as a video-sharing site in 2005, YouTube is used by 95% of Internet users (19). The use of YouTube by patients and healthcare professionals as a source of information in the field of medical education and health has been gradually increasing. It is important that the information acquired in the field of health is reliable, up-to-date, of high quality and understandable. YouTube is a free video-sharing site where anyone can upload videos; therefore, the reliability, accuracy and up-to-dateness of YouTube information must be questioned.

In this study, it was found that although YouTube contained many videos on CPR and BLS, a small percentage (19.5%) of the videos met the appropriate features for the purposes of the study. Of all the videos listed as a result of the search made with descriptive words, 36% were completely irrelevant to CPR and BLS and/or the field of medicine. Similarly, although many videos were reached in previous YouTube CPR studies, only 6.5% and 11.9% were considered eligible for video evaluation (11, 13).

The videos uploaded by healthcare professionals, who are expected to play an active role in BLS and CPR training, had average quality, low information accuracy, inadequate up-to-date information and inadequate reliability levels, similar to the videos uploaded by non-healthcare professionals. In addition, in terms of content scope, the videos uploaded by non-healthcare professionals had a higher average level of information. These outcomes demonstrate the need for healthcare professionals to improve and update their knowledge.

When the video content was evaluated, most of the CPR steps were well explained across the videos. In contrast, there were videos where vital steps were skipped or malpractices were performed. It is important to properly recognize CPA because it improves survival rates of patients. When the videos were evaluated in terms of proper introduction of CPA, 74.4% of all videos included assessment of respiration, and 52.7%

mentioned assessment of circulation. As a result of our evaluation, 89.7% of the videos were found to not be in accordance with the AHA 2015 CPR guidelines, although they were published after the up-to-date guidelines. In these videos that did not comply with the new guidelines, the chest compression depth and rate information that should be applied were inaccurate or incomplete. Furthermore, the fact that the 'compression ventilation rate' information, which was revised in the two previous guidelines and recommended in the most recent guidelines, was not included in 15.4% of the evaluated videos made us contemplate how YouTube's Turkish CPR videos may be used for CPR training and information purposes.

In addition, the AHA 2015 CPR guidelines recommend the application of 'Public Defibrillator Programs' in out-of-hospital cardiac arrest patients in public areas where the likelihood of CPA is relatively high. However, only 5.1% of all videos in our study mentioned the use of AED.

Study Limitations

The limitations of our study were that non-YouTube videos were not evaluated and non-Turkish videos were excluded. Another limitation of our study was that the scoring for 'reliability and quality scoring' was subjective.

CONCLUSION

As a conclusion, it was found that videos directly related to CPR on YouTube were very difficult to access, and the vast majority of directly related videos were not created in accordance with the AHA 2015 CPR guidelines. In addition, it was found that the videos uploaded by healthcare professionals also contained incomplete, inaccurate and out-of-date information. This situation may limit YouTube's use for CPR training and informational purposes. It is a well-known fact that a proper, accurate and high-quality CPR increases patients' chances of survival. For this reason, we recommend that YouTube videos on CPR training should be created in accordance with the current guidelines by specialist health professionals or associations, and a YouTube health link containing videos by country and language should be created for easy access to videos directly related to CPR.

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TABLES

Table 1. Evaluation tools of videos in terms of information accuracy, up-to-dateness and content

Evaluation of video information accuracy
Accurate information: covering most or all of the steps on how the CRP should be done; videos of accurate, up-to-date and helpful information in learning CPR
Incorrect information: Videos that contain misleading information about CPR, even if partially injured, including misleading information (for example, incorrect compression depth, incorrect compression rate).
Up-to-dateness
Up-to-date videos: Prepared according to AHA 2015 CPR guidelines
Outdated videos: Not prepared according to AHA 2015 CPR guidelines
Content (1 point per each covered on video)
Assessment of consciousness
Respiration evaluation
Circulation evaluation
Head-tilt, chin-lift maneuver.
Help call
CPR to the right place
Compression to the chest 5-6 cm
Chest compressions of 100 to 120 a minute
30 chest compressions and 2 rescue breaths
Talking about automated external defibrillator (AED)

Table 2. Assessment tools for the reliability and global quality of YouTube videos in CPR

Reliability (1 point per question if answered yes)
1. Are the explanations given in the video clear, concise and understandable?
2. Are valid sources given? (publication cited, up-to-date guidelines)
3. Is the information provided balanced and neutral?
4. Are additional sources of information listed for the viewer can benefit?
5. Does the video evaluate areas of controversy/uncertainty?
Global quality scale
1. Poor quality, poor flow, most information missing, not helpful for patients
2. Generally poor, some information given but of limited use to patients
3. Moderate quality, some important information is adequately discussed
4. Good quality good flow, most relevant information is covered, useful for patients
5. Excellent quality and excellent flow, very useful for patients

Table 3. Analysis of video features and information accuracy

		All Sites (n=39)	**Health Professionals (n=23)**	**Non-health Professionals (n=16)**	**p value**
Video number, n (%)		45(18-75)	23(9,5-49)	64,5(36-87)	**0,01**
Total view (%)		1216(373-7393)	2204(612-11272)	536(88-1353)	0,12
Video length, second		285(156-430)	286(190-430)	247(103-498)	0,84
Views per day		2,19(0,71-10,13)	4,74(1,16-12,9)	1,27(0,35-2,14)	0,19
Duration on YouTube (month)		25(12,5-36)	26(17,5-36,5)	23(10,5-29,5)	0,34
Likes		12(4,5-34)	24(3,5-54)	7,5(5-12,5)	0,13
Dislikes		0(0-3,5)	1(0-6)	0(0-1)	0,13
Reliability score		(2,62±0,14)	(2,78±0,91)	(2,37±0,72)	0,14
Comprehensiveness score		(56,6±21,3)	(55,6±24,1)	(58,1±17,2)	0,73
GQS score		(2,87±0,76)	(3,04±0,77)	(2,63±0,77)	0,09
Speaker, n (%)	Physician	5(12,8)	5(21,7)	0(0)	**0,01**
	Non-physician health provider	15(38,5)	15(65,2)	0(0)	
	Individual in the video	10(25,6)	0(0)	10(62,5)	
	External voice	9(23,1)	3(13)	6(37,5)	
Gender, n (%)	Male	24(61,5)	13(56,5)	11(68,8)	0,44
	Female	15 (38,5)	10 (43,5)	5 (31,2)	
İnformation, n (%)	Accurate information	3(7,7)	2(8,7)	1(6,3)	0,13
	Incorrect information	36(92,3)	21 (91,3)	15 (93,7)	
Up-to-dateness, n(%)	Up-to-date videos	4(10,3)	3(13)	1(6,3)	0,49
	Outdated videos	35(89,7)	20 (87)	15 (93,7)	

Variables were presented as mean ± standard deviation or median (Q1 – Q3) or frequency (%), and $p < 0.05$ was expressed as bold point.

Table 4. The evaluation of the videos according to the content

Content	All Sites (n=39)	Health Professionals (n=23)	Non-health Professionals (n=16)	p value
Assessment of consciousness	32(%82,1)	18(%78,3)	14(%87,5)	0,46
Respiration evaluation	29(%74,4)	16(%69,6)	13(%81,3)	0,41
Circulation evaluation	19(%52,7)	12(%43,8)	7(%48,7)	0,61
Head-tilt, chin-lift maneuver.	30(%76,9)	17(%73,9)	13(81,3)	0,59
Help call	31(%79,5)	17(%73,9)	14(%87,5)	0,30
CPR to the right place	36(%92,3)	21(%91,3)	15(%93,8)	0,78
Compression to the chest 5-6 cm	6(%15,4)	3(%13)	3(%18,8)	0,63
Chest compressions of 100 to 120 a minute	3(%7,7)	2(%8,7)	1(%6,7)	0,78
30 chest compressions and 2 rescue breaths	33(%84,6)	20(%87)	13(%81,3)	0,63
Talking about automated external defibrillator (AED)	2(%5,1)	2(%8,7)	0(%0)	0,23

Variables were presented as frequency (%).

Figure 1. Consort diagram of the YouTube videos in study.