YouTube As a Source of Information on 'Manual Blood Pressure Measurement'

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ABSTRACT

Introduction: The aim of the study is to evaluate the quality and reliability of videos on manual blood pressure measurement on YouTube.

Patients and Methods: In January 2021, the first 100 videos found as a result of a search with the keywords 'manual blood pressure measurement' on YouTube were watched and evaluated. Based on the exclusion criteria, 75 videos were included in the study. Duplicate videos, irrelevant videos, and videos in languages other than English were excluded from the study. Each video was scored according to the questions prepared based on the guidelines. The GQS score and the 'reliability' score were used to assess the quality of the videos.

Results: According to the checklist prepared based on the hypertension consensus report, the mean score of the videos was 8.33 ± 2.1. When the videos were evaluated according to their sources, the average score of the videos of the health sites was 9 ± 2.5, the average score of the videos of the individual healthcare professionals was 8.66 ± 1.8, the average score of the videos of unidentified individuals was 7.54 ± 2.1.

Conclusion: Manual blood pressure measurement videos on YouTube have little educational value. Videos of health websites should be preferred for education.

Key Words: Blood pressure; hypertension; YouTube

'Manuel Tansiyon Ölçümü' Konusunda Bilgi Kaynağı Olarak YouTube

ÖZET

Giriş: Çalışmanın amacı YouTube'ta manuel kan basıncı ölçümü ile ilgili videoların kalitesini ve güvenilirliğini değerlendirmektir.

Hastalar ve Yöntem: Ocak 2021'de YouTube'ta 'manuel kan basıncı ölçümü' anahtar kelimeleriyle yapılan arama sonucunda çıkan ilk 100 video izlendi ve değerlendirildi. Dışlama kriterlerine göre 75 video çalışmaya dahil edildi. Tekrarlanan videolar, alakasız videolar ve İngilizce dışındaki dilde olan videolar çalışmadan çıkarıldı. Kılavuzlara dayanarak hazırlanan sorulara göre her videoya puan verildi. Videoların kalitesini değerlendirmek için GQS puanı ve 'güvenilirlik' puanı kullanıldı.

Bulgular: Hipertansiyon uzlaşı raporuna göre hazırlanan kontrol listesine göre videoların ortalama puanı 8.33 ± 2.1 idi. Videolar kaynaklarına göre değerlendirildiğinde sağlık siteleri videolarının ortalama puanı 9 ± 2.5, bireysel sağlık çalışanlarının videolarının ortalama puanı 8.66 ± 1.8, belirlenemeyen kişilerin videolarının ortalama puanı 7.54 ± 2.1 idi.

Sonuç: YouTube'taki manuel tansiyon ölçüm videolarının eğitici değeri düşüktür. Eğitim için sağlık sitelerinin videoları tercih edilmelidir.

Anahtar Kelimeler: Hipertansiyon; kan basıncı ölçümü; YouTube

INTRODUCTION

Arterial hypertension has a high prevalence and is a major risk factor for the development of cardiovascular diseases. It considerably contributes to mortality and morbidity worldwide, posing a serious socio-economic burden[1-3].

Despite significant advances in hypertension detection, diagnosis, and therapy, more than half of patients with hypertension have insufficient blood pressure control[4,5].

Accurate blood pressure measurement is critical for accurate diagnosis, treatment goal setting, and follow-up management. Errors in blood pressure measurement can be caused

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either by the patient or by the measurement device. The use of inaccurate measurement techniques is very common, and one systematic review discovered 29 different sources of incorrect measurements[6].

The internet has become a useful tool for acquiring healthcare information, and in 2011, approximately half of all American adults utilized the internet to seek solutions to their health-related problems[7,8].

Everyone has access to video-sharing platforms, which deliver visual information to viewers. According to recent surveys, YouTube is one of the most popular websites among online resources, with over one billion people watching more than one billion hours of videos per day[9].

The most serious issue with YouTube is that its health content does not pass any physician assessment, which is required for scientific content. As a result, registered users can share any content on YouTube.

The DISCERN, HONcode, GQS, and RELIABILITY scores are some tools developed to assess the quality and credibility of the videos.

Although various research has been undertaken to analyze the quality of medical information published on YouTube[10-12], no studies have been conducted to evaluate the content related to manual blood pressure monitoring.

The purpose of this study was to assess the accuracy and reliability of videos about manual blood pressure measurement on YouTube using the GQS and RELIABILITY tools.

PATIENTS and METHODS

This study was carried out to determine the educational characteristics of blood pressure measurement videos on YouTube. On January 9, 2021, a YouTube search for the keywords "manual blood pressure measurement" was performed. We did not search for videos using any personal Google or YouTube accounts. The videos are sorted by relevance. The majority of people will select an item from the first page of search results. 95% of internet users are unable to view more than 10 pages[13].

For this reason, only the top 100 results were included. Since YouTube search results change constantly, videos have been saved to a file for future examination. Similar studies in the literature[14,15] have employed this sampling strategy. Two separate researchers watched and analyzed the videos.

When there were duplicate videos, only one was evaluated. Unrelated videos and videos in languages other than English were excluded.

Seventy-five videos were included after the exclusion criteria were applied. The researchers graded the videos based on their GQS and RELIABILITY scores. Each video was classified into three groups based on their upload source: patient or miscellaneous (in cases where cookies could not be obtained or determined), healthcare professionals, and education channels.

Table 1. Manual blood pressure checklist

Question	Rating
Is there any suitable equipment?	0 1
Is there a suitable environment?	0 1
Is the sitting position suitable?	0 1
Does the patient have speech or movement?	0 1
Brachial artery palpated?	0 1
Cuff placement correct?	0 1
Is the placement of the arm suitable?	0 1
Is the radial artery palpated?	0 1
Is the stethoscope placement suitable?	0 1
Was the measurement repeated?	0 1
Were measurements taken on both arms?	0 1
Has the cuff's tension been checked?	0 1
Is the cuff download time appropriate?	0 1

We prepared a checklist based on the most recent blood pressure measurement consensus publications[16,17]. Thirteen questions were prepared, and the videos were scored per these questions (no= 0, yes= 1) (Table 1).

In terms of the reliability and integrity of the information, all videos were given a reliability score on a five-point scale[18]. The videos could get a maximum of five points for covering each question in their content (Table 3). Videos with at least four points were considered high-quality.

All videos were also rated using the five-point global quality score (GQS).

The GQS score is an evaluation of the information quality and allows the reviewer to determine how useful a given video will be to a patient[19] (Table 4).

The exclusion criteria were the videos in languages other than English, videos that are incompatible with the material, animation movies, and videos that are less than 30 seconds in length. In the case of duplicate results, only one video was evaluated.

Ethics

The approval for this study was obtained from Kartal Koşuyolu High Training and Research Hospital Clinical Research Ethics Committee (Decision no: 2022/7/585, Date: 05.04.2022).

Table 2. Video parameters and scores

	1	2	3	P
Number of videos (n and percent)	26 (34.6)	38 (50.6)	11 (14.6)	
Checklist score	7.54 ± 2.1	8.66 ± 1.8	9 ± 2.5	0.047
GQS	2.68 ± 0.9	2.89 ± 0.689	3.45 ± 0.8	0.029
RELIABILITY	2.16 ± 0.746	2.76 ± 0.714	3.73 ± 0.64	0.000

Table 3. Reliability of information questions

Questions	Rating
1. Are the aims clear and achived in video?	0 1
2. Are reliable sources of information used in video?	0 1
3. Is the information presented balanced and unbiased in video?	0 1
4. Are additional sources of information listed for patient reference?	0 1
5. Are areas of uncertainty mentioned in video?	0 1

Table 4. GQS description questions

Questions	Rating
1. Poor quality, poor flow of the video, most information missing, not at all useful for patients.	0 1
2. Generally poor quality and poor flow, some information listed but many important topics missing, of very limited use to patients.	0 1
3. Moderate quality, suboptimal flow, some important information is adequately discussed but others poorly discussed, somewhat useful for patients.	0 1
4. Good quality and generally good flow. Most of the relevant information is listed, but some topics not covered, useful for patients.	0 1
5. Excellent quality and flow, very useful for patients.	0 1

Statistical Analysis

All statistical analyses were performed using SPSS 22.0 for Windows. Descriptive statistics for numerical variables were provided as mean ± standard deviation (SD), whilst categorical data was reported as numerical values and percentages. The Chi-square test and Fisher's exact test were used to compare categorical variables between groups. The one-way ANOVA test was utilized for comparing means between groups. The statistical significance level was set at $p< 0.05$, and the confidence interval was set at 95%.

RESULTS

A total of 100 videos were analyzed. Duplicate videos[6], videos in languages other than English[8], and unrelated videos[11] were excluded from the analysis. When video sources were examined, 11 (14.6%) videos were from educational sites, 38 (50.6%) videos were shared by individual healthcare professionals, and the source of 26 (34.6%) videos could not be determined and were classified as miscellaneous.

The average number of views was 18124 ± 7601. According to the checklist, the mean score of the videos was 8.33 ± 2.1. When the video sources are considered, the average scores for videos from the education sites, individual healthcare workers, and miscellaneous sources are 9 ± 2.5, 8.66 ± 1.8, 7.54 ± 2.1 respectively.

According to the checklist, the first (n= 73, 97.3%) and seventh (n= 70, 93.3%) questions received the highest scores, while the tenth (n= 7, 9.33%) and eleventh (n= 4, 5.3%) questions received the lowest.

In terms of reliability, the average scores for videos from educational sites, healthcare professionals, and miscellaneous sources were 3.73 ± 0.64, 2.76 ± 0.714, 2.16 ± 0.746 respectively.

The mean GQS scores were 3.45 ± 0.8 for videos from health education sites, 2.89 ± 0.689 for individual videos of healthcare professionals, and 2.68 ± 0.9 for videos in the miscellaneous group. According to our checklist score, there were only eight videos that covered more than 80% of the questions (10.6%).

Table 5. Quality of Videos

	Poor Quality	Good Quality
Checklist Score	67 (89.4%)	8 (10.6%)
GQS Score	66 (88)	9 (12%)

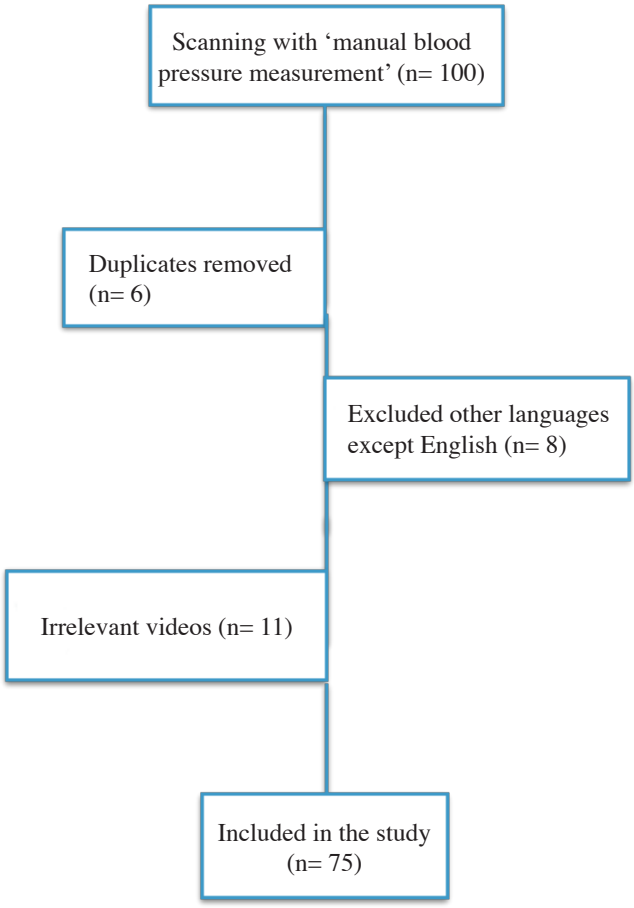

Figure 1. Flow chart.

The following were the video qualities according to the GQS scores= 4 (5.3%) videos were of poor quality, 26 (34.6%) videos were of poor quality in general and had poor flow, 36 (48%) were of medium quality, 9 (12%) were of high quality, and overall flow was good.

There was a statistically significant difference in the GQS and reliability scores of videos that covered and did not cover the checklist items.

DISCUSSION

Although manual blood pressure measurement is known theoretically, visual sources are important for consolidating such information. In our study, we attempted to evaluate the accuracy of manual blood pressure measurement videos available on the YouTube platform. According to the AHA's review on this topic, we discovered that 8% of the videos were educational. In light of these results, we concluded that the quality of instructional videos on blood pressure measurement uploaded on YouTube is poor. We were able to demonstrate that these videos may not be suitable for educational purposes. Based on the GQS score, we determined that only 9 (12%) of the videos were of high quality.

YouTube is a free-of-charge and open portal with more than 2 billion active users[20]. It can have both useful and harmful aspects. The main advantage of video content is that the viewer can study at their own pace, pausing, fast-forwarding, rewinding, restarting, and replaying as needed. One potential downside of YouTube for viewers is that most videos do not have references and may misinform viewers since it has not been evaluated critically[21,22].

Many studies have revealed that the content in YouTube videos for patient information is of poor quality. Jain et al. examined 41 YouTube videos describing transrectal ultrasound-guided prostate biopsy and discovered that the majority of the videos (78%) were of poor quality[23].

A study of 72 YouTube videos in English and 42 in Mandarin about the COVID-19 outbreak in 2020 discovered that only 67% of English videos and 50% of Mandarin videos contained scientific material, with most medical content being inadequate[24]. In a study by Jun Suh Lee et al., more than half of the YouTube videos about gallstones were found to be misleading[25]. In another study of fibromyalgia-related videos, more than 50% were classified as "very poor" and "weak" according to the DISCERN Instrument[26].

In our study, we discovered that video shares from health-related websites were statistically higher than individual posts. For this reason, we recommend that people choose informative and educational videos from health-related websites. The two least noted questions in the videos were, "Was the measurement repeated?" (n= 7 9.3%) and "Were the measurements collected from both arms?" (n= 4 5.3%)

Hypertension is a common disease in society. In the outpatient setting, patients usually have only one chance to be screened. Therefore, repeated measurements from both arms are required for a reliable diagnosis.

According to recent systematic research, YouTube contains a vast amount of healthcare-related data, some of which is incorrect or misleading[27]. A standard way of analyzing this content, however, has yet to be created. In the future, it may be considered to standardize information sharing on health-related issues by utilizing specific criteria.

In our study, we revealed that videos regarding manual blood pressure measurement, which are commonly utilized in daily practice, are insufficiently educative. It is recommended that Internet training be done by healthcare professionals and that the content be properly explained.

CONCLUSION

Since YouTube is a free-of-charge and easily accessible platform, it also runs the risk of spreading incorrect medical information or low-quality educational content. It is essential to select institutions and individuals with knowledge of the given subject.

Limitations

There are several limitations to our study. The evaluation of the videos was subjective. The agreement between the two independent reviewers, on the other hand, was quite high. YouTube is a dynamic, ever-changing video platform. Our research focuses on videos viewed during a certain period and by a specified audience. In addition, videos from other websites were excluded from the study. Moreover, the inclusion of videos only in the English language was a limitation.

Ethics Committee Approval: The approval for this study was obtained from Kartal Koşuyolu High Training and Research Hospital Clinical Research Ethics Committee (Decision no: 2022/7/585, Date: 05.04.2022).

Informed Consent: This is retrospective study, we could not obtain written informed consent from the participants.

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