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A Cross-Sectional Study of YouTube Videos on Caudal Block: Quality Assessment and Comparison of Sources

Kaudal Blok ile İlgili YouTube Videolarının Kesitsel Analizi: Kalite Değerlendirmesi ve Kaynakların Karşılaştırılması

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ABSTRACT

OBJECTIVE: YouTube has become a widely used platform for medical education, including procedural techniques such as caudal block. However, the reliability and educational quality of its content remain uncertain. This study aimed to assess the quality, reliability, and educational value of YouTube videos on caudal block and to compare content produced by independent physicians versus professional societies.

MATERIALS and METHODS: A cross-sectional analysis of 40 English-language YouTube videos was conducted using validated scoring tools: JAMA criteria, modified DISCERN, Global Quality Score (GQS), and Block-Specific Quality Score (BSQS). Viewer engagement metrics and source classification were also recorded.

RESULTS: Videos from professional societies had significantly higher view counts and like ratios, while independent physicians' videos had more likes and dislikes. Educational quality scores (JAMA, DISCERN, GQS, BSQS) showed no significant differences between the groups. VPI correlated positively with all quality scores ($p < 0.001$).

CONCLUSION: YouTube hosts variable-quality content on caudal block. While professional society videos reach a wider audience, overall educational quality remains inconsistent, emphasizing the need for critical appraisal and standardized video production.

KEYWORDS: Caudal epidural block, educational film and video, pain management, regional anesthesia

ÖZ

AMAÇ: YouTube, kaudal blok gibi girişimsel teknikler de dahil olmak üzere tıbbi eğitim için yaygın olarak kullanılan bir platform haline gelmiştir. Ancak, bu içeriklerin güvenilirliği ve eğitim materyali olarak kalitesi belirsizdir. Bu çalışmanın amacı, YouTube'daki kaudal blok videolarının kalite, güvenilirlik ve eğitsel değerini değerlendirmek ve bağımsız doktorlar ile profesyonel dernekler tarafından üretilen içerikleri karşılaştırmaktır.

GEREÇ ve YÖNTEM: İngilizce dilinde yayımlanmış 40 YouTube videosu, geçerliliği kanıtlanmış puanlama araçları (JAMA kriterleri, modifiye DISCERN, Global Kalite Skoru [GQS] ve Blok Spesifik Kalite Skoru [BSQS]) kullanılarak kesitsel olarak analiz edildi. İzleyici etkileşim verileri ve kaynak sınıflandırmaları da kaydedildi.

BULGULAR: Profesyonel derneklerin videoları anlamlı şekilde daha yüksek görüntülenme ve beğeni oranlarına sahipken, bağımsız hekimlerin videoları daha fazla beğeni ve beğenmeme aldı. Eğitim materyali kalite skorları (JAMA, DISCERN, GQS, BSQS) gruplar arasında anlamlı fark göstermedi. Video Popülarite İndeksi (VPI), tüm kalite skorlarıyla pozitif korelasyon gösterdi ($p<0,001$).

SONUÇ: YouTube'da kaudal blok hakkında farklı kalitelerde içerikler yer almaktadır. Profesyonel derneklerin videoları daha geniş bir izleyici kitlesine ulaşsa da, genel eğitsel kalite tutarsızdır. Bu durum, eleştirel değerlendirmenin ve standartlaştırılmış video üretiminin önemini vurgulamaktadır.

ANAHTAR KELIMELER: Ağrı yönetimi, eğitici video, kaudal epidural blok, rejyonal anestezi

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INTRODUCTION

In the contemporary era, video-based education has evolved into a substantial and increasingly valuable instrument in the realm of medical training. This is especially the case in the field of anesthesiology, where procedures such as airway management, equipment setup, ultrasonography and regional anaesthesia necessitate the clear demonstration of hands-on techniques. Videos have been demonstrated to facilitate step-by-step visualisation of procedures, thus providing a learning experience that is often superior to traditional text-based formats. Furthermore, they facilitate repeated viewing, self-paced learning, and flexible access, which are pivotal advantages for busy trainees. As evidenced by the findings of numerous studies, video-based learning has been demonstrated to be a significantly more efficient method of acquiring and retaining clinical skills in comparison with conventional teaching methods (1,2).

YouTube (www.youtube.com), a pre-eminent global video-sharing platform, is being increasingly utilised as a resource for medical education. The platform offers complimentary, on-demand access to a vast collection of instructional videos, encompassing a wide range of subjects, including those pertaining to regional anaesthesia. Research indicates that both patients and healthcare professionals frequently consult YouTube for procedural knowledge (3). In the domain of anesthesiology, instructional videos pertaining to peripheral nerve blocks, neuraxial anaesthesia, and airway techniques have attained considerable popularity among learners (4,5). Nevertheless, the absence of any regulatory oversight pertaining to content on YouTube gives rise to significant concerns. As indicated by earlier studies, considerable variations have been identified in the precision, dependability, and instructive value of medical videos on the aforementioned platform (6,7).

Despite the platform's popularity, there is a paucity of research evaluating the quality of YouTube videos specifically focused on caudal epidural block, a commonly used regional anaesthesia technique, especially in paediatric patients (5). It is vital that healthcare professionals are provided with precise and reliable guidance on this technique in order to facilitate safe clinical practices. However, there is currently a lack of clarity regarding the quality of the online educational material that is available to the public.

The present study has been designed to undertake a systematic evaluation of the quality, reliability, and educational value of YouTube videos related to caudal block procedures. The objective evaluation of the videos will be conducted using validated assessment tools, namely Journal of the American Medical Association (JAMA), the DISCERN, and the Global Quality Score (GQS). Furthermore, a comparative analysis of content quality will be conducted across diverse sources, including individual uploaders, academic institutions, and professional organisations. This study identifies the strengths and deficiencies in existing content with a view to providing guidance for learners and informing future efforts to improve the quality of digital educational materials in the field of anaesthesiology.

MATERIALS and METHODS

The present study adopts a retrospective and cross-sectional research design. A systematic search was conducted on YouTube (www.youtube.com) on 9 May 2025. The search was conducted using a cleared-cache web browser in incognito mode with all available updates enabled. A comprehensive list of relevant videos was compiled from YouTube search results using the keywords "caudal block", "caudal epidural block" and "caudal anaesthesia". It is important to note that no personal Google or YouTube accounts were accessed. Furthermore, the videos were displayed using the default 'relevance' sorting, with any duplicates removed. The initial evaluation involved the analysis of the first 50 videos for each specific search term, under the assumption that users rarely proceed beyond this number. The videos were reviewed and scored independently by two researchers. The intraclass correlation coefficient was then utilised to evaluate interrater agreement with a single-measurement absolute-agreement model and a two-way mixed effects model. English videos were selected for evaluation, and the videos uploaded by health professionals were assessed. Duplicates, videos of no relevance, videos with a duration of less than one minute, content not expressed in the English language, and videos not narrated were excluded in accordance with the study's criteria. The study documented the video source (independent clinician or professional society) in addition to metrics such as video duration, views, upload date, likes, dislikes, and comments. The videos were subjected to analysis using the following methodologies: JAMA scale; the GQS; and the modified DISCERN scale. In this study, the analysis comprised the observation of video recordings

of caudal blocks, which were subsequently categorised according to the utilisation of ultrasound, fluoroscopy, or the absence of an imaging device. In the videos in which ultrasound was employed, the evaluation scale was adapted for caudal block using a combination of published articles and recommendations from the American and European Regional Joint Committee on Anaesthesia and Pain Management (8). The extent of procedure-specific knowledge and skills in the videos was evaluated using the Nerve Block Quality Score. This score was used to assess various aspects, including preprocedure preparation, equipment setup, intra-procedural steps, and post-procedure care.

Statistical Analysis

The analysis of the data was conducted utilising IBM SPSS Statistics (Social Sciences 22.0 software, IBM SPSS Corp., Armonk, NY, USA) and Microsoft Excel. The presentation of descriptive statistics was undertaken as means ± standard deviations (SD) for approximately normally distributed continuous variables and as medians with interquartile ranges (IQR) or minimum–maximum values for skewed distributions. The normality of the data was assessed using the Shapiro–Wilk test and visual inspection of histograms and Q-Q plots. The Mann–Whitney U test was employed to analyse the differences between two independent groups (videos uploaded by independent physicians vs. professional societies) due to the non-normal distribution of most variables. The inter-rater reliability of the scoring systems (JAMA, GQS, BSQS) was assessed using Intraclass Correlation Coefficient (ICC) with a two-way mixed-effects model, absolute agreement, and average measures. The strength of the correlation between educational quality scores (JAMA, mDISCERN, GQS) and viewer engagement (Video Power Index, VPI) was evaluated using Spearman's rank correlation coefficient (ρ). A p-value of <0.05 was considered statistically significant.

RESULTS

Video Selection and Characteristics

Initially, 150 videos were identified; however, 110 were excluded after screening (46 duplicates, 22 unrelated to regional anaesthesia, 10 non-English, 21 without narration, and 11 shorter than 60 seconds). A total of 40 relevant English-language videos were included for analysis. The videos encompassed subjects pertaining to caudal block, caudal epidural block, and caudal anaesthesia. Video duration showed high variability, with a mean length of 460.4±648.4 seconds (range: 60-3,796 seconds) (Figure 1).

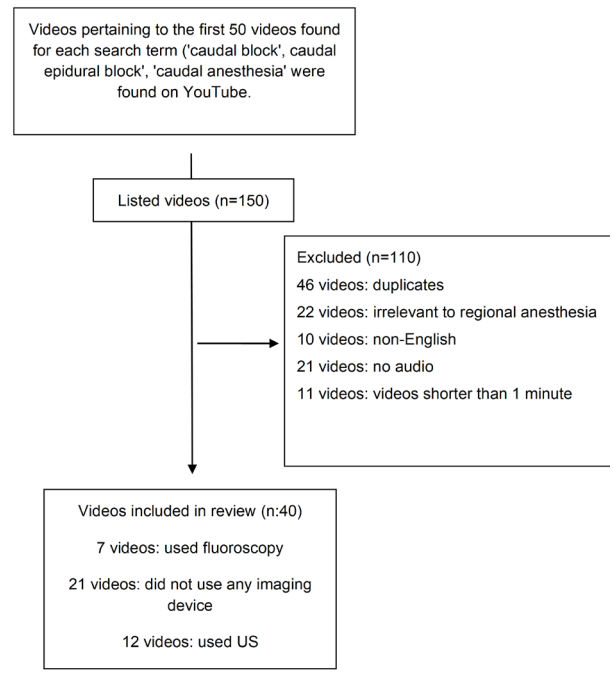

***Figure 1**. Flow diagram*

Source Classification

Of the 40 videos, 21 (52.5%) were uploaded by professional societies or institutions, while 19 (47.5%) were uploaded by independent physicians. With regard to imaging guidance, 21 videos (52.5%) did not utilise any imaging tool, 12 (30%) employed ultrasound guidance, and 7 (17.5%) utilised fluoroscopy.

Viewer Engagement Metrics

The mean number of views per video was 36,607.7±76,732.9 (range: 63-399,447). The mean number of likes was 178.4±300.6 (range: 0-1,456), and the mean number of dislikes was 8.3±13.3 (range: 0-65). The mean number of comments was 8.7±23.5 (range: 0-107). The mean like ratio was 92.2%±13.0% (range: 33.3-100%). The mean view rate was 20.9±36.9 views/day (range: 0.11-174.8). The Video Power Index (VPI) was found to be 19.98±36.85 (range: 0.10-167.34) (Table 1).

A statistical comparison between videos uploaded by independent physicians and professional societies revealed that videos by independent physicians had significantly higher median values in views (18,348 vs. 2,072.5; p=0.046), likes (95

vs. 26; p=0.022), and dislikes (5 vs. 0; p=0.014). A significant difference was observed in the like ratios of professional society videos (100% vs. 93.3%; p=0.032). The investigation revealed no statistically significant differences in the number of comments (p=0.107), the view rate (p=0.081), or the VPI (p=0.061) (Table 2).

Table 1. Descriptive statistics of Youtube videos on caudal block

Metric	Mean ± SD	Range
Video duration (sec)	460.4±648.4	60-3796
Number of views	36607.7±76732.9	63-399447
Number of likes	178.4±300.6	0-1456
Number of dislikes	8.3±13.3	0-65
Number of comments	8.7±23.5	0-107
Like ratio (%)	92.2±13.0	33.3-100
View ratio (views/day)	20.9±36.9	0.11-174.8
Video Power Index (VPI)	19.98±36.85	0.10-167.34
JAMA score	2.48±1.28	0-4
mDISCERN score	2.55±1.58	0-5
GQS	2.68±1.58	0-5
BSQS (n=12)	17.25±4.56	7-22

Table 2. Comparison of video metrics by source (independent physicians vs. professional societies)

Metric	Independent physicians (mean ± SD)	Professional societies (mean ± SD)	p-value
Number of views	32018.7±44439.1	33942.2±98872.6	0.046
Number of likes	194.95±245.38	190.06±384.32	0.022
Number of dislikes	9.76±10.95	7.88±16.87	0.014
Number of comments	13.57±31.33	3.81±7.10	0.107
Like ratio (%)	91.47±9.32	93.09±16.95	0.032
View ratio (views/day)	21.95±32.24	19.46±45.55	0.081
VPI	20.97±31.64	18.67±43.84	0.061
JAMA	2.38±1.32	2.81±1.22	0.676
mDISCERN	2.57±1.57	2.69±1.70	0.826
GQS	2.52±1.57	3.13±1.50	0.460

Educational Quality Assessment

The inter-rater reliability was found to be excellent for both the GQS (ICC =0.936; 95% CI: 0.897-0.958) and the JAMA benchmark criteria (ICC =0.919; 95% CI: 0.882-0.944). For the Block-Specific Quality Score (BSQS), calculated for 12 ultrasound-guided videos, the ICC was 0.777 (95% confidence interval [CI]: 0.712-0.823), indicating good agreement.The mean scores across all videos were as follows: The JAMA score was found to be 2.48±1.28 (range: 0-4). The mean DISCERN score was 2.55±1.58 (range: 0-5), and the GQS score was The mean BSQS for the 12 ultrasound-guided videos was 17.25±4.56 (range: 7-22).

Statistically significant differences were absent in JAMA (p=0.676), mDISCERN (p=0.826), GQS (p=0.460), and BSQS (p>0.05) scores between videos uploaded by professional societies and independent physicians.

Correlation Analysis

A statistically significant positive correlation was identified between VPI and all three educational quality metrics: The JAMA data yielded a result of $p<0.001$, with an rho of 0.649, and the mDISCERN data yielded a result of $p<0.001$, with an rho of 0.641. The GQS data yielded a result of $p<0.001$, with an rho of 0.558. These findings indicate that videos with higher viewer engagement tend to have higher educational quality (Figure 2).

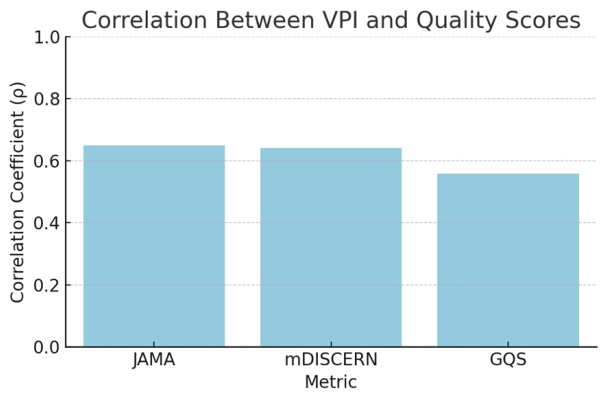

Figure 2. *Correlation between VPI and quality scores*

DISCUSSION

In the present study, the reliability, quality, and general characteristics of YouTube videos related to the caudal block were evaluated. The analysis yielded statistically significant disparities between videos uploaded by independent physicians and those from professional societies. Videos from professional societies had higher view counts and like ratios, suggesting a broader reach and better reception. Independent physicians' videos had higher numbers of likes and dislikes, possibly reflecting viewer engagement or polarising content.

However, the mean values for number of comments, view ratio, VPI, JAMA, mDISCERN, and GQS did not differ significantly between the two groups, indicating no clear advantage in educational quality based solely on the video source. Furthermore the BSQS, calculated for the 12 ultrasound-guided caudal block videos, did not demonstrate a statistically significant difference between the two groups. These findings suggest that while professional societies may produce content that garners broader attention and higher like ratios, the core educational quality as assessed by validated scoring tool remains comparable across different sources.

Despite the potential of YouTube videos to function as supplementary learning tools or for demonstrating techniques such as nerve blocks, Tewfik et al. (9) emphasised the importance of reliance on high-quality sources. De Cassai et al. (10) also assessed the educational value of 21 YouTube videos on the erector spinae plane block, reporting considerable variability in the quality of academic and non-academic videos. It was asserted that the utilisation of such platforms should be approached with a degree of caution, owing to the limitations inherent in both technical execution and the reliability of the content (10). Selvi et al. (11) evaluated the quality of 86 YouTube videos related to brachial plexus block using structured questionnaires based on established guidelines. It was determined that the majority of videos did not provide a comprehensive and safe instructional framework, particularly in ultrasonography-guided approaches (11). In a similar vein, Tulgar et al. (12) analysed 40 YouTube videos on neuraxial anaesthesia techniques and found that those produced by institutions and professional societies generally demonstrated higher educational value.

Social media and digital platforms are developing at a rapid pace and have the potential to provide easy access to medical information; however, unregulated and non-professional content may be inaccurate or biased. In light of the aforementioned studies, it is hypothesised that the utilisation of standardised educational videos, meticulously prepared by seasoned professionals in accordance with prescribed guidelines, holds considerable potential for enhancing the educational and learning objectives of YouTube content. In their study, Flinspach et al. emphasise the importance of standardising medical content when evaluating the material of a video using a checklist, thereby ensuring the accuracy and reliability of the assessment process (13).

Of particular significance was the observation of robust, statistically significant positive correlations between VPI and educational quality scores (JAMA, GQS, and mDISCERN). This finding suggests that videos characterised by higher levels of engagement tend to possess a greater educational value. However, it is important to note that this association does not imply causation. A number of other factors have been identified as potentially influencing both engagement and perceived educational value. These include presentation style, technical quality, content clarity and audience characteristics. Thus,

caution is warranted when interpreting popularity metrics as indicators of educational reliability. On the other hand, the fact that YouTube content can be processed with data from many different disciplines, even in the medical field alone, makes editing extremely difficult and necessitates serious regulation in terms of its use as a source of information (14,15).

The present study is subject to several limitations. Firstly, the analysis was confined to English-language YouTube videos, which may have resulted in the exclusion of pertinent content in other languages. Secondly, the dynamic nature of YouTube means that video rankings, view counts, and availability can change over time, potentially affecting reproducibility. Thirdly, although validated tools such as JAMA, mDISCERN, GQS, and BSQS were utilised, the evaluation of educational quality inherently involves a certain degree of subjectivity despite high inter-rater agreement. In conclusion, the BSQS was only applicable to a subset of ultrasound-guided caudal block videos (n=12), thereby limiting the generalisability of this specific metric.

The findings of this study emphasise the necessity of exercising caution when employing YouTube as a resource for procedural education in regional anaesthesia. While some videos, notably those uploaded by professional societies, have been shown to achieve higher levels of visibility and engagement, the overall educational quality remains variable and frequently suboptimal.

CONCLUSION

It is evident that YouTube exerts a considerable influence on the efficacy of regional anaesthesia, while concurrently facilitating educational advancement across all academic strata. However, it is important to acknowledge that these videos lack peer review by professionals in the field.

Ethics: This study does not require ethical committee approval because it was conducted using publicly available data and did not involve human participants.

Etik: Bu çalışma, kamuya açık veriler kullanılarak gerçekleştirildiği ve insan katılımcı içermediği için etik kurul onayı gerektirmemektedir.

Author contribution status; The concept of the study; MDI, EI. design; MDI, EI. literature review; MDI, EI. collecting and processing data; MDI, EI.statistics; MDI, EI. writing phase; MDI, EI.

Yazar katkı durumu; Çalışmanın konsepti; MDI, EI. dizaynı; MDI, EI. Literatür taraması; MDI, EI. verilerin toplanması ve işlenmesi; MDI, EI. istatistik; MDI, EI. yazım aşaması; MDI, EI.

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