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RELIABILITY AND QUALITY OF VIDEOS ON CONGENITAL HEART DISEASE ON YOUTUBE BRAZIL

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ABSTRACT
Introduction: Congenital heart disease (CHD) is a frequent structural anomaly in the child population, with a significant impact on public health. YouTube, as a widely used platform, offers accessible health content, but the reliability and quality of the information available is often questioned. Objective: To analyze the reliability and quality of videos on congenital heart disease on YouTube Brazil, using validated instruments. Methods: This is a cross-sectional study based on the analysis of 61 informative videos on CHD, published between August and October 2024. The search was performed on YouTube using the term "congenital heart disease", applying filters for standardization and excluding videos without thematic relevance. The evaluation was performed by two independent examiners using the modified DISCERN checklist and the Global Quality Score (GQS) scale. The data were analyzed by descriptive statistics, and inter-rater reliability was evaluated by the intraclass correlation coefficient (ICC). Results: The median view of the analyzed videos was 16,960, while the median duration was 8 minutes. Most of the videos (88.5%) were produced by health professionals, with a predominance of the class or lecture format (54.1%). The reliability of the information, assessed by the DISCERN checklist, had a median of 2.29, indicating moderate quality. Analysis by GQS revealed that 58.2% of videos were rated as good quality, while only 12.3% reached a level of excellence. Conclusion: The videos about CHD on YouTube Brazil have satisfactory overall quality, but with limitations in terms of scientific reliability. It is necessary to encourage the production of more robust, evidence-based content to improve health education and combat misinformation on digital platforms.

Keywords: Congenital Heart Disease. Health Education. Youtube. Quality of Information. Scientific reliability.

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INTRODUCTION

Congenital heart defects, or congenital heart disease (CHD), are structural anomalies resulting from anatomical defects in the heart or large blood vessels. These conditions can range in severity from asymptomatic deformities to complex malformations that compromise children's quality of life. DDC represent the most frequent group of congenital malformations in the child population, with an estimated global incidence of about 10 cases per 1,000 live births (SOARES, 2020; SUN *et al*., 2015).

In Brazil, the prevalence and types of CHD present regional variations influenced by demographic characteristics (MALTA, *et al*., 2020). Annually, about 28,900 children are diagnosed with CHD (1% of all births), and similarly, 80% of these children require cardiac surgery and half of them need interventions in the first year of life (MELLER, 2015; SALIM, *et al*., 2020).

In order to facilitate access to knowledge, the internet has become a common source for understanding complex pathologies, diagnoses, prognoses and treatment alternatives. This means of communication is the largest medical library in the world, it is estimated that more than 4.5% of all Internet searches are for health-related information (MORAHAN-MARTIN, 2004, GARG, *et al*., 2015). However, the dissemination of digital tools has significantly transformed the way medical information is sought, interpreted, and consumed, especially by patients undergoing surgery or facing complications related to their health conditions (VAN RIEL, *et al*., 2017).

Among these tools, *YouTube* stands out as the second most visited website in the world and the largest video-sharing platform, with more than 100 million daily active users. It can act as a powerful knowledge translation strategy by providing informative, didactic, relevant and easily accessible audiovisual content for different audiences (GARG, *et al*., 2015). Despite its accessibility and educational potential, a significant limitation of the health educational content available on *YouTube* is the absence of standardization and peer review. The absence of these criteria can lead to the spread of mistaken and outdated information, which compromises the quality and reliability of the information offered (KUMAR *et al*., 2016; FULLARD, *et al*., 2021).

Previous studies that analyzed the quality and reliability of health-related videos on digital platforms revealed that, although the content is widely accessible and reaches a significant number of users, most resources are of low quality, marked by inaccurate or incomplete information (BANASIAK, *et al*., 2017; FULLARD, *et al*., 2021). This disparity

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between the quantity and quality of content highlights the need to promote content that is not only accessible and easy to understand, but also reliable and scientifically grounded.

Given the growing role of the internet as a source of medical information for patients and families, it is essential to identify gaps in the quality of available content and propose improvements that expand its applicability and safety. In this context, this study aims to analyze the reliability and quality of videos on congenital heart disease on the YouTube Brazil platform, using validated instruments for evaluating health content.

METHODOLOGY

This is a cross-sectional study, which is based on the analysis of the content of videos published on the YouTube Brazil platform with free access. The search for videos was carried out on the YouTube website (http://youtube.com) using the term in Portuguese "congenital heart disease", between August and October 2024.

Two independent examiners performed the search on the platform, using a Google Chrome browser with a clean cache and disconnected Google accounts to minimize interference from the platform's algorithm. Additionally, an *AdBlock* application was used to prevent ads from appearing. During the search on YouTube, the "upload date" filter was used to ensure a standardized sample of the publication order.

Informative videos related to CHD, presented by health professionals, academics, patients or family members, with content in Brazilian Portuguese or subtitled, were included. Videos without specific content on the topic, experiential videos, live streaming content, *shorts*, animated gifs or sets of images, as well as commercial or advertising materials, such as ads for assistive technologies, were excluded.

To evaluate the reliability and quality of the informative videos, the modified DISCERN *checklist* and the *Global Quality Score* (GQS) scale were used. The evaluation process was conducted independently by two evaluators. To ensure greater reliability and standardization in the answers, the researchers conducted prior training on the scales and conducted a joint evaluation of 10 videos related to the topic.

To assess the reliability of the content of the informational videos, the modified DISCERN *Checklist* was used, as described by Pons-Fuster et al. (2020). This instrument consists of 16 questions that analyze aspects such as clarity of the video's objectives, use of reliable sources, impartiality of information, presentation of additional sources, and identification of areas of uncertainty. Each question received a score from 1 to 5, with

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higher scores indicating greater reliability. The overall quality of the videos was assessed using the GQS scale, which ranges from 1 to 5 and reflects the usefulness, clarity, and continuity of the content, according to criteria described by De Azevedo et al. (2024). Higher scores indicated videos of higher quality and relevance to both patients and health professionals.

The data were submitted to descriptive analysis, with calculation of means and standard deviations. The agreement Interrater was evaluated by the intraclass correlation coefficient (ICC), and the values were classified as: poor (ICC < 0.4), fair (ICC between 0.4 and 0.6), good (ICC between 0.6 and 0.75) and excellent (ICC ≥ 0.75), as described by JC (1994). Statistical analyses were performed using the software Statistical Package Is the Social Sciences (SPSS), versão 20 para Windows.

This study exclusively used information available in the public domain and followed the Brazilian ethical guidelines, according to Resolution 510/2016 of the National Health Council, without the need for an opinion from the Ethics Committee.

RESULTS

61 videos published up to September 2024 were included, independently analyzed by two evaluators. The reliability of the evaluations was verified using the intraclass correlation coefficient (ICC), with a value of 0.60 for the GQS and 0.74 for the DISCERN *checklist*, both with p = 0.00.

Table 1 - Characterization of videos on congenital heart disease available on YouTube Brazil

VARIABLES	UNIT OF MEASUREMENT
MOTHER'S AGE (YEARS)	**MEDIAN (IQR)**
Views	1944,50 (14.842,47 – 26.207,29)
Number of likes	110 (180 - 286)
Number of reviews	8 (19,11 – 32,82)
Duration of videos (min)	8 (15,67 – 25,83)
INFORMATION PROVIDER	**(%)**
Healthcare professional	88,5
Students	5,7
Not specified	5,7
ANTENATAL CORTICOSTEROIDS	**(%)**
Class or lecture	54,1
Interview, documentary, or report	41,8
Experience report	0,8
Mixed forms of presentation	3,3

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FINANCING (%)	(%)
Company or organization	53,3
Staff	23
Government	6,6
Not specified	17,2

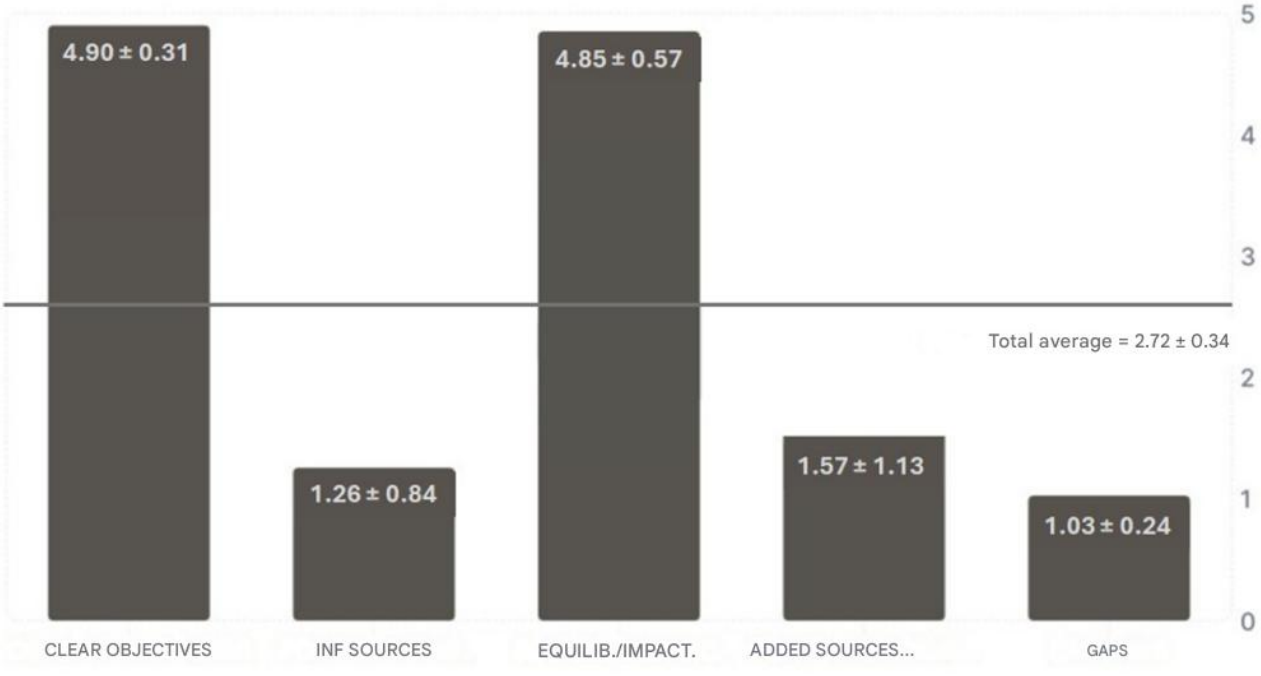
IQR: interquartile range; (%): percentage; M ± SD: Mean ± standard deviation

Table 2 - Analysis of the Global Quality Score of the videos on congenital heart disease on YouTube Brazil

DATA	N (%)
Poor quality, bad video stream, too much missing information, nothing useful for patients or professionals	1 (0,8)
Generally, poor quality and flow, some information listed but many important topics missing, of very limited use to patients or professionals	6 (4,9)
Moderate quality, suboptimal flow, some important information is discussed properly, but others are poorly discussed, not very useful for patients or professionals	29 (23,8)
Good quality and generally good flow. Most of the relevant information is listed, but some topics are not covered, useful for patients or professionals	71 (58,2)
Excellent quality and flow, very useful for patients or professionals	15 (12,3)
Score Total	**M ± DP** 3.76 ± 0.76

Caption: Distribution of the Global Quality Score of videos on congenital heart disease on YouTube Brazil. The values are expressed as absolute number and percentage. M ± SD = Mean ± standard deviation.

Figure 1 - Reliability of the information of the included videos evaluated by the *DISCERN* checklist



The evaluation considered five criteria: (1) clear objectives – clarity and achievement of the video's objectives; (2) Sources of Inf. – use of reliable sources of information, such as scientific publications or qualified experts; (3) Equilib./impac. – neutrality of the information presented, without bias or ulterior motives;

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(4) Fontes Adicion. – indication of references for the public, allowing access to original information; and (5) gaps – highlighting controversial or inconclusive issues in the literature.

DISCUSSION

The results presented in this study indicate that the videos on CHD available on YouTube Brazil have a moderate to good overall quality, but with a reduction in the reliability of the information. The predominance of videos produced by health professionals (88.5%) suggests an active effort to disseminate qualified knowledge. However, when analyzing this information in detail, it is possible to observe significant gaps in the scientific basis and transparency of the sources used, compromising the credibility of the information presented.

The evaluation using *the DISCERN checklist*, a validated tool to measure the reliability of health information, showed an average score of 2.72 ± 0.34, indicating that although some aspects of the quality of the content are adequate, most of the videos do not fully meet the criteria of scientific reliability. GQS averaged 3.7 ± 0.76, suggesting that the videos are well-crafted in audiovisual terms, with only 0.8% of the videos included being of poor quality.

When analyzing the individual criteria of the *DISCERN checklist*, it was observed that the videos obtained high scores for clarity of objectives (4.90 ± 0.31) and balance/impartiality (4.85 ± 0.57). This suggests that the presentation of content usually follows a coherent structure like what was proposed and without explicit biases. However, essential aspects of scientific reliability, such as citation of reliable sources (1.26 ± 0.84), the indication of additional sources for further study (1.57 ± 1.13), and the discussion of uncertainties in the literature (1.03 ± 0.24), demonstrated alarmingly low scores.

The absence of this information can compromise the accuracy of the knowledge acquired by viewers and favor the dissemination of fragmented or inaccurate information. Therefore, these findings corroborate previous research that evaluated the quality of health information available on YouTube. Soares-Silva et al. (2024) analyzed videos on bruxism and found that most of them had low reliability and quality, with significant gaps in the scientific foundation. On the other hand, in the study by Kargwanski (2020), videos about oral cancer were examined and reported that only 13% were considered of good or excellent quality, while most presented incomplete or potentially misleading information.

GQS's analysis revealed that 58.2% of videos were rated as good quality, while only 12.3% achieved a level of excellence. This suggests that many videos are visually

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appealing and well-structured, but they don't always convey in-depth or scientifically based information. This dichotomy between production quality and content reliability has already been highlighted in the literature, showing that highly aesthetic videos can reinforce a mistaken perception of credibility, without necessarily providing accurate and useful information for clinical decision-making (Andan; Aydin, 2022).

Regarding the form of presentation of the content, the predominance of videos in the class or lecture format (54.1%), followed by interviews and documentaries (41.8%), suggests that creators prioritize traditional approaches in the dissemination of knowledge. However, the low use of interactive audiovisual resources, such as animations or simulations, can limit audience engagement and reduce the absorption of information. Studies indicate that multimodal and interactive formats favor knowledge retention and expand the impact of health information, making content more accessible and understandable to different audiences (Toptan; Kizildemir, 2023).

From a practical and applied point of view, the findings of this study reinforce the need to improve the reliability of the information on CHD available on YouTube. It is suggested that health professionals and academic institutions should be encouraged to produce more complete content, based on scientific evidence and to explore new communication strategies that facilitate the assimilation of knowledge by the lay public. Additionally, it is recommended that platforms such as YouTube implement stricter curation algorithms, prioritizing videos from recognizably trusted sources and providing additional context to mitigate the spread of potentially misleading information (Holge *et al*., 2023).

The limitations of this study include the analysis restricted to YouTube Brazil, which may not represent the totality of information about CHD on other platforms, and the exclusion of videos based on experience reports, which may have limited the understanding of the patients' perspective. In addition, the use of subjective scales to assess content quality and reliability showed inter-rater variations with moderate to substantial agreement (ICC GQS: 0.60; ICC DISCERN: 0.74, p = 0.00). Future studies should explore users' perceptions and compare the informational quality between different digital media.

CONCLUSION

The videos available on YouTube Brazil about CHD have a moderate to good overall quality, but exhibit significant deficiencies in terms of information reliability, as assessed by

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the modified DISCERN *checklist*. The predominance of videos produced by health professionals and the use of an educational format indicate an effort to disseminate qualified knowledge. However, the lack of reference citation, the absence of bibliographic indications, and the scarcity of discussions about gaps in the literature compromised the reliability of the videos evaluated.

Given this scenario, it is essential that health professionals and academic institutions are encouraged to produce higher quality content, based on scientific evidence, in order to improve the accuracy and reliability of the information available to the public. In addition, more rigorous curation by digital platforms can contribute to a more scientifically based health education. YouTube, as one of the main sources of search, plays a central role in this process and should be strategically explored to enhance the positive impact on the dissemination of medical-scientific knowledge.

Future research can explore the public's perception of the usefulness of these videos, as well as investigate effective strategies to optimize the credibility and reach of health information across different digital platforms.

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