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Evaluating the Quality of Information in YouTube Videos on Alcohol Intoxication and Poisoning: Implications for Emergency Medicine

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Abstract

Aim: This study evaluated, from an emergency medicine perspective, the quality, reliability, and first-intervention content of YouTube videos on alcohol-related intoxication and poisoning

Materials and Methods: On October 1, 2023, YouTube was searched for "alcohol intoxication" and "alcohol poisoning." The first 50 eligible English-language videos were included in this cross-sectional study. Two experienced emergency medicine physicians jointly evaluated the videos and recorded consensus scores using DISCERN, the Global Quality score (GQS), and the Journal of the American Medical Association (JAMA) benchmark criteria. Non-parametric tests were used for comparisons and correlations.

Results: The videos had accumulated 21,254,061 views. Symptoms were described in 30 videos (60%), whereas first-intervention information was provided in 19 videos (38%). Rating data were available for 49 videos; the median (interquartile range) Dissemination of Information on Consumer Health (DISCERN), GQS, and JAMA scores were 27 (8), 3 (2), and 2 (1), respectively. Scores did not differ significantly among academic, personal/non-academic, and commercial sources ($p=0.207$, $p=0.271$, and $p=0.923$, respectively). Videos describing symptoms had higher DISCERN scores (adjusted $p=0.002$), whereas those providing first-intervention information had higher DISCERN and GQS scores (adjusted $p<0.001$ and $p=0.003$, respectively). DISCERN and GQS were strongly correlated (rho=0.820, Holm-adjusted $p<0.001$).

Conclusion: YouTube videos on alcohol-related intoxication and poisoning frequently lack actionable emergency information. No statistically significant difference in quality scores was detected across uploader sources; however, the small and unequal group sizes preclude drawing conclusions of equivalence. Symptom content and first-intervention content were associated with higher quality scores. Public-facing videos should provide clear and timely guidance for seeking emergency medical assistance.

Keywords: Alcoholic intoxication, poisoning, emergency service, social media, health communication, YouTube

Introduction

Despite the potential benefits of platforms like YouTube, previous studies have shown that substance-related videos, including those promoting cannabis and synthetic cannabinoids, often depict recreational use and are frequently shared with minimal age restrictions (1). This increases the risk of exposure to health misinformation, particularly among younger and more vulnerable audiences. Similarly, alcohol consumption appears to be rising in today's society, influenced in part by the widespread reach and impact of social media (2). Alcohol is the most widely used intoxicating substance worldwide, and the consequences of unhealthy alcohol use are correspondingly substantial (3). Alcohol consumption exhibits a broad distribution across the general population and has a significant impact on healthcare systems (4). Alcohol consumption, reported to be involved in 5.9%

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of all emergency department (ED) visits in Ireland, represents a significant global public health concern, contributing to one in five ED presentations and one in six hospital admissions worldwide (5,6). The 61.6% increase in alcohol-related ED visits and the 47% rise in visits specifically due to alcohol intoxication in the United States between 2006 and 2014 underscore the growing burden of alcohol misuse as a public health issue (7).

Alcohol-related poisoning may result from excessive ethanol intake or the ingestion of toxic alcohols, including methanol and ethylene glycol, which may be present in illicit alcoholic beverages, cleaning products, and automotive fluids (8,9). Both methanol and ethylene glycol have caused numerous mass-poisoning outbreaks (10). Clinical features used in the diagnosis of acute ethanol intoxication include a history of ethanol consumption, behavioral changes, slurred speech, impaired coordination, nystagmus, memory impairment, and the absence of another condition that adequately explains the clinical presentation (11,12). In recent years, the increased accessibility of medical information on the internet has led individuals to use web resources not only for information on the perceived positive aspects of alcohol use but also for information regarding intoxication-related situations, which indicates possible reliance on social media. Among these platforms, YouTube, owned by Google since 2006, is one of the most widely used video-sharing platforms (13). Given the prevalence of alcohol-related emergencies and the growing reliance on social media platforms for medical information, evaluating the quality of social media content has become a public health priority.

This study aimed to characterize the content, quality, reliability, and information on first interventions in YouTube videos addressing alcohol-related intoxication and poisoning, using internationally accepted assessment instruments.

Materials and Methods

On October 1, 2023, YouTube was searched using the terms "alcohol intoxication" and "alcohol poisoning." The search was conducted from Türkiye using an incognito browser session to minimize the influence of previous search and viewing history. No sorting, upload-date, language, or geographic filters were applied during the search, and the results were displayed according to YouTube's default relevance-based ranking. The search results generated using the two terms were screened sequentially, and the first 50 unique eligible videos were included. Videos were considered eligible if they addressed alcohol intoxication or poisoning and were available in English through either English-language audio or English subtitles. The search results and relevant video characteristics were recorded on the same day to limit the effect of subsequent changes in YouTube rankings and engagement metrics.

The terms "alcohol intoxication" and "alcohol poisoning" were used as complementary search terms to maximize the retrieval of relevant public-facing videos rather than as interchangeable clinical diagnoses. The primary focus of the study was acute ethanol intoxication; however, videos addressing toxic alcohol poisoning, such as methanol or ethylene glycol, were also retained when they contained information relevant to emergency recognition or intervention. During content review, videos specifically addressing methanol, ethylene glycol, or other toxic alcohols were also identified and counted. These videos were not classified as a separate analytical category. The binary "first-intervention information" variable was applied to all included videos to indicate whether each video presented any immediate emergency action or medical management relevant to the type of intoxication discussed.

This study is an observational, cross-sectional analysis of publicly available YouTube videos related to alcohol intoxication and poisoning. No interventions, experiments, or participant interactions were conducted. Data were collected passively, without altering the video content or influencing its ranking on the platform. Changes in video content, ranking, or engagement metrics over time were not evaluated.

The names of individuals and organizations creating the videos were kept confidential. Since all videos were publicly available on the social media website YouTube.com and no human or animal participants were involved, ethical committee approval was not required.

Video Characteristics, Content, Quality, and Reliability Assessment

The videos were characterized by duration (minutes), views, days since upload to YouTube, comments, and likes. Categorical characteristics included: video source (academic association/group, personal/non-academic, or commercial/advertisement), country of upload, target audience (physicians or non-physicians/general public), and language format (English audio or English subtitles). Videos were also assessed as to whether they introduced types of alcohol, described the signs or symptoms of alcohol-related intoxication or poisoning, and provided information on initial intervention.

Information on first intervention was recorded as a binary variable (present/absent). A video was classified as providing first-intervention information if it included at least one actionable recommendation concerning the immediate response to or early medical management of suspected alcohol-related intoxication or poisoning. Relevant recommendations included activation

of emergency medical services or urgent referral to an ED assessment or support of airway, breathing, and circulation; protective positioning and measures to reduce aspiration risk; observation and monitoring; avoidance of potentially unsafe responses, such as inducing vomiting; or other scenario-appropriate early medical management. For videos addressing toxic alcohols, urgent medical evaluation and information on appropriate antidotal or enhanced-elimination treatments were also considered relevant as first-intervention content. Videos that only described symptoms, long-term consequences, prevention, or general information and lacked an actionable recommendation for acute management were classified as not providing first-intervention information. These criteria were informed by established emergency medicine recommendations for the management of acute alcohol intoxication and substance intoxication (3,12). This binary variable reflected the presence of relevant first-intervention information rather than the completeness of the intervention, the full guideline concordance, or the clinical accuracy of every recommendation provided.

Like rate and view rate were calculated to standardize engagement metrics across videos. The Like rate was defined as the number of likes per 100 video views and calculated as [(number of likes/number of views) × 100]. The view rate was expressed as the annualized number of video views and calculated as [(number of views × 365)/number of days since upload].

Standardized scoring instruments were used to evaluate the quality and reliability of the videos. The Journal of the American Medical Association (JAMA) benchmark criteria, developed by Silberg et al. (14), were used to assess the transparency and reliability of online medical information. The JAMA criteria evaluate four domains: authorship, attribution or citation, disclosure, and currency, producing a total score ranging from 0 to 4. The Global Quality score (GQS), developed by Singh et al. (15), was used to assess the overall quality, educational value, flow, and usefulness of each video on a 5-point Likert scale. JAMA and GQS provide general, topic-independent assessments of online health information (16). The Dissemination of Information on Consumer Health (DISCERN) instrument, developed by Charnock et al. (17), was used to assess the reliability and quality of information concerning treatment choices. The 15-item DISCERN instrument used in the present study rated each item on a 1-5 scale, producing a total score ranging from 15 to 75; higher scores indicating better-quality information.

All eligible videos were viewed and evaluated simultaneously by two emergency medicine physicians, each with approximately 10 years of experience in emergency medicine. One evaluator was a faculty member, and the other was a practicing emergency medicine specialist. Before the assessment, the two evaluators reviewed the criteria of the DISCERN, GQS, and JAMA instruments to establish a common interpretive framework. Each video was viewed in full and scored jointly by the two evaluators. Following each assessment, a joint consensus score was entered for each instrument. Because the ratings were generated by joint consensus rather than independently, inter-rater reliability coefficients could not be calculated. During final data verification, the archived analytical dataset was found to be missing the complete consensus rating record for one video in the personal/non-academic source category. The missing data involved all three instruments (DISCERN, GQS, and JAMA). When re-evaluation was attempted during the revision process, the video was no longer accessible on YouTube; consequently, its scores could not be reconstructed reliably. The video was retained in descriptive and content-based analyses using information recorded on the original search date, but was excluded from all score-based analyses. No missing rating scores were imputed.

Statistical Analysis

Statistical analyses were performed using IBM SPSS Statistics version 22.0 (IBM Corp., Armonk, NY, USA). The revised analyses, including post hoc, exact, and multiple-comparison procedures, were independently verified using Python 3 and SciPy version 1.17.0. Continuous and ordinal variables were summarized using the median and interquartile range (IQR), with the IQR defined as the difference between the 75th and 25th percentiles. Categorical variables were presented as counts and percentages. The distribution of quantitative variables was assessed using the Shapiro-Wilk test. Because the relevant variables were not normally distributed and some scoring variables were ordinal, non-parametric statistical methods were used.

Comparisons of quantitative or ordinal variables across the three video-source categories were performed using the Kruskal-Wallis test. When the overall Kruskal-Wallis test was statistically significant, Dunn's post hoc test with Bonferroni adjustment was used for pairwise comparisons. Because several comparisons involved small expected cell counts, categorical variables were compared across video-source categories using the Fisher-Freeman-Halton exact test. When an overall Fisher-Freeman-Halton test was statistically significant, pairwise comparisons were performed using two-sided Fisher's exact tests with Holm adjustment.

Spearman's rank correlation coefficient was used to assess associations among quantitative and ordinal variables. Non-ordinal nominal variables (including video source) and binary categorical variables indicating the presence or absence of specific content were not included in the correlation analysis. Correlation strength was interpreted according to the absolute value of the

coefficient as negligible (0.00-0.10), weak (0.10-0.39), moderate (0.40-0.69), strong (0.70-0.89), or very strong (0.90-1.00), based on the classification proposed by Schober et al. (18). To account for multiple testing in Table 3, the Holm procedure was applied across the 15 unique correlation tests. Holm-adjusted two-sided p values are reported; an adjusted p value <0.05 is considered statistically significant.

To evaluate whether video quality differed based on the presence of specific content, DISCERN, GQS, and JAMA scores were compared using the Mann-Whitney U test between videos with and without information on alcohol types, intoxication or poisoning symptoms, and first intervention. Because nine comparisons were performed for these content characteristics, the resulting p values were adjusted using the Holm procedure. Missing data were handled using an available-case approach, and no values were imputed. Accordingly, analyses involving DISCERN, GQS, or JAMA scores were based on the 49 videos with complete rating data. All tests were two-sided, and a p value or adjusted p value <0.05, as applicable, was considered statistically significant.

Results

A total of 50 videos were included in the analysis. Of these, 37 (74%) were uploaded by personal/non-academic sources, 9 (18%) by academic associations or groups, and 4 (8%) by commercial/advertising sources. Symptoms of alcohol intoxication or poisoning were described in 30 videos (60%), whereas information on first intervention was provided in only 19 videos (38%). Three of the 50 included videos (6%) specifically addressed toxic alcohol poisoning; all focused-on methanol. None specifically addressed ethylene glycol or other toxic alcohols. Because of the small number of toxic-alcohol-related videos, a separate subgroup analysis or a sensitivity analysis was not considered statistically reliable. Complete DISCERN, GQS, and JAMA scores were available for 49 videos. The medians (IQRs) of the DISCERN, GQS, and JAMA scores were 27 (8), 3 (2), and 2 (1), respectively. The median video duration (IQR) was 3.78 (6.94) minutes; the median number of views was 19,964.50 (181,652.50), and the median number of likes was 188.00 (982.50). Comment counts were available for 49 videos because comments were disabled for one video; the median comment count (IQR) was 29.00 (325.50). The videos had a total duration of 285.98 minutes and accumulated 21,254,061 views, 259,796 likes, and 34,532 visible comments. The descriptive characteristics of the included videos are presented in Table 1.

Video characteristics by source category are presented in Table 2. When the videos were grouped by source, no statistically significant differences were found in DISCERN, GQS, or JAMA scores across sources classified as academic associations/groups, personal/non-academic, and commercial/advertising (p=0.207, p=0.271, and p=0.923, respectively). Significant overall differences were observed among video sources in view rate (p=0.003), video duration (p=0.002), view count (p=0.001), like count (p=0.001), and comment count (p=0.001). Dunn's post hoc tests with Bonferroni adjustment demonstrated that personal/non-academic videos had significantly higher view rates than academic videos (adjusted p=0.016) and commercial/advertising videos (adjusted p=0.049). Personal/non-academic videos were also significantly longer than academic (adjusted p=0.013) and commercial/advertising videos (adjusted p=0.039), and had significantly higher view counts (adjusted p=0.019 and p=0.007, respectively), like counts (adjusted p=0.016 and p=0.014, respectively), and comment counts (adjusted p=0.015 and p=0.009, respectively). No significant post-hoc differences were found between academic and commercial or advertising sources for these variables. The proportion of videos describing symptoms of intoxication or poisoning differed significantly across sources (exact p=0.007); all academic association/group videos described symptoms, compared with 48.6% of personal/non-academic videos and 75% of commercial/advertising videos. Pairwise Fisher's exact tests with Holm adjustment showed that symptom information was significantly more frequent in videos from academic associations/groups than in personal or non-academic videos (adjusted p=0.019). The other pairwise comparisons for symptom information were not statistically significant. Language format also differed significantly among video sources in the overall analysis (exact p=0.031); however, none of the pairwise comparisons for language format remained statistically significant after Holm adjustment. No significant source-based differences were found in country of upload, target audience, introduction of alcohol types, or first intervention information.

After Holm adjustment across the 15 unique correlation tests presented in Table 3, a strong positive correlation between DISCERN and GQS scores remained (rho=0.820, adjusted p<0.001). Moderate positive correlations also remained between DISCERN and JAMA scores (rho=0.455, adjusted p=0.014), between GQS and JAMA scores (rho=0.447, adjusted p=0.017), and between like rate and JAMA scores (rho=0.407, adjusted p=0.044). The correlations of like rate with DISCERN and with GQS, and of video duration with GQS, were not statistically significant after Holm adjustment. View rate and comment count were not significantly correlated with any of the three quality scores. The complete correlation results, including Holm-adjusted p values, are presented in Table 3.

Because the variables indicating the introduction of alcohol types, description of intoxication or poisoning symptoms, and

Table 1. Classification and descriptive characteristics of the included YouTube videos		
Characteristic		**Value**
Video duration, min, median (IQR)		3.78 (6.94)
Days since upload, median (IQR)		1655.50 (1878.00)
View count, median (IQR)		19,964.50 (181,652.50)
Like count, median (IQR)		188.00 (982.50)
Comment count, median (IQR)		29.00 (325.50)
Like rate, %, median (IQR)		0.79 (0.70)
View rate, median (IQR)		4108.49 (18,478.30)
Video source, n (%)	Academic association/group	9 (18)
	Personal/non-academic	37 (74)
	Commercial/advertisement	4 (8)
Country of upload, n (%)	United States	29 (58)
	Canada	4 (8)
	Other	7 (14)
	Unknown	10 (20)
Information introducing alcohol types, n (%)	No	47 (94)
	Yes	3 (6)
Description of alcohol intoxication/poisoning symptoms, n (%)	No	20 (40)
	Yes	30 (60)
Information on first intervention, n (%)	No	31 (62)
	Yes	19 (38)
Language format, n (%)	English audio	45 (90)
	English subtitles	5 (10)
Target audience, n (%)	Physicians	6 (12)
	Non-physicians/general public	44 (88)
DISCERN score, median (IQR)		27 (8)
GQS, median (IQR)		3 (2)
JAMA score, median (IQR)		2 (1)

Data are presented as median (IQR) or n (%). Comment count was available for 49 videos because comments were disabled for one video. Complete DISCERN, GQS, and JAMA scores were available for 49 videos. All three consensus scores were unavailable for one personal/non-academic video and could not be reconstructed because the video was no longer accessible during data verification. No rating scores were imputed. All other variables were available for all 50 videos. Like rate was calculated as (number of likes/number of views) × 100. View rate was calculated as (number of views × 365)/days since upload. DISCERN: Dissemination of Information on Consumer Health, GQS: Global Quality Score, JAMA: Journal of the American Medical Association, IQR, interquartile range

provision of first-intervention information were binary variables, they were not included in the correlation analysis. Instead, quality scores were compared between videos with and without each content characteristic using the Mann–Whitney U test. After Holm adjustment for multiple comparisons, videos describing intoxication or poisoning symptoms had significantly higher DISCERN scores than videos without symptom information [median (IQR): 30.50 (12.50) vs. 25.00 (4.00); adjusted p=0.002]. Videos providing first-intervention information also had higher DISCERN scores [36.00 (13.00) vs. 25.00 (4.00); adjusted p<0.001] and GQS scores [4.00 (1.00) vs. 2.00 (1.00); adjusted p=0.003]. JAMA scores did not differ significantly according to symptom content or first-intervention content. The introduction of alcohol types was not significantly associated with any quality score after adjustment for multiple comparisons (Table 4).

Discussion

YouTube as a Growing Health Information Platform

This study evaluated the first 50 YouTube videos related to alcohol intoxication and poisoning, which had accumulated more than 21 million views. In addition to the view count, the 259,796 likes and 34,532 visible comments further indicate substantial interest in the topic. Despite the potential benefits of platforms such as YouTube, these platforms may contribute to the promotion of substance use, particularly alcohol consumption, in contemporary society, partly because of the widespread accessibility and

Table 2. Video characteristics according to source category

Academic association/ group (n=9)		Video source			p value
		Personal/ non-academic (n=37)	Commercial/ advertisement (n=4)		
DISCERN score (median (IQR)		31 (12)	27.50 (8)	25.50 (4.75)	0.207
GQS (median (IQR)		3 (1.50)	3 (2)	2 (0.75)	0.271
JAMA score (median (IQR)		2 (1)	2 (1)	2 (0.75)	0.923
Like rate (%) (median (IQR)		0.66 (0.59)	0.99 (0.79)	0.64 (0.22)	0.075
View rate (median (IQR)		736.31 (4959.69)	6261.72 (137,385.66)	867.19 (1249.16)	**0.003**
Video duration, min (median (IQR)		1.42 (1.41)	5.45 (8.48)	1.43 (0.98)	**0.002**
Days since upload (median (IQR)		1961 (1470)	1790 (2123)	1028 (1300.50)	0.285
View count (median (IQR)		3506 (30,652)	32,852 (563,745.50)	1554.50 (1554.25)	**0.001**
Like count (median (IQR)		15 (273)	298 (6599.50)	8 (10.25)	**0.001**
Comment count (median (IQR)		0.50 (38.50)	50 (738.50)	0 (0.75)	**0.001**
Country of upload	USA (n; %)	5 (55.6)	20 (54.1)	4 (100)	0.924
	Canada (n; %)	1 (11.1)	3 (8.1)	0 (0)	
	Other (n; %)	1 (11.1)	6 (16.2)	0 (0)	
	Unknown (n; %)	2 (22.2)	8 (21.6)	0 (0)	
Information introducing alcohol types	No (n; %)	9 (100)	34 (91.9)	4 (100)	1.000
	Yes (n; %)	0 (0)	3 (8.1)	0 (0)	
Description of intoxication/poisoning symptoms	No (n; %)	0 (0)	19 (51.4)	1 (25)	**0.007**
	Yes (n; %)	9 (100)	18 (48.6)	3 (75)	
Information on first intervention	No (n; %)	5 (55.6)	24 (64.9)	2 (50)	0.694
	Yes (n; %)	4 (44.4)	13 (35.1)	2 (50)	
Language format	English audio (n; %)	8 (88.9)	35 (94.6)	2 (50)	**0.031**
	English subtitles (n; %)	1 (11.1)	2 (5.4)	2 (50)	
Target audience	Physicians (n; %)	1 (11.1)	5 (13.5)	0 (0)	1.000
	Non-physicians/general public (n; %)	8 (88.9)	32 (86.5)	4 (100)	

Data are presented as median (IQR) or n (%). Continuous variables were compared using the Kruskal-Wallis test. When the overall Kruskal-Wallis test was statistically significant, Dunn's pairwise post hoc test with Bonferroni adjustment was performed. Categorical variables were compared using the Fisher-Freeman-Halton exact test because of small expected cell counts. Following statistically significant Fisher-Freeman-Halton omnibus tests, pairwise two-sided Fisher's exact tests were performed with Holm adjustment for multiple comparisons. After adjustment, the difference in symptom information remained statistically significant between academic association/group and personal/non-academic sources (Holm-adjusted p=0.019), whereas none of the pairwise comparisons for language format remained statistically significant. Rating data were available for 49 videos (academic association/group, n=9; personal/non-academic, n=36; commercial/advertisement, n=4). All three quality scores (DISCERN, GQS, and JAMA) were unavailable for one personal/non-academic video, and no missing scores were imputed. Comment count was available for 49 videos (academic association/group, n=8; personal/non-academic, n=37; commercial/advertisement, n=4). DISCERN: Dissemination of Information on Consumer Health, GQS: Global Quality Score, JAMA: Journal of the American Medical Association, IQR: Interquartile range, USA: United States of America

influence of social media (1,2). The use of YouTube as a medical educational resource among medical students, who will become future academicians and clinicians, has reached rates of 82.3%-91.8% (19-21). Furthermore, the number of ED visits related to alcohol consumption is increasing (5-7). Considering these factors, the viewership of videos related to alcohol intoxication among healthcare professionals is expected to continue to rise. YouTube surpasses traditional text-based resources by offering visual and auditory content, making it an attractive tool for disseminating medical information (21). It also shows that not only healthcare professionals but also patients and their families use YouTube as an information source in emergency situations, preoperative contexts, and non-emergency settings (22,23).

Risks of Misinformation and the Role of Unregulated Content

Although YouTube offers potential for public health education, it also presents significant risks. The absence of an editorial review process means that videos may contain inaccurate or misleading information. Viewers often cannot assess the credibility of sources,

Table 3. Spearman correlations between video quality scores and quantitative or ordinal video characteristics			
Variable	**DISCERN, rho (Holm-adjusted p value)**	**GQS, rho (Holm-adjusted p value)**	**JAMA, rho (Holm-adjusted p value)**
GQS	0.820 (<0.001)	—	—
JAMA	0.455 (0.014)	0.447 (0.017)	—
Like rate	0.339 (0.156)	0.381 (0.073)	0.407 (0.044)
View rate	0.041 (1.000)	0.231 (0.886)	0.005 (1.000)
Video duration	0.178 (1.000)	0.383 (0.073)	0.225 (0.886)
Comment count	-0.029 (1.000)	0.073 (1.000)	0.061 (1.000)

Spearman's rank correlation analysis was restricted to quantitative and ordinal variables. The Holm procedure was applied across the 15 unique correlation tests presented in the table, and Holm-adjusted two-sided p values are reported. Correlations involving DISCERN, GQS, or JAMA scores were based on 49 videos because all three rating scores were unavailable for one personal/non-academic video. Correlations involving comment count and a quality score were based on 48 videos because comments were disabled for one video, while the three quality scores were unavailable for a different video. No missing values were imputed. Binary and non-ordinal nominal variables were not included in the correlation analysis. DISCERN: Dissemination of Information on Consumer Health, GQS: Global Quality Score, JAMA: Journal of the American Medical Association, IQR: Interquartile range, USA: United States of America

Table 4. Comparison of video quality scores according to the presence of specific content				
Content characteristic	**Score**	**Absent, median (IQR)**	**Present, median (IQR)**	**Holm-adjusted p value**
Introduction of alcohol types	DISCERN	26.50 (8.00)	38.00 (10.00)	0.378
	GQS	3.00 (2.00)	4.00 (0.00)	0.273
	JAMA	2.00 (1.00)	2.00 (1.00)	0.981
Description of intoxication/poisoning symptoms	DISCERN	25.00 (4.00)	30.50 (12.50)	**0.002**
	GQS	3.00 (1.00)	3.00 (2.00)	0.353
	JAMA	2.00 (1.00)	2.00 (1.00)	0.518
Information on first intervention	DISCERN	25.00 (4.00)	36.00 (13.00)	**<0.001**
	GQS	2.00 (1.00)	4.00 (1.00)	**0.003**
	JAMA	2.00 (1.00)	2.00 (1.00)	0.714

Comparisons were performed using the Mann-Whitney U test. P values were adjusted across the nine comparisons using the Holm procedure. Rating data were available for 49 videos because DISCERN, GQS, and JAMA scores were all unavailable for one personal/non-academic video; no missing scores were imputed. For the introduction of alcohol types, the absent and present groups included 46 and 3 videos, respectively. For symptom information, the absent and present groups included 19 and 30 videos, respectively. For first-intervention information, the absent and present groups included 30 and 19 videos, respectively. DISCERN: Dissemination of Information on Consumer Health, GQS: Global Quality Score, JAMA: Journal of the American Medical Association, IQR: Interquartile range, USA: United States of America

and exposure to deceptive advertising further complicates the situation (23,24). Studies examining the scientific presentation quality of YouTube content in various health-related fields have highlighted that video content often lacks high-quality information, which is considered a significant limitation of the platform (23,25,26). Indeed, the findings that 8% of videos in the present study contained commercial/advertisement content and that only 60% described signs or symptoms of alcohol-related intoxication or poisoning are consistent with this concern.

Quality Scores According to Uploader Source

No statistically significant differences in DISCERN, GQS, or JAMA scores were detected according to uploader source, contrary to some previous studies reporting higher quality for videos uploaded by academic institutions or healthcare professionals (27-29). However, the absence of statistically significant differences should not be interpreted as evidence that the source categories were equivalent. The small and unequal group sizes, particularly the inclusion of only four videos in the commercial/advertisement category, limited the statistical power and precision of source-based comparisons. Instead, evaluation of the actual content remains essential. This implies that efforts to address alcohol-related misinformation on social media must involve not only institutions but also individuals, through cooperative public health strategies. The content-based comparisons further clarify this finding. Videos describing the signs or symptoms of alcohol-related intoxication or poisoning had significantly higher DISCERN scores than videos without symptom information. Importantly, videos providing first-intervention information had substantially higher DISCERN and GQS scores than those without such information. These findings support the relevance of clinically actionable content, but do not establish that the uploader source is unrelated to video quality. However, these associations should not be interpreted as causal. The inclusion of information on symptoms or interventions may directly contribute to higher DISCERN and GQS scores because these instruments assess the completeness, usefulness, and educational quality of the information presented.

In contrast, JAMA scores did not differ significantly based on the presence of symptom information or first-intervention information. This apparent difference among the scoring instruments is consistent with their distinct purposes. DISCERN and GQS evaluate the quality, usefulness, and presentation of clinical information, whereas the JAMA benchmark criteria primarily assess authorship, attribution, disclosure, and currency. Consequently, a video may provide clinically useful information while still receiving a relatively low JAMA score if its sources, authorship, or update information are not adequately reported. Similarly, videos introducing specific types of alcohol did not have significantly different quality scores after adjustment for multiple comparisons. Because only three videos included information on alcohol types, this finding should be interpreted with caution and not considered evidence that alcohol-type information is unrelated to video quality.

Clinical Content Gaps in Alcohol-related Videos

The present study identified important deficiencies in the clinical content of the evaluated videos. Most videos (94%) did not provide information distinguishing among alcohol types; 62% did not include any actionable information on initial intervention. Although 60% described signs or symptoms of alcohol-related intoxication or poisoning, symptom recognition, without clear guidance on appropriate immediate actions, may have limited practical value for viewers facing an actual emergency. These findings indicate that many highly accessible videos provide only partial information and may not adequately link recognition of a potentially serious condition to the need for timely and appropriate medical assistance.

Previous studies have reported that alcohol-related content on YouTube may emphasize socially engaging, favorable, or humorous portrayals while giving less attention to dependence, withdrawal, and other adverse health consequences (13). However, the present study did not include a predefined variable to assess whether videos were humorous, entertainment-oriented, favorable toward alcohol use, or potentially glamorizing. Therefore, no direct conclusions can be drawn from the current data regarding the tone or entertainment orientation of the included videos. The findings of the present study should instead be interpreted as demonstrating measurable gaps in clinical content, particularly in the presentation of alcohol types and in actionable information for first interventions.

Emergency Medicine Relevance of First-intervention Content

The limited availability of first-intervention information is particularly important from the perspective of emergency medicine. Although 60% of the evaluated videos described signs or symptoms of alcohol-related intoxication or poisoning, only 38% provided any actionable information on immediate response or early medical management. This finding indicates a substantial gap between symptom recognition and guidance on what viewers should do when confronted with a potentially life-threatening alcohol-related emergency. Importantly, in the present study, the presence of first-intervention information was recorded as a binary content variable and should not be taken to indicate that the information was complete, fully accurate, or concordant with all relevant recommendations.

Emergency medicine guidance emphasizes that the initial management of acute ethanol intoxication should prioritize assessment and stabilization of airway, breathing, and circulation; identification and treatment of hypoglycemia; protection against aspiration; evaluation for trauma, co-ingestion, and alternative causes of altered mental status; and appropriate monitoring and supportive care (3,4,12). In individuals at risk of nutritional deficiency or chronic alcohol use, thiamine administration should also be considered within the clinical management pathway (3,12). Although these recommendations are primarily intended for healthcare professionals, public-facing videos should translate the most time-sensitive principles into clear and safe actions, such as activating emergency medical services, avoiding potentially harmful practices, monitoring consciousness and breathing, and not leaving a person with impaired consciousness unattended.

The distinction between acute ethanol intoxication and toxic alcohol poisoning is also clinically important. Methanol and ethylene glycol poisoning may initially present with nonspecific features but can progress to severe metabolic acidosis, visual impairment, neurological deterioration, renal failure, or death. Their management may require urgent antidotal treatment and enhanced elimination techniques, including hemodialysis (8-10). Therefore, videos addressing toxic alcohol exposure should not present such cases as equivalent to uncomplicated ethanol intoxication or imply that observation alone is sufficient. Because ethanol-related and toxic-alcohol-related videos were not classified as separate analytical groups in the present study, the adequacy of intervention content for each specific toxicological condition could not be compared.

The low proportion of videos containing actionable first-intervention information may have clinically relevant consequences. Individuals and relatives may consult online videos before contacting emergency medical services; incomplete or misleading guidance may delay emergency evaluation or encourage inappropriate responses. From an emergency medicine standpoint, high-quality public-facing content should therefore combine symptom recognition with explicit recommendations regarding when and how to seek

urgent medical assistance. Collaboration among emergency physicians, toxicologists, professional organizations, and digital platforms may help ensure that highly visible videos provide concise, clinically appropriate, and actionable information for alcohol-related emergencies.

Study Limitations

This study has several limitations. First, it is a cross-sectional assessment of the first 50 eligible YouTube videos identified using two specific search terms on a single date. YouTube search rankings are dynamic and may change according to platform algorithms, geographic location, user behavior, and changes in video popularity. Although an incognito browser session was used and no sorting or geographic filter was applied, the influence of all platform-level personalization and ranking mechanisms could not be completely eliminated. Furthermore, because the data were collected on October 1, 2023, subsequent changes in video availability, content, ranking, and engagement metrics are not reflected in the analysis. Therefore, the findings should be interpreted as a snapshot of the platform at the time of data collection rather than as a permanent characterization of YouTube content.

Second, the analysis was limited to videos available in English through either English-language audio or English subtitles. Relevant content in other languages may differ in quality, clinical emphasis, and recommendations for emergency care. The study was also restricted to YouTube and did not evaluate other widely used platforms, including Instagram, TikTok, Facebook, X, or Snapchat. Consequently, the findings may not be generalizable to other languages, platforms, search strategies, or social media environments.

Third, all videos were evaluated simultaneously by two experienced emergency medicine physicians using a consensus-based approach. Because independent ratings were not recorded, inter-rater reliability could not be quantified using an intraclass correlation coefficient or another agreement statistic. Although consensus assessment may reduce unresolved disagreement, it does not demonstrate the reproducibility of the scores across independent evaluators. In addition, the evaluators were not blinded to visible video characteristics, including uploader identity and engagement metrics, because these characteristics formed part of the study data and were publicly displayed on the platform. This may have introduced evaluator-related bias.

Fourth, the variables assessing symptom and first-intervention information were recorded as binary indicators of the presence of content. These variables did not measure the completeness, clinical accuracy, comprehensibility, or full concordance of the information provided with clinical guidelines. A video classified as containing first-intervention information may, therefore, have included only one relevant recommendation and should not necessarily be considered a complete or fully guideline-concordant educational resource. Similarly, the study did not use a predefined instrument to evaluate potentially harmful recommendations, misinformation severity, viewer comprehension, or the tone and entertainment orientation of the videos.

Fifth, the search strategy primarily targeted acute ethanol intoxication. Only three videos specifically addressed toxic alcohol poisoning; all focused-on methanol, and none addressed ethylene glycol or any other toxic alcohol. Because of the small number of toxic-alcohol-related videos, a separate subgroup or sensitivity analysis was not feasible. Acute ethanol intoxication and toxic alcohol poisoning differ in clinical presentation, urgency, and treatment; therefore, including both conditions in the overall sample may have introduced clinical heterogeneity and limited condition-specific interpretation of findings from the first intervention.

Finally, some subgroup analyses were based on small sample sizes, particularly the commercial/advertising category and videos introducing alcohol types. This reduced statistical power and limited the precision of comparisons involving these categories. Rating data were unavailable for one video, and the comment count was unavailable for another video because comments were disabled; these observations were handled using an available-case approach without imputation. Engagement measures, such as views, likes, and comments, are influenced by video age and platform exposure, and should not be interpreted as direct indicators of clinical quality. Because of the observational and cross-sectional design, the identified associations cannot establish causal relationships between video content, uploader characteristics, engagement, and quality scores.

Conclusion

YouTube videos addressing alcohol-related intoxication and poisoning attract substantial public attention, but frequently provide incomplete, clinically actionable information. Although 60% of the evaluated videos described signs or symptoms, only 38% provided information on first intervention. No statistically significant differences in video quality or reliability scores were detected across uploader sources. However, this finding should not be interpreted as evidence of equivalence among source categories, particularly given the small and unequal group sizes and the inclusion of only four commercial/advertisement videos. In contrast, videos containing symptom information had higher DISCERN scores, while those providing first-intervention information had higher DISCERN and GQS scores. These findings

support the relevance of clinically actionable content, but do not establish equivalence among uploader source categories or demonstrate that the uploader source is unrelated to video quality.

Public-facing content should clearly distinguish acute ethanol intoxication from toxic alcohol poisoning caused by substances such as methanol or ethylene glycol and should combine symptom recognition with explicit, safe, and timely recommendations for seeking emergency medical assistance. Greater involvement of emergency physicians, toxicologists, and professional organizations, together with transparent authorship, appropriate source attribution, periodic content review, and stronger platform-level editorial oversight, may improve the quality and clinical usefulness of online information on alcohol-related emergencies. Viewers and healthcare professionals should remain cautious when using uploader's identity, popularity, or engagement metrics as proxies for the reliability of medical information.

Ethics

Ethics Committee Approval: Ethics committee approval was not required because this observational, cross-sectional study analyzed publicly available YouTube videos and did not involve human participants, animal subjects, interventions, or participant interaction.

Informed Consent: Not applicable.

Data Availability Statement: The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Footnotes

Authorship Contributions

Surgical and Medical Practices: H.Y.B., S.A., Concept: H.Y.B., S.A., Design: H.Y.B., S.A., Data Collection or Processing: H.Y.B., S.A., Analysis or Interpretation: H.Y.B., S.A., Literature Search: H.Y.B., S.A., Writing: H.Y.B., S.A.

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