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Popularity Does Not Reflect Guideline-Based Accuracy: A Cross-Sectional Analysis of YouTube Videos on Upper Cervical Manual Therapy

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Abstract

Background

The widespread use of YouTube as a source of clinical learning raises significant concerns about the quality and adherence of upper cervical manual therapy content to guidelines, particularly given the potential for serious clinical risks associated with these interventions; therefore, this study aimed to critically evaluate its reliability and guideline adherence

Methods

A total of 150 English-language YouTube videos were screened using the search terms “Manual therapy for cervical rotation”, “Atlas axis (C1–C2) mobilization or manipulation”, “Atlanto-occipital (C0–C1) mobilization techniques” “Upper cervical spine adjustment” “Cervical manipulation (HVT/Grade 5)”. For each video, the source, upload date, number of views, likes, dislikes, and comments were recorded. The Video Power Index (VPI) was assessed using the view ratio (views/day) and like ratio (likes × 100 / [likes + dislikes]). The clinical quality, reliability, and educational value of PD–specific exercise videos were assessed using the Global Quality Scale (GQS), modified Discern (mDiscern), and guideline-based criteria derived from the Orthopaedic Manual Physical Therapy: Description of Advanced Specialty Practice guideline (OMPT-ASP).

Results

Following the application of exclusion criteria after the YouTube search, 73 videos were included in the analysis. No significant differences were found between the presence of OMPT-ASP guideline-based content items and GQS scores (all $p > 0.05$). A significant difference was observed only for OMPT-ASP item 7, with videos not meeting this item demonstrating higher mDiscern scores ($p = .031$). Additionally, videos lacking emphasis on informed consent had significantly higher VPI, views per day, and comment counts ($p < 0.05$). Correlation analysis revealed that video duration was positively associated with both GQS and mDiscern, and no association was found between OMPT-ASP and mDiscern or GQS.

Conclusion

Although YouTube videos on upper cervical manual therapy may provide superficial educational content, their overall reliability and adherence to evidence-based clinical guidelines remain limited. Notably, engagement metrics such as views and likes do not correlate with scientific quality, highlighting a critical mismatch between popularity and clinical adherence.

Trial registration

N/A

Background

Manual therapy and joint mobilization are effective in treating movement restrictions, influencing both neurophysiological and mechanical aspects of pain and muscle spasm [1]. These interventions activate nervous system responses, temporarily reducing pain locally and in distant areas through central nervous system modulation by altering cortical nociceptive processing [1, 2]. Cervical manual therapy modulates the autonomic nervous system, including the sympathetic nervous system (SNS) and hypothalamic-pituitary-adrenal axis, facilitating pain relief and physiological regulation [3, 4]. The dorsal periaqueductal gray (dPAG) in the midbrain plays a key role in this response, increasing sympathetic activity, inducing hypoalgesia, and affecting heart rate and blood pressure [5]. Despite these insights, the integration of biomechanical and ergonomic principles remains underexplored.

Positional abnormalities and ligamentous instabilities of the upper cervical spine (C0–C2) should not be regarded solely as local mechanical dysfunctions; rather, they must also be considered in light of their potential vascular and lymphatic implications [6]. Alignment abnormalities, such as excessive anterior translation or instability of the atlas (C1) vertebra, may lead to mechanical compression of the internal jugular vein (IJV). Under these conditions, cerebral venous outflow may be redirected away from the physiologically predominant internal jugular pathway toward collateral routes, including the vertebral veins, external jugular veins, deep cervical veins, and associated lymphatic structures [7]. Health professionals addressing head and neck posture and modifying cervical biomechanics may achieve part of their therapeutic effects by reducing pressure on the carotid sheath. In addition to improving vagal nerve function, this may also facilitate the opening of the jugular veins, thereby potentially influencing cerebral health [6]. These findings suggest that manual therapy interventions targeting the upper cervical region—particularly when involving high-velocity or high-force manipulation and mobilization techniques—should be regarded as clinically sensitive approaches with the potential to produce systemic effects beyond the musculoskeletal system [8]. Accordingly, videos demonstrating such interventions may carry far greater clinical significance than presumed, not only in terms of posture or local biomechanical correction, but also due to their potential implications for neurovascular function and brain health.

In recent years, the quality and reliability of YouTube videos have been evaluated across a range of health conditions, including musculoskeletal disorders, chronic pain, scoliosis, and rheumatologic diseases [9–11]. These studies have consistently reported substantial variability in informational accuracy and clinical relevance. Nevertheless, the quality and reliability of videos depicting cervical interventions that require high clinical sensitivity on widely used digital platforms such as YouTube have not yet been systematically evaluated. This study aims to systematically evaluate the content quality, information delivery, and overall characteristics of videos on upper cervical mobilization and manipulation produced by professionals. Furthermore, it seeks to determine their clinical safety and appropriateness in accordance with guideline-based evaluation criteria derived from the *Orthopaedic Manual Physical Therapy: Description of Advanced Specialty Practice* published by the American Academy of Orthopaedic Manual Physical Therapists [12].

Methods

This cross-sectional study evaluated educational YouTube videos that were accessible at the time of a systematic search and demonstrated cervical mobilization and/or manipulation targeting the upper cervical spine (C0–C2). Prior to formal assessment, two researchers jointly reviewed three videos to standardize the evaluation procedure; these videos were excluded from the analysis [13]. All eligible English-language videos were independently assessed by two physiotherapists with expertise in orthopaedic manual therapy using a structured checklist developed in accordance with the *Orthopaedic Manual Physical Therapy: Description of Advanced Specialty Practice* guideline published by the American Academy of Orthopaedic Manual Physical Therapists (OMPT-ASP) [14]. A 12-item OMPT-ASP guideline-based evaluation criteria was developed to assess the the educational quality, patient safety considerations, and technical execution of upper cervical manipulation–related video content .The checklist addressed contraindication and red flag identification (e.g., cervical arterial dysfunction, vertebrobasilar insufficiency, neurological risks), risk–benefit assessment and informed consent, specification and clinical justification of the targeted cervical segment, and safe technical execution, including patient positioning, therapist biomechanics, contact points, and force control [12]. Each of the 12 items was scored dichotomously (0 = not reported, 1 = reported), yielding a total score ranging from 0 to 12, with higher scores indicating greater adherence to OMPT-ASP guideline principles. The full checklist is presented in Table 1. All expert evaluators were informed about the study procedures and provided written informed consent prior to participation. Agreement between the two reviewers was assessed using Cohen's kappa coefficient, and any discrepancies were resolved through discussion. Cohen's kappa indicated a high level of agreement ($\kappa = 0.86$). Other assessment tools were applied by a single researcher.

Table 1
OMPT-ASP, Patient Safety, and Technical Execution of Upper Cervical Manipulation/Manipulation Videos

Question No	Content	Max Point
Q1	Clear educational/clinical purpose	Max = 1 point
Q2	Contraindications and red flags addressed	Max = 1 point
Q3	Pre-manipulative risk–benefit assessment	Max = 1 point
Q4	Informed consent emphasized	Max = 1 point
Q5	Targeted cervical segment identified	Max = 1 point
Q6	Technique rationale and clinical hypothesis explained	Max = 1 point
Q7	Appropriate and safe patient positioning	Max = 1 point
Q8	Appropriate therapist body mechanics	Max = 1 point
Q9	Clear hand placement and contact points	Max = 1 point
Q10	Appropriate force direction and control	Max = 1 point
Q11	Expected effects and potential adverse effects explained	Max = 1 point
Q12	Active patient participation and/or follow-up emphasized	Max = 1 point

Ethical considerations and informed consent

Since all videos analyzed in this study were publicly available on YouTube and no direct involvement of human or animal participants occurred, ethical approval and informed consent were not required.

YouTube search

In September 15–25, 2025, a systematic search was conducted on YouTube using the following keywords:

- *"Manual therapy for cervical rotation"*
- *"Atlas axis (C1–C2) mobilization or manipulation"*
- *"Atlanto-occipital (C0–C1) mobilization techniques"*
- *"Upper cervical spine adjustment"*
- *"Cervical manipulation (HVT/Grade 5)"*

Search results were restricted to videos demonstrating upper cervical manual therapy techniques within the scope of physiotherapy, osteopathy, and chiropractic practice. No personal Google or YouTube accounts were used during the searches. In addition, the browser was set to "incognito mode," and the search history was cleared. To minimize bias related to upload date, the daily view rate was calculated for each video. For each video, quantitative characteristics; such as total views, number of comments, channel subscribers, video duration, likes, dislikes, time since upload, and the Video Power Index (VPI) were recorded. To calculate daily engagement, the total numbers of views, likes, dislikes, and comments were divided by the number of days the video had been available on YouTube [15]. The VPI was computed using the following formula: VPI = (likes × 100 / (likes + dislikes) × (views per day) / 100 [16].

Inclusion Criteria

Videos were included if they met the following criteria: (1) published in English, (2) uploaded within the past 15 years, (3) had at least 250 views, and (4) "were performed by healthcare professionals trained in manual therapy techniques - such as doctors of osteopathy (DO), physical therapists (PT), and doctors of chiropractic (DC)- targeting the upper cervical spine. Eligible videos featured physiotherapists, osteopaths, or chiropractors either demonstrating manual therapy techniques on camera with verbal explanations or sharing professional knowledge and clinical experience related to these techniques. Videos that did not meet these criteria, were duplicates, or were unrelated to cervical manual therapy were excluded. All English-language videos were independently evaluated by two physiotherapists specializing in manual therapy

Exclusion criteria

Videos that did not meet the inclusion criteria, were duplicates, consisted solely of short promotional content, or were created for advertising purposes were excluded from the study.

Videos with very low view counts may not accurately reflect the level of information that the public is actually exposed to, as such videos are often recently uploaded or have limited visibility. For this reason, a minimum view threshold was established to minimize potential sampling bias and to ensure that the analyzed videos represent content that users are more likely to encounter in real-life browsing environments.

Assessment of videos reliability and quality

For each included video, we extracted data on the narrator type, video quality, content category, number of views, likes, comments, and duration, and recorded them in a standardized Excel file. To evaluate quality and reliability, we applied three validated instruments:

Global Quality Scale (GQS): The overall quality of the videos was assessed using the Global Quality Scale (GQS), a 5-point Likert scale commonly used to evaluate the quality, flow, and clinical usefulness of online health information. It is developed by Bernard et al. (2007), this five-point Likert scale assesses overall quality, flow, and usability of video content. Scores of 1–2 indicate low quality, 3 indicates moderate quality, and 4–5 indicate high quality [17]. Higher scores reflect greater overall educational value.

Modified Discern (mDiscern): A Third, mDiscern criteria, developed by Charnock et all and revised by Singh et. all were used to evaluate the reliability of the video content [18, 19]. It evaluates the purpose of the video content, the reliability and neutrality of the information provided, the presence of additional resources, and whether any uncertainties or controversial aspects related to the topic are addressed. A five-point rating system was used for each component. Answers to the evaluation questions were marked as either "yes" (1 point) or "no" (0 points). Higher scores indicated greater reliability. The total score ranged from 0 to 5. A score of 1 denoted "unreliability," scores of 2 to 4 denoted "partially reliability," and a score of 5 denoted "highly reliability".

Statistical analyses

Statistical analyses were conducted using SPSS version 27.0 for Windows (SPSS Inc., Chicago, IL, USA). The Shapiro–Wilk test was applied to assess data distribution. Continuous variables were presented as median (minimum–maximum) values. Before conducting group comparisons, distributional assumptions were evaluated using the Shapiro–Wilk test for normality and Levene's test for homogeneity of variances. Accordingly, independent-samples t-tests were applied when parametric assumptions were satisfied, whereas the Mann–Whitney U test was used for non-parametric comparisons. In addition, relationships between variables were examined using Spearman's rank correlation analysis, which was selected to assess the strength and direction of associations under non-normal distributional conditions. Inter-rater agreement for OMPT-ASP categories assigned by the two researchers was assessed with the kappa coefficient [20]. A p value of < 0.05 was considered statistically significant.

Results

A total of 150 videos were identified through a YouTube search using the predefined keywords. After screening, 77 videos were excluded. Among these, 11 videos did not include a PT, DC, or DO; 13 were duplicate videos; 2 consisted of promotional content; 7 had fewer than 250 views; 37 had a duration shorter than one minute; 6 were in a language other than English; and 1 video was unrelated to the study topic. Consequently, 73 videos met the eligibility criteria and were included in the final analysis (Fig. 1). The evaluation based on the 12-item OMPT-ASP clinical guideline showed that most of the analyzed videos met several of the recommended criteria. For many of the items, a large proportion of the videos received a "Yes" score, such as Q1 (72 videos), Q5 (70 videos), Q6 (64 videos), and Q10 (61 videos), indicating that these guideline components were frequently addressed in the content. Similarly, more than half of the videos satisfied the criteria for Q7 (57 videos) and Q9 (54 videos). In contrast, some criteria were met less consistently, including Q2 (18 videos), Q3 (23 videos), Q4 (11 videos), and Q11 (24 videos), suggesting variability in how certain guideline elements were represented (Table 1). Overall, when evaluated according to the OMPT-ASP based scoring system, the findings indicate that while many videos addressed several clinical guideline components, the coverage of all recommended criteria was not uniform across the dataset.

Upper cervical manipulation/manipulation videos were evaluated for educational content, patient safety, and technical execution using a 12-item checklist based on the OMPT-ASP criteria (Table 1). The assessment included key patient safety components such as stating a clear educational/clinical purpose, addressing contraindications and red flags, conducting a pre-manipulative risk–benefit assessment, and emphasizing informed consent. Technical aspects, including identification of the targeted cervical segment, the therapist's body mechanics, patient positioning, hand placement, and the direction and control of the applied force, were also evaluated. Each criterion was scored as 1 point, with a maximum possible total score of 12. Descriptive analyses demonstrated substantial variability across engagement-related metrics. Likes showed a wide distribution (Mdn = 179.5), with values ranging from 1 to 17,644, and a pronounced right-skew as reflected by a markedly higher mean relative to the median. Dislikes were generally low (Mdn = 2.0), with a range of 0 to 606. Video duration was relatively short overall (Mdn = 4.22 min), although durations extended up to 39.28 minutes. Comment counts also displayed considerable dispersion (Mdn = 11.0), with a broad range (0–642). Videos had been available on the platform for extended and heterogeneous periods (Mdn = 1,772.48 days; range: 246.73–5,224.89), which was reflected in variable viewing rates. Views per day showed a right-skewed distribution (Mdn = 6.79; range: 0.11–629.45). Despite variability in exposure, the like ratio remained consistently high across videos (Mdn = 98.98%; range: 74.55–100%). Accordingly, the Video Power Index (VPI) demonstrated a skewed distribution (Mdn = 6.72; range: 0.11–608.55), with most videos exhibiting low engagement intensity and a limited number showing markedly higher values. Descriptive summary statistics are provided in Table 2.

Table 2
Descriptive statistics across video characteristics.

Variable	Mean	Sd	n	Min	Max	Mdn
Likes	782.11	2,281.21	72	1.00	17,644.00	179.50
Dislikes	20.71	74.08	72	0.00	606.00	2.00
Duration minutes	5.41	5.77	72	1.05	39.28	4.22
Comments	60.03	130.31	72	0.00	642.00	11.00
Days since upload	2,065.50	1,229.38	72	246.73	5,224.89	1,772.48
Views per day	27.07	77.23	72	0.11	629.45	6.79
Like ratio	97.36	4.71	72	74.55	100.00	98.98
VPI	26.32	74.79	72	0.11	608.55	6.72

No significant differences were found in GQS scores between videos that included or did not include OMPT-ASP content items ($p > 0.05$ for all comparisons). This suggests that the presence of specific guideline-based content elements did not influence the overall educational quality scores of the videos. In contrast, mDiscern scores showed a significant difference only for Q7. Videos that did not meet the Q7 criterion showed significantly higher mDiscern total scores compared with those that met the criterion (mean rank = 46.53 vs. 34.32, $U = 608.50$, $z = -2.16$, $p = .031$) (Table 3). As presented in Table 4, the associations between content characteristics and engagement metrics (like raito, views, VPI, and comments) were examined. Overall, most content characteristics were not significantly associated with engagement metrics (all $p > 0.05$). However, a statistically significant effect was observed for Q4 (emphasis on informed consent). Videos that did not meet the Q4 criterion demonstrated significantly higher engagement metrics compared with those that met the criterion. Specifically, the VPI scores were significantly higher in the Q4 “No” group than in the Q4 “Yes” group (mean rank = 39.87 vs. 20.82, $U = 519.00$, $z = -2.74$, $p = .006$). A similar pattern was observed for the number of comments, with the Q4 “No” group showing higher mean rank values (mean rank = 38.66 vs. 24.55, $U = 467.00$, $z = -2.08$, $p = .038$). Likewise, videos in the Q4 “No” group had significantly higher views per day compared with those in the Q4 “Yes” group (mean rank = 39.85 vs. 20.91, $U = 518.00$, $z = -2.73$, $p = .006$). The analysis for Q1 was not applicable. As presented in Table 5, correlation analyses with Holm correction ($\alpha = .05$) revealed several significant relationships among the study variables. The like ratio was inversely associated with comments ($r = -.39$, $p = .014$), likes ($r = -.41$, $p = .007$), and views ($r = -.51$, $p < .001$). In contrast, the view ratio demonstrated strong positive correlations with VPI ($r = 1.00$, $p < .001$), GQS ($r = .50$, $p < .001$), comments ($r = .71$, $p < .001$), likes ($r = .92$, $p < .001$), and views ($r = .92$, $p < .001$). Similarly, VPI was positively correlated with GQS ($r = .50$, $p < .001$), comments ($r = .70$, $p < .001$), likes ($r = .92$, $p < .001$), and views ($r = .91$, $p < .001$). Video duration was positively associated with GQS ($r = .60$, $p < .001$), comments ($r = .40$, $p = .011$), and mDiscern ($r = .56$, $p < .001$). Furthermore, GQS demonstrated significant positive correlations with comments ($r = .57$, $p < .001$), likes ($r = .55$, $p < .001$), views ($r = .47$, $p < .001$), and mDiscern ($r = .85$, $p < .001$). Engagement metrics were also strongly interrelated, as comments were positively correlated with likes ($r = .76$, $p < .001$), views ($r = .72$, $p < .001$),

and mDiscern (r = .46, p = .001), while likes showed significant positive correlations with views (r = .91, p < .001) and mDiscern (r = .39, p = .017). No additional significant correlations were detected.(Table 5) Following adjustment, a significant positive correlation was observed between mDiscern and GQS (r = .85, p < .001) indicating a strong association between information reliability and overall educational quality. Videos with higher mDiscern scores tended to demonstrate higher global quality ratings (Table 6).

Table 3
Comparison of mDiscern and GQS scores according to content-based questions

Q No	Group	N	mDiscern (mean ± sd)	mDiscern Mean Rank	p (mDiscern)	GQS (mean ± sd)	GQS Mean Rank	p (GQS)
Q1	Yes	72	n.a	n.a	n.a		n.a	n.a
	No	-						
Q2	Yes	18	1.89 ± 1.08	34.86	.601	3.06 ± 1.21	37.22	.958
	No	55	2.02 ± 1.11	37.70		2.98 ± 1.27	36.93	
Q3	Yes	23	1.91 ± 1.00	34.76	.516	2.87 ± 1.10	34.39	.463
	No	50	2.02 ± 1.15	38.03		3.06 ± 1.32	38.20	
Q4	Yes	11	1.91 ± 0.94	34.59	.664	2.45 ± 0.69	27.00	.081
	No	62	2.00 ± 1.13	37.43		3.10 ± 1.30	38.77	
Q5	Yes	70	1.97 ± 1.10	36.71	.545	3.00 ± 1.23	37.00	1.000
	No	3	2.33 ± 1.16	43.83		3.00 ± 2.00	37.00	
Q6	Yes	64	2.00 ± 1.10	37.23	.796	3.03 ± 1.26	37.61	.501
	No	9	1.89 ± 1.17	35.39		2.78 ± 1.20	32.67	
Q7	Yes	57	1.84 ± 1.13	34.32	.031*	2.90 ± 1.26	35.27	.176
	No	16	2.50 ± 0.82	46.53		3.38 ± 1.15	43.16	
Q8	Yes	36	1.94 ± 1.12	36.31	.770	2.89 ± 1.19	34.96	.404
	No	37	2.03 ± 1.09	37.68		3.11 ± 1.31	38.99	
Q9	Yes	54	1.94 ± 1.09	36.10	.518	2.96 ± 1.29	36.34	.646

Note. Values are presented as mean ± standard deviation. (□):Mann–Whitney U test, t (□) i independent samples t-test. A p value < 0.05 was considered statistically significant., GQS:Global quality scale ; “n.a.” indicates that the analysis was not applicable, ** indicates statistical significance (p < 0.05).*

Q No	Group	N	mDiscern (mean ± sd)	mDiscern Mean Rank	p (mDiscern)	GQS (mean ± sd)	GQS Mean Rank	p (GQS)
	No	19	2.11 ± 1.15	39.55		3.11 ± 1.15	38.87	
Q10	Yes	61	1.89 ± 1.14	35.32	.105	2.93 ± 1.29	35.80	.260
	No	12	2.50 ± 0.67	45.54		3.33 ± 0.98	43.12	
Q11	Yes	24	2.29 ± 0.86	42.02	.133	3.17 ± 1.05	39.44	.480
	No	49	1.84 ± 1.18	34.54		2.92 ± 1.34	35.81	
Q12	Yes	48	0.60 ± 0.49	38.30	.441	3.10 ± 1.26	38.90	.276
	No	25	0.60 ± 0.50	34.50		2.80 ± 1.22	33.36	

Note. Values are presented as mean ± standard deviation. (□):Mann–Whitney U test, t (□) i independent samples t-test. A p value < 0.05 was considered statistically significant., GQS:Global quality scale ; “n.a.” indicates that the analysis was not applicable, ** indicates statistical significance (p < 0.05)*.

Table 4
Association between content characteristics and engagement metrics

Question	Group	Like ratio mean rank	p (Like ratio)	View mean rank	p (View)	VPI mean rank	p (VPI)	Comments mean rank	p (Comments)
Q1	Yes	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	No	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Q2	Yes	33.61	.418	32.67	.318	32.89	.344	33.03	.412
	No	38.11		38.42		38.35		37.66	
Q3	Yes	37.50	.887	33.87	.393	34.17	.440	32.52	.265
	No	36.77		38.44		38.30		38.37	
Q4	Yes	32.86	.467	20.91	.006*	20.82	.006*	24.55	.038*
	No	37.73		39.85		39.87		38.66	
Q5	Yes	37.49	.320	37.64	.211	37.66	.201	36.04	.363
	No	25.50		22.00		21.67		47.17	
Q6	Yes	36.80	.821	36.69	.737	36.67	.725	35.82	.460
	No	38.44		39.22		39.33		41.28	
Q7	Yes	35.96	.415	36.79	.873	36.77	.862	36.17	.801
	No	40.69		37.75		37.81		37.66	
Q8	Yes	39.61	.282	35.72	.618	35.89	.665	32.51	.103
	No	34.46		38.24		38.08		40.49	
Q9	Yes	38.37	.335	35.20	.223	35.15	.209	34.47	.166
	No	33.11		42.11		42.26		42.16	
Q10	Yes	37.66	.532	37.34	.755	37.38	.732	35.30	.273
	No	33.62		35.25		35.08		42.50	
Q11	Yes	38.15	.738	33.58	.341	33.79	.372	36.56	.986
	No	36.44		38.67		38.57		36.47	
Q12	Yes	36.17	.630	37.02	.995	37.00	1.000	37.60	.539
	No	38.60		36.96		37.00		34.44	

Note. Group comparisons were performed using two-tailed Mann–Whitney U tests. *p* values < .05 were considered statistically significant, "n.a." indicates that the analysis was not applicable, VPI:video power index, ** indicates statistical significance (p < 0.05)*.

Table 5
Correlations between video engagement metrics, guideline adherence, and quality scores

Variable	OMPT-ASP	GQS	Comments	Likes	Views	mDiscern
Like ratio	**− .00**	**− .21**	**− .39***	**− .41***	**− .51***	**− .09**
View ratio	**− .08**	**.50***	**.71***	**.92***	**.92***	**.32**
VPI	**− .08**	**.50***	**.70***	**.92***	**.91***	**.32**
Duration(min)	**.16**	**.60***	**.40***	**.33**	**.27**	**.56***

Note. Values represent correlation coefficients. Statistically significant correlations are indicated with an asterisk (*p* < .05). Higher values indicate stronger associations. Abbreviations: GQS, Global Quality Scale; VPI, Video Power Index. * *indicates statistical significance (p < 0.05).*

Table 6
Correlation analysis between quality, reliability and educational value informations

Combination	r	95.00% CI	n	p
mDiscern -GQS	.85	[.78, .91]	73	< .001
mDiscern- OMPT-ASP	− .04	[-.27, .19]	73	1.000
GQS - OMPT-ASP	− .01	[-.24, .22]	73	1.000
Note. p-values adjusted using the Holm correction.				

Note. Values represent Spearman correlation coefficients. Statistically significant correlations are indicated with an asterisk (*p < .05). P-values were adjusted using the Holm correction. Abbreviations: OMPT-ASP: Guideline-based Evaluation Criteria; GQS, Global Quality Scale; mDISCERN, modified DISCERN.

Discussion

Evaluating the reliability and quality of YouTube videos related to upper cervical mobilization and manipulation is essential to ensure the dissemination of accurate, safe, and clinically appropriate information. Our findings support this observation, suggesting that perceived educational or presentation quality and flow does not necessarily reflect the reliability or comprehensiveness of guideline-based clinical information. According to the 12-item clinical assessment based on OMPT-ASP, a substantial proportion of the videos adequately demonstrated the technical components of the manipulation procedure. These components included identification of the targeted cervical segment, appropriate patient positioning, therapist body mechanics, hand placement, and control of force direction. In contrast, critical clinical aspects—such as addressing contraindications and red flags, conducting a pre-manipulation risk–benefit assessment, and emphasizing informed consent—were less frequently covered. These findings suggest that online videos tend to focus primarily on the procedural aspects of the technique, whereas patient safety considerations receive comparatively less attention.While the videos appeared to provide a moderate

level of educational quality according to GQS scores, the relatively lower mDiscern scores suggest that the reliability of the information presented may be limited.

The quality scores obtained in this study are similar to those reported in the literature. Previous studies evaluating YouTube videos for medical conditions such as fibromyalgia, neck pain, and low back pain have predominantly reported low-quality content [21–24], whereas videos focusing on knee osteoarthritis commonly demonstrate moderate quality [25]. Consistent with studies evaluating lumbar spinal mobilization videos, the quality of online content remains variable, highlighting the importance of following established clinical guidelines when healthcare professionals produce educational materials on digital platforms [26]. A key strength of our study lies in the inclusion of videos produced by healthcare professionals. While mDiscern primarily assesses the balance and presentation of treatment information, it does not fully capture the technical accuracy of clinical content like guideline based tools [27]. The finding that a difference in mDiscern scores was observed only for the OMPT-ASP item “appropriate and safe patient positioning” (Q7) suggests that the inclusion of patient safety–related information in videos may enhance the perceived reliability of the content. In contrast, the absence of similar differences across other OMPT-ASP items indicates that mDiscern may not fully capture clinically relevant aspects of manual therapy interventions. The mDiscern scale, owing to its narrower scoring range compared to the original version, may limit its sensitivity in discriminating content quality and consequently influence the categorization of quality levels. A comparable trend has been observed in rheumatoid arthritis study, where discern scores appeared relatively uniform, yet notable differences became evident when other assessment tools were used [28]. These findings highlight that the expertise of content creators and the choice of profession specific evaluation tools may play a critical role in shaping judgments about the quality of online health content.

Our findings showed that the presence or absence of OMPT-ASP items in the videos did not result in a difference in GQS scores. In other words, general educational quality assessments such as flow and presentation quality may not necessarily indicate that the content is comprehensive or aligned with clinical guidelines [29]. Therefore, viewers may perceive videos as educationally sufficient even when essential clinical information is lacking. Furthermore, when user engagement metrics (number of likes, views, VPI, and comments) were compared according to OMPT-ASP content items, the presence of the relevant information in the videos did not create a significant difference in viewer engagement for most items. This finding suggests that the inclusion of guideline-based clinical information and technical details in videos may not directly influence viewers’ behaviors such as watching, liking, or commenting [29]. However, differences were identified with respect to the item “emphasis on informed consent” (Q4). The lower view counts, VPI, and number of comments observed in videos containing this content element suggest that viewers tend to prefer visually and application-focused videos over those emphasizing ethical and informational aspects [29]. Although the Video Power Index (VPI) has attracted increasing attention in the academic literature in recent years, studies examining its relationship with clinical content quality remain limited [30, 31]. Therefore, the relationship between the popularity of videos and the reliability of the health information they provide requires further investigation.

The absence of a significant correlation between the OMPT-ASP score and engagement metrics in our analysis suggests that the relationship between video interaction indicators and quality measures varies across different levels. This finding is consistent with previous studies reporting weak or no association between video popularity and information quality on YouTube [32]. Additionally, the positive correlation between video duration and GQS and mDiscern scores suggests that longer videos may be rated higher in terms of overall educational quality and balanced presentation of treatment information, likely due to their more comprehensive explanations. In particular, the strong positive correlations of the view ratio and VPI with the numbers of likes, comments, and views suggest that these metrics represent interrelated indicators reflecting viewer engagement and popularity on YouTube, as previously reported in study evaluating health-related video content on the platform [33]. Ultimately, this finding indicates that overall video quality and guideline-based clinical content quality are distinct constructs, and that general quality assessment scales alone may not be sufficient. Consistent with the existing literature, the use of clinical guidelines as a reference by healthcare professionals when producing educational content on digital platforms appears to be important [34]. Considering the potential risks associated with upper cervical interventions, the dissemination of unreliable content on digital platforms represents a significant patient safety concern. Our findings highlight a clear need for stricter quality control mechanisms and the promotion of evidence-based educational resources within digital health environments.

One of the strengths of this study is that, to the best of our knowledge, it is among the first to systematically evaluate the content quality, reliability, and user engagement metrics of upper cervical manipulation/manipulation videos on YouTube in accordance with the OMPT-ASP criteria. However, the study also has several limitations. First, although the content analysis was conducted based on OMPT-ASP guidelines, further research is needed to validate the psychometric properties of the OMPT-ASP assessment tool. Additionally, the analysis was limited to videos published on the YouTube platform, and content from other online platforms such as Vimeo, Instagram, or TikTok was not included. Limiting our analyses to videos published solely on the YouTube platform may restrict the generalizability of our findings. Future studies encompassing a broader range of digital platforms are warranted to validate and extend these findings. Given the increasing influence of platforms such as YouTube on health information, the dissemination of evidence-based, clearly structured, and clinically grounded educational content by healthcare professionals is essential. These findings carry important implications for the education of healthcare students and early-career clinicians, who increasingly rely on digital platforms as primary learning resources.

Conclusion

Our findings demonstrate that, on platforms such as YouTube, video popularity does not necessarily align with the quality of guideline-based clinical content, and that user engagement may be more strongly influenced by platform dynamics and audience behavior. Overall, although videos on upper cervical manual therapy provide a certain level of educational content, the reliability and guideline-based clinical accuracy of the information appear to be limited. Moreover, the lack of alignment between engagement metrics and content quality highlights a potential mismatch between visibility and scientific accuracy in digital environments. Given that upper cervical interventions represent a clinically sensitive and risky area—

particularly due to the inclusion of techniques involving high velocity or force with potential effects beyond local musculoskeletal structures—we emphasize the importance of a high level of adherence to evidence-based clinical guidelines when developing educational content for digital platforms.

Abbreviations

OMPT-ASP
Orthopaedic Manual Physical Therapy:Description of Advanced Specialty Practice
GQS
General quality scale
Mdiscern
Modified discern

Declarations

Ethical approval

Institutional ethical approval and informed consent were not considered necessary, as the researchers used publicly available You-Tube videos by its nature

Consent for publication

Not applicable

Data availability

The data that support the findings of this study are available from the corresponding author upon reasonable request

Competing interests

The authors declare that they have no competing interests

Funding

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Author contribution

DAR; designed the study, obtained the data,drafted and wrote the article, analyzed and finally approved the article to be presented. BA ; designed the study, interpreted the data, drafted the article, and critically reviewed it for important intellectual content, ultimately approved the article to be submitted.

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Figures

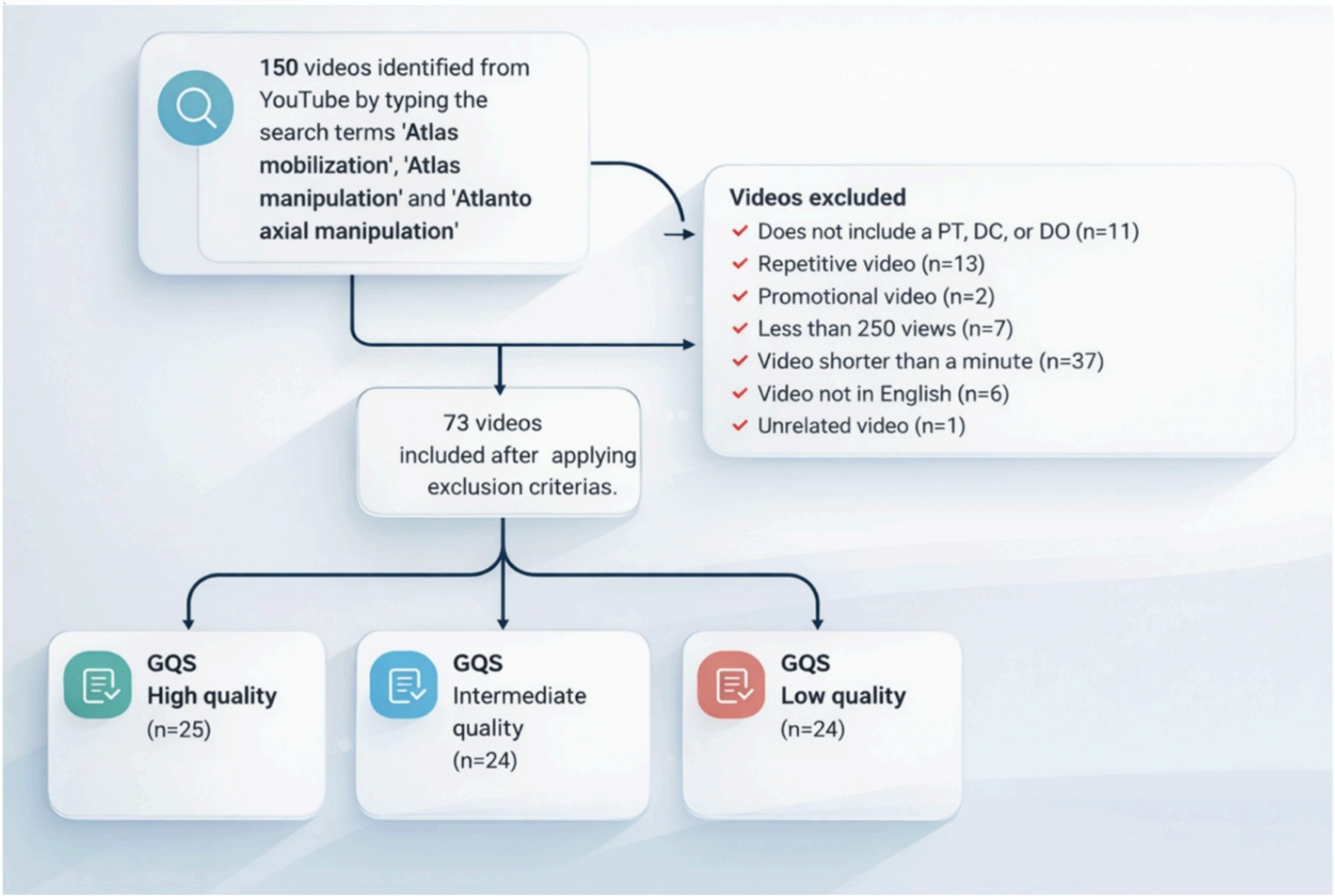


Figure 1

Flow diagram of video selection and quality classification