

Evaluating the Reliability and Quality of Youtube-Based Information on the use of Acupuncture in Chronic Pain

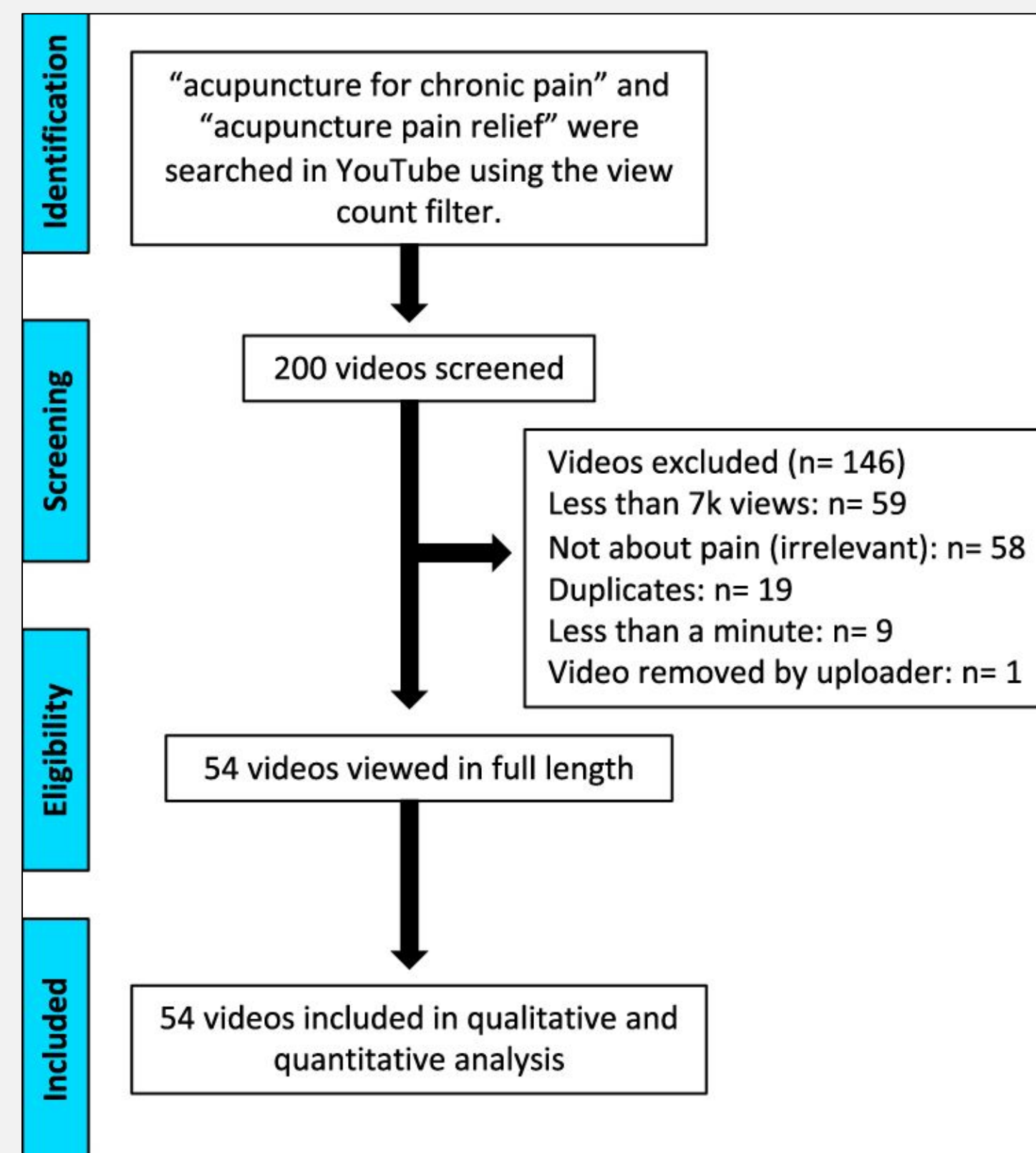
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Introduction

- Chronic low back pain is a condition costing the US healthcare system over \$100 billion annually.¹
- Acupuncture is based on traditional Chinese medicine, commonly used to manage chronic pain syndromes. While interest has been growing in th use of acupuncture, its effectiveness and clinical utility remain controversial.
- A recent study evaluating complementary health approaches (CHAs), including massage, yoga, and acupuncture, showed that 70% of LBP patients tried out at least one CHA, while over 40% used at least two.^{2,3,4}
- Many of these patients will likely consider YouTube as a potential source of information when researching CHAs such as acupuncture.
- Unfortunately, to date, minimal data exists regarding the utility, accuracy, and effectiveness of available information on YouTube, a platform with over 122 million daily active users.⁵
- Our study aimed to bridge this gap in information and vet the quality of information available on YouTube on acupuncture for chronic pain.

Methods

- Usefulness:** Two reviewers assessed videos as useful, misleading, or neutral based on criteria like accurate information on acupuncture definition, pain relief mechanisms, and potential benefits/risks.
- Quality:** Evaluated video reliability using a 5 point scoring system (mDISCERN) that considers factors like clear aims, reliable sources, and balanced information. Another system (GQS) assessed overall video quality and usefulness for patients.
- Reviewer Discrepancies:** Any disagreements between reviewers on video classification (useful/misleading/neutral) or quality scores were resolved by a third reviewer.



Results

Video Characteristics	GQS <3	GQS ≥3	p value
Number of videos, N (%)	7, (13.0)	47, (87.0)	
Mean Duration (sec)	191.57 ± 89.89	343.44 ± 353.34	0.2679
Mean total number of days on YouTube	1398.00 ± 603.13	1929.53 ± 1401.58	0.3299
Mean number of views	29,119.00 ± 39,977.58	88,158.00 ± 165,872.92	0.3564
Mean viewership/day	35.08 ± 59.77	47.06 ± 99.64	0.7575
Mean number of likes	244.43 ± 379.28	699.00 ± 1476.30	0.4247
Mean number of comments	28.86 ± 37.73	89.33 ± 273.22	0.5643
Video Production Source			
Health Institute	0 (0)	14 (29.8)	0.0934
Health Media	5 (71.4)	22 (46.8)	0.2242
Science Media	0 (0)	3 (6.4)	0.4916
News Media	1 (14.3)	6 (12.8)	0.9111
TV Show	0 (0)	2 (4.2)	0.5781
Nonmedical independent user	1 (14.3)	0 (0)	0.0089

Notes: The mean and standard deviation is provided for continuous outcomes, and amount with percentage is presented for categorical outcomes. Pairwise comparisons were performed among cohorts ("GQS <3" vs "GQS ≥3") using t-test for continuous variables and chi-square test for categorical variables. The p values for each comparison were recorded in the table.

Table 1: YouTube Video Characteristics and Sources based on GQS

Video Categorization:

- Useful:** 57.4% of videos
- Misleading:** 14.8% of videos
- Neither:** 27.8% of videos

Video Quality (GQS and mDISCERN Scores):

- Useful Videos:** Higher average scores (3.77±0.67 and 3.48±0.63)
- Misleading Videos:** Lower average scores (2.50±0.53 and 2.38±0.52)
- Useful videos were more likely to be produced by healthcare institutions (41.8%) and had significantly higher quality scores than misleading videos of which none were produced but healthcare institutions. Health media was a common source of misleading videos (produced 87.5% of them).

Discussion

- Misinformation:** Approximately 15% of popular acupuncture videos on YouTube contain misleading information.
- Quality of Useful Videos:** Videos deemed useful have higher quality scores (GQS and mDISCERN) compared to misleading videos.
- Source of Misinformation:** Most misleading videos are not produced by healthcare institutions, suggesting that non-healthcare channels may be less reliable.
- Reliability of Healthcare Institutions:** Healthcare institutions, especially those without obvious commercial motives, tend to produce more reliable and higher-quality information.
- Personal Accounts:** Videos from personal accounts often have very low quality information.
- Many top-viewed acupuncture videos online are misleading, highlighting a need for reliable content from healthcare professionals.

Limitations

- Dynamic nature of YouTube:** video information can change over time, affecting the accuracy of data collected.
- View count threshold:** excluding videos with less than 7,000 views does limit the scope of analysis
- Language restriction:** study is limited to English-language videos, limiting its generalizability.
- Platform focus:** analysis is limited to YouTube, excluding other potential sources of video acupuncture information such as Tiktok and Instagram



References

- Patel M, Urits I, Kaye AD, Viswanath O. The role of acupuncture in the treatment of chronic pain. Best Practice & Research Clinical Anaesthesiology. 2020 Sep 1;34(3):603-16.
- Qaseem A, Wilt TJ, McLean RM, Forciea MA, Clinical Guidelines Committee of the American College of Physicians*. Noninvasive treatments for acute, subacute, and chronic low back pain: a clinical practice guideline from the American College of Physicians. Annals of internal medicine. 2017 Apr 4;166(7):514-30.
- D'Souza RS, Langford B, Wilson RE, et al. The state-of-The-art pharmacotherapeutic options for the treatment of chronic non-cancer pain. Expert Opin Pharmacother. 2022;1-15. doi: 10.1080/14656566.2022.2060741
- Madsen MV, Gatzsche PC, Hróbjartsson A. Acupuncture treatment for pain: systematic review of randomised clinical trials with acupuncture, placebo acupuncture, and no acupuncture groups. Bmj. 2009 Jan 28;338.
- Langford, B., Hooten, W. M., D'Souza, S., Moeschler, S., & D'Souza, R. S. (2021). YouTube as a Source of Medical Information About Spinal Cord Stimulation. Neuromodulation : journal of the International Neuromodulation Society, 24(1), 156–161. <https://doi.org/10.1111/ner.13303>