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YouTube as a source of information on contact dermatitis

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Many patients use the Internet and social media to obtain health information. YouTube, a popular video-sharing platform, hosts a plethora of health-related content of uncertain value from diverse sources.[1] Limited studies call attention to inaccurate, low-quality dermatologic content uploaded to YouTube by non-medical sources.[2,3] We investigated the accuracy, quality, and popularity of videos related to contact dermatitis on YouTube.

We conducted a cross-sectional study of the 60 most-viewed videos retrieved by searching for "contact dermatitis" on YouTube. Non-English videos and those concerning unrelated diagnoses/irrelevant topics were excluded. Video source was classified as medical or non-medical; medical videos were further subcategorized as dermatologist or non-dermatologist. Two independent dermatologists rated videos on accuracy, using the Dy *et al.* Accuracy Scale,[4] and quality, using the Global Quality Score.[5] Inter-rater reliability was assessed using the weighted Kappa. Agreement between quality and accuracy scores was moderate or substantial between raters (κ=0.50 [95% CI=0.38–0.63] and κ=0.70 [95% CI=0.54–0.85], respectively). Popularity was measured by total views and views per day since first posting. To quantify viewer engagement, an engagement ratio ([likes+dislikes+comments]/total views) was calculated.[3] In addition, within the non-medical videos, first-person experiences were analyzed qualitatively for content.

Following application of exclusion criteria, 39 videos were evaluated, accounting for 1,503,387 views between 2009–2019 (Table 1). The majority (86% [18/21]) of exclusions were for unrelated diagnosis/irrelevant topic. Compared to non-medical sources, medical videos had significantly higher median (IQR) scores for accuracy (4 [4–4] vs 1.5 [1–3], respectively) and quality (3.5 [3.5–4.5] vs 1.5 [1.5–2.0], respectively; both $p<0.01$) (Figure 1). In the non-medical videos, there was broad recognition that personal care products/cosmetics can cause contact dermatitis; however, it was generally assumed that only new products may be implicated. Commonly, topical steroids (without allergen avoidance), food elimination diets, and "natural," potentially allergenic substances were

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touted as contact dermatitis “cures.” Also, there was a lack of distinction between irritant and allergic reactions. Median (IQR) video length from non-medical sources (8.5 [5.4–12.6] minutes) was higher compared to medical sources (4.4 [2.3–6.8] minutes, p=0.04). Although statistically insignificant, total views, views per day, and engagement ratio were numerically higher for non-medical videos. Within the medical subgroup, median (IQR) engagement ratio was significantly greater for videos from dermatologists (0.009 [0.006–0.013]) compared to non-dermatologists (0.003 [0.002–0.006], p=0.02), while other characteristics and scores did not differ significantly. All videos from dermatologists, and most from non-dermatologists, accurately conveyed the pathogenesis, causative factors, and clinical features of contact dermatitis. Compared to non-dermatologists, dermatologists focused more on patch testing (discussed in 9/12 [75%] vs 3/10 [30%] videos), whereas non-dermatologists emphasized empiric avoidance strategies and treatment with corticosteroids.

Personal experiences with contact dermatitis accounted for 65% (11/17) of non-medical videos. Presenters were all women, most (73% [8/11]) of whom reported facial dermatitis. Theories for the cause of dermatitis, proposed in 82% (9/11) of videos, commonly included stress, new products, and diet. Remedies were recommended in 91% (10/11) of videos, most often product switching, product avoidance, and topical steroids. Over half (55% [6/11]) of narrators reported seeing a dermatologist; 18% (2/11) reported being patch tested.

Inaccurate, low-quality videos from non-medical sources capture the attention of viewers searching for contact dermatitis information on YouTube. Though not significant, there was greater popularity and engagement for non-medical vs medical videos, potentially limited by sample size. Nonetheless, there appears to be willingness to engage with videos from medical sources, particularly dermatologists, signaling a valuable opportunity to connect with and educate patients. Considering the high proportion of non-medical videos represented by first-person accounts, there may be merit in pursuing patient-physician video collaborations to ensure content accuracy. There is a need for accurate, high-quality, and engaging contact dermatitis videos created by dermatologists for YouTube.

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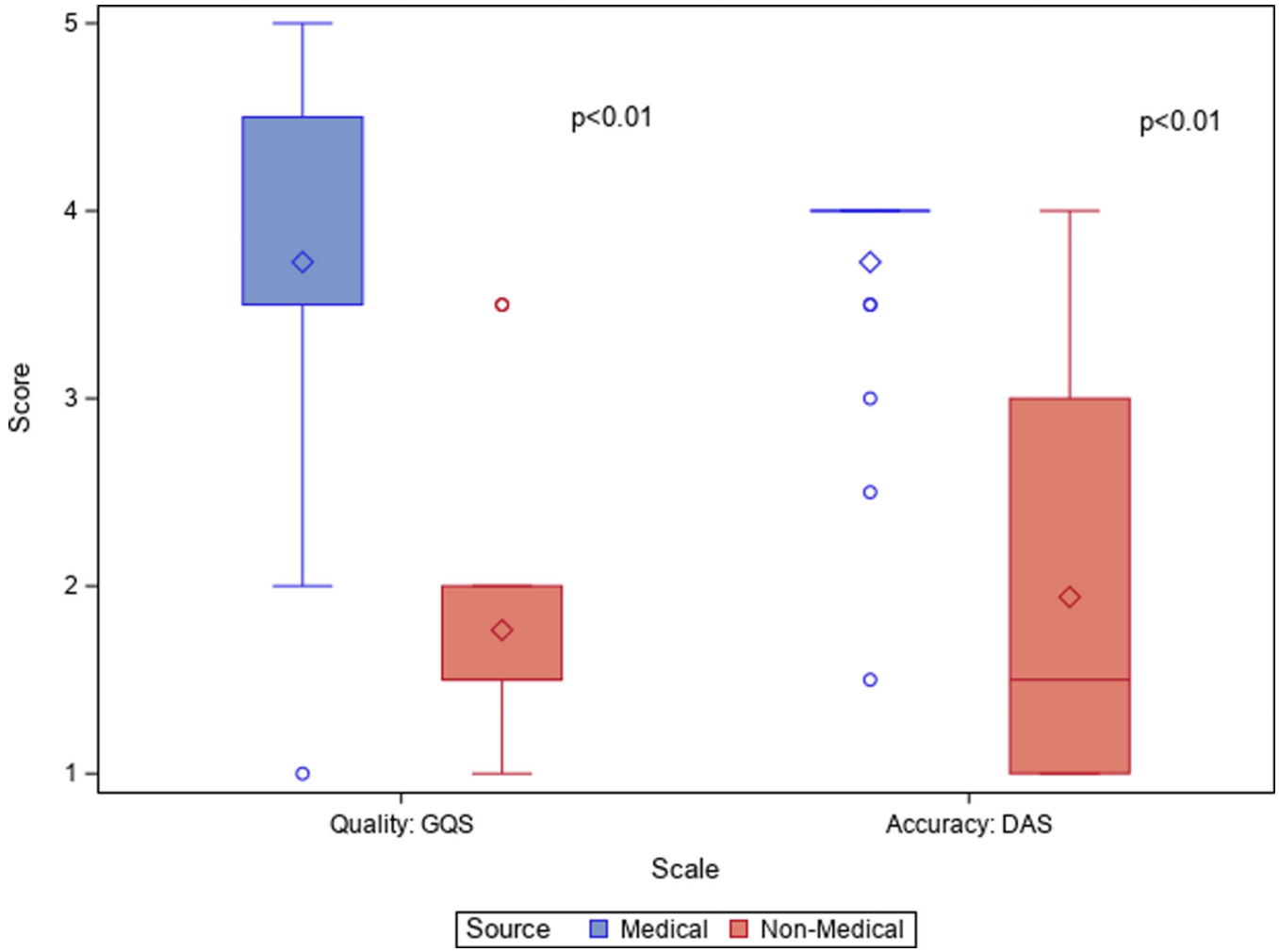

Figure 1. Boxplots of quality and accuracy scores for videos from medical and non-medical sources.

There were lower median Global Quality Score (GQS) and Dy *et al.* Accuracy Score (DAS) in videos from non-medical sources (both p<0.01).

Table 1.

Video characteristics and scores by source.

	Source		
Characteristic	**Medical (n=22)**	**Non-Medical (n=17)**	**p-value**
Length (minutes)	4.4 (2.3–6.8)	8.5 (5.4–12.6)	0.04
Upload duration (days)	1532 (681–2755)	1667 (1006–1794)	0.83
Total views	17157 (10861–34264)	26290 (11526–44096)	0.62
Views per day	18.3 (6.3–37.6)	20.6 (6.9–62.0)	0.64
Engagement ratio	0.006 (0.003–0.010)	0.007 (0.005–0.017)	0.25
Score			
Accuracy (DAS)	4 (4–4)	1.5 (1–3)	<0.01
Quality (GQS)	3.5 (3.5–4.5)	1.5 (1.5–2.0)	<0.01

Continuous variables are expressed as median (interquartile range) and were analyzed by exact Wilcoxon test. Significance tests were two-tailed, with α=0.05. All analyses were performed using SAS v.9.4 (SAS Institute Inc.).

DAS, Dy *et al.* Accuracy Scale: 1 = <25% accurate information; 2 = 25–50% accurate information; 3 = 51–75% accurate information; 4 = 76–100% accurate information

GQS, Global Quality Score: 1 = Poor quality, poor flow, most information missing, not at all useful for patients; 2 = Generally poor quality and poor flow, some information listed but many important topics missing, of very limited use to patients; 3 = Moderate quality, suboptimal flow, some important information is adequately discussed but others poorly discussed, somewhat useful for patients; 4 = Good quality and generally good flow, most of the relevant information is listed, but some topics not covered, useful for patients; 5 = Excellent quality and excellent flow, very useful for patients