

ORIGINAL

Evaluating the Quality of Information on YouTube Regarding Fractures

Evaluación de la calidad de la información sobre fracturas en YouTube

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ABSTRACT

Introduction: in today's digital age, individuals have easy access to health information, particularly through platforms like YouTube. However, the quality of the information on YouTube is often questionable due to the vast number of videos uploaded. Therefore, it is essential for the public to possess good health literacy skills.

Method: the MQ-VET is an instrument that can be used to assess the quality of information found on YouTube. This cross-sectional study aimed to evaluate the quality of YouTube videos related to fractures. The participants included healthcare workers and members of the general public from Kediri District Hospital. Respondents were divided into two groups and evaluated three specific videos. The assessment of video quality utilized the MQ-VET instrument. The data collected were analyzed using the Friedman test, the Wilcoxon signed-rank test, and the Mann-Whitney test.

Results: the results of the study indicated significant differences in quality scores between videos 1 and 2, as well as between videos 1 and 3. However, there were no significant differences in quality scores between videos 2 and 3. Additionally, the study found no differences in scores between healthcare workers and the general public. This highlights the need to improve health literacy skills so that all individuals can critically assess the information they receive, especially from YouTube

Conclusions: one useful tool for evaluating the quality of information presented on YouTube is the MQ-VET.

Keywords: Literacy; YouTube; MQ-VET; Fracture.

RESUMEN

Introducción: en la era digital actual, las personas tienen fácil acceso a la información sobre salud, especialmente a través de plataformas como YouTube. Sin embargo, la calidad de la información en YouTube suele ser cuestionable debido a la gran cantidad de vídeos que se suben. Por lo tanto, es esencial que el público posea buenos conocimientos sobre salud.

Método: el MQ-VET es un instrumento que se puede utilizar para evaluar la calidad de la información que se encuentra en YouTube. Este estudio transversal tenía como objetivo evaluar la calidad de los vídeos de YouTube relacionados con las fracturas. Entre los participantes se encontraban trabajadores sanitarios y miembros del público general del Hospital del Distrito de Kediri. Los encuestados se dividieron en dos grupos y evaluaron tres vídeos específicos. La evaluación de la calidad de los vídeos se realizó utilizando el instrumento MQ-VET. Los datos recopilados se analizaron mediante la prueba de Friedman, la prueba de rangos con signo de Wilcoxon y la prueba de Mann-Whitney.

Resultados: los resultados del estudio indicaron diferencias significativas en las puntuaciones de calidad entre los vídeos 1 y 2, así como entre los vídeos 1 y 3. Sin embargo, no se observaron diferencias significativas

en las puntuaciones de calidad entre los vídeos 2 y 3. Además, el estudio no encontró diferencias en las puntuaciones entre los profesionales sanitarios y el público en general. Esto pone de relieve la necesidad de mejorar las habilidades de alfabetización sanitaria para que todas las personas puedan evaluar de forma crítica la información que reciben, especialmente la procedente de YouTube.

Conclusiones: una herramienta útil para evaluar la calidad de la información presentada en YouTube es el MQ-VET.

Palabras clave: Alfabetización; YouTube; MQ-VET; Fractura.

INTRODUCTION

A fracture is a condition where the continuity of bone or cartilage is broken, either partially or completely. Fractures typically occur due to trauma that causes the bone to lose its structural integrity.⁽¹⁾ In 2019, there were 455 million fractures reported globally across all age groups, and this number continues to rise. The most common types of fractures include those of the palate, tibia or fibula, and the ankle.⁽²⁾

According to the 2018 RISKESDAS (National Health Research and Development Agency), the proportion of injuries that disrupt daily activities was 9,2 % among 1,017,290 individuals. Lower limb injuries accounted for 67,9 % of these cases, while upper limb injuries made up 32,7 %. In Indonesia, the proportion of injuries specifically due to fractures was 5,5 %. Furthermore, the 2018 RISKESDAS results indicated that 98,5 % of the population relied on traditional healers for treatment (Ministry of Health, 2019). This trend is supported by the results from the 2024 SKI survey, which found that 49,2 % of the population still preferred traditional healers over other healthcare providers.⁽³⁾

In their research, F. I. E. Putra and Adam⁽⁴⁾ noted that approximately 85 % of patients with fractures opt for traditional bone treatment before seeking help at a hospital. Traditional bone specialist practices remain prevalent in developing countries, including Indonesia. Similarly, a study conducted by Rahman et al.⁽⁵⁾ in Aceh found that none of the traditional bone specialists had obtained an official practice license, even though they had been practicing for over five years.

A fracture that is not treated appropriately or is neglected can lead to delayed treatment, worsening conditions, or even permanent disability; such cases are referred to as Neglected Fractures. Neglected fractures frequently arise among patients seeking care from traditional bone specialists.^(6,7) Additionally, research by Adagba et al.⁽⁸⁾ involving 70 patients revealed that out of those, 30 received traditional treatment late, 25 underwent osteosynthesis, 10 received conservative treatment, and five did not receive any treatment due to financial constraints.

Research conducted by Azaka and Tarsan⁽⁹⁾ found that men are more likely than women to experience neglected fractures, with femur fractures being the most common type observed in their study. Similarly, Kusbari and Sitompul⁽¹⁰⁾ discovered that many patients prefer traditional chiropractors over healthcare facilities, which can contribute to neglected fractures. Their findings indicated that 40 % of patients chose traditional medicine based on family recommendations, while 30 % did so due to fear of surgery, and another 30 % due to a lack of health insurance for further medical treatment. Additionally, over 50 % of patients opted for treatment from a traditional chiropractor influenced by videos they watched on social media, particularly YouTube.

The vast availability of health information across various media platforms today allows the general public easier access to knowledge. With the growing convenience of internet access, individuals can independently search for information about diseases and both medical and non-medical treatments online. YouTube has emerged as one of the most popular and frequently accessed mass media platforms worldwide.⁽¹¹⁾

YouTube is an open-access media-sharing platform and is widely used for searching medical information, with more than two-thirds of adults turning to the internet for health-related content. This popularity makes YouTube a valuable resource for the public seeking health information. It is also the second most visited website in the world.⁽¹²⁾

In April 2020, the usage of YouTube surged by 75 %, significantly influenced by the COVID-19 pandemic. Currently, the platform has seen an increase of 2 billion users globally, and this number is expected to continue rising over time.⁽¹³⁾ The rise in YouTube's popularity during the pandemic can be attributed to the abundance of engaging informational content that is easily accessible via internet connections on various devices, such as smartphones, laptops, and computers. This flexibility allows users to access thousands, or even millions, of videos at their convenience.⁽¹⁴⁾

YouTube has a significant social impact by disseminating a vast amount of information. However, due to insufficient oversight by relevant authorities, YouTube videos can sometimes spread biased or misleading information, including exaggerated controversies and conspiracy theories.⁽¹⁵⁾ As of 2023, YouTube had over 2 billion monthly active users, with approximately 500 hours of video uploaded every minute. This has raised

concerns about the lack of a rigorous verification process for the extensive health-related content available, particularly regarding its accuracy, reliability, and quality.⁽¹⁶⁾

Content on YouTube can greatly influence how audiences perceive the strengths and weaknesses of the messages shared on the platform, especially when it comes to health information.⁽¹⁷⁾ High-quality YouTube videos can positively affect people's behaviors.⁽¹⁸⁾ Conversely, poor-quality videos might lead individuals to make misguided decisions about treatment options. Therefore, it is crucial for healthcare professionals to comprehend YouTube content and to provide high-quality, accurate, and up-to-date information for educational purposes.⁽¹⁹⁾

Good literacy skills are essential for filtering information on YouTube. Health literacy refers to an individual's ability to access, understand, evaluate, and apply information to make informed decisions.⁽²⁰⁾ These skills are crucial for building trust in health information sources, especially in today's digital age, where a vast array of health-related content is readily available online.⁽²¹⁾ One tool that can help assess digital health information, particularly YouTube videos, is the MQ-VET. This instrument is relatively simple, making it suitable for use by both healthcare professionals and the general public.⁽²²⁾ This study aimed to evaluate several YouTube videos about bone fractures as assessed by healthcare professionals and members of the general public.

METHOD

Study Design and Setting

This study used a quantitative, cross-sectional design at Kediri Regency General Hospital, East Java Province, Indonesia, from May to August 2025.

Sample Description

Sixty participants were equally divided between health workers and the general public, selected by purposive random sampling according to specific criteria. Agung (2006) states that a minimum of 30 samples is needed to apply the central limit theorem. Participants inclusion criteria: (1) age ≥ 21 , (2) YouTube access, (3) passive English skills, (4) job as health worker (doctor, nurse, midwife, physiotherapist, pharmacist, nutritionist) or general public (patient, patient's family). Exclusion criteria: (1) age < 21 , (2) no YouTube use, (3) lack of passive English, (4) other jobs.

Variables dan Data Collection

The study variables were age, gender, education, occupation, and video quality score. Data were collected via questionnaires from 60 respondents, all of whom were briefed on study objectives and provided consent before participation. The researcher, an orthopedic expert, pre-selected three Indonesian-language YouTube videos on 'bone fracture.' These were chosen as the top three search results across different account types (general, non-medical health worker, orthopedic specialist), each lasting 2-10 minutes. According to Fauziah⁽²³⁾, optimal video duration is 6 minutes, and human memory lasts 15-20 minutes; the selected videos met these standards. Participants then evaluated each video using the MQ-VET instrument. Table 1 lists the video links.

Tabel 1. Youtube videos link	
No.	Link Video
Video 1	https://youtu.be/yEjawEbAuXw?si=-_BX5jDt2jM21WJ8
Video 2	https://youtu.be/sUyiZbKW_Fg?si=VV5QdpfHWb7DMrbJ
Video 3	https://youtu.be/MQEWx3DxsHQ?si=0n1qmyv9LOPdb3WE

Instrumen

The instrument used in this study was the Medical Quality Video Evaluation Tool (MQ-VET). The Medical Quality Video Evaluation Tool (MQ-VET) evaluated video quality and reliability for patients and healthcare professionals. MQ-VET includes 15 questions in 4 parts: part 1 (5 question), part 2 (4 question), part 3 (3 question), part 4 (3 question). Its validity and reliability are supported by a Cronbach's alpha of 0,72. All questions are scored by likert scale, from 1 poin (Strongly Disagree) to 5 poin (Strongly Agree), with total scores ranging from 15 to 75.⁽²²⁾

Data Analysis

The collected video quality assessment scores will be analyzed using the Friedman test. This test will determine whether ratings differ across videos within each group. If differences are found, a Wilcoxon signed-rank test will determine which videos differ. Finally, researchers will examine whether there are differences in ratings between the healthcare worker group and the general public.

Ethical Approval and Informed Consent

Permission was granted by Kediri Regency Regional General Hospital and the Kediri Regency National Unity

and Politics Agency. All respondents were informed about the study and confidentiality; written consent was obtained before data collection.

RESULTS

Table 2. Crosstabulation of Respondent's Age in Work Group					
	Age (Years)				TOTAL
	21-30	31-40	41-50	51-60	
Health Worker	9 (15,0 %)	14 (23,3 %)	6 (10,0 %)	1 (1,7 %)	30 (50,0 %)
General Public	24 (40,0 %)	4 (6,7 %)	0 (0,0 %)	2 (3,3 %)	30 (50,0 %)
TOTAL	33 (55,0 %)	18 (30,0 %)	6 (10,0 %)	3 (5,0 %)	60 (100,0 %)

Note: This table presents the ages of respondents in each work group; Respondents' ages are classified into categories.

Table 2 presents the age groups of the respondents. Overall, the majority of participants in this study were aged 21-30 years, totaling 33 individuals (55 %). The second largest group was those aged 31-40 years, with 18 individuals (30 %). The age group 41-50 years included six individuals (10 %), while the least represented group was aged 51-60 years, with three individuals (5 %).

When analyzed by professional group, most healthcare workers fell into the 31-40 years age range, with 14 individuals (23,3 %). The next largest group was aged 21-30 years, comprising nine individuals (15 %). Six individuals (10 %) were aged 41-50 years, and there was one healthcare worker (1,7 %) aged 51-60 years. In contrast, the general public primarily consisted of individuals aged 21-30 years, totaling 24 people (40 %). Only four individuals (6,7 %) were aged 31-40 years, and the 51-60 years age group included two individuals (3,3 %).

Table 3. Crosstabulation of Respondent's Sex in Work Group			
	Sex		TOTAL
	Male	Female	
Health Worker	9 (15,0 %)	14 (23,3 %)	30 (50,0 %)
General Public	24 (40,0 %)	4 (6,7 %)	30 (50,0 %)
TOTAL	33 (55,0 %)	18 (30,0 %)	60 (100,0 %)

Note: This table presents the sex of respondents in each work group; Respondents' sexes are classified into categories.

Table 3 presents the gender distribution of the respondents. Overall, a majority of the participants were female, totaling 33 respondents (55 %), while male respondents numbered 27 (45 %). Within the healthcare worker group, there were 15 males (25 %) and 15 females (25 %). In contrast, the general public group had a higher number of females, totaling 18 (30 %), compared to 12 males (20 %).

Table 4. Crosstabulation of Respondent's Education in Work Group					
	Education Background				TOTAL
	Senior High School	Diploma's Degree	Bachelor's Degree	Master's Degree	
Health Worker	0 (0,0 %)	12 (20,0 %)	15 (25,0 %)	3 (5,0 %)	30 (50,0 %)
General Public	6 (10,0 %)	2 (3,3 %)	22 (36,7 %)	0 (0,0 %)	30 (50,0 %)
TOTAL	6 (10,0 %)	14 (23,3 %)	37 (61,7 %)	3 (5,0 %)	60 (100,0 %)

Note: This table presents the education of respondents in each work group; Respondents' educations are classified into categories.

Table 4 illustrates the final educational attainment of the respondents. In total, 37 out of 60 respondents

(61,7 %) held a bachelor's degree. Additionally, 14 respondents (23,3 %) had a diploma, six respondents (10 %) had a high school degree, and three respondents (5 %) possessed a master's degree.

Among healthcare workers, 15 respondents (25 %) held a bachelor's degree, 12 respondents (20 %) had a master's degree, and three respondents (5 %) had a doctoral degree. Meanwhile, for the general public, 22 respondents (36,7 %) held a bachelor's degree, six respondents (10 %) had a diploma, and two respondents (3,3 %) held a diploma degree.

Table 5. Videos Quality Score in Work Group						
	Health Worker			General Public		
	Video 1	Video 2	Video 3	Video 1	Video 2	Video 3
Minimum	31,00	56,00	56,00	18,00	48,00	47,00
Maximum	75,00	75,00	75,00	75,00	75,00	75,00
Mean	60,20	64,47	67,50	50,40	63,20	65,17
Median	60,00	61,50	68,00	56,00	64,00	64,00
Std. Error	1,91	1,16	1,22	3,71	1,53	1,21
Std. Deviasi	10,44	6,33	6,70	20,33	8,37	6,61
Variance	108,92	40,05	44,95	413,28	70,09	43,66
Note: Std. Deviasi, standard deviation; Std. Error, standard error; Video 1, quality score of video 1; Video 2, quality score of video 2; Video 3, quality score of video 3.						

Table 5 presents the descriptive statistics of the video assessment scores for each respondent group.

For Video 1, the healthcare worker group had a minimum score of 31, while the general public had a minimum score of 18, with both groups achieving a maximum score of 75. The mean score for Video 1 among healthcare workers was 60,2, whereas the mean score for the general public was 50,4. Additionally, the median score for healthcare workers was 60,2, and for the general public, it was 50,4.

In Video 2, the healthcare worker group scored a minimum of 56, compared to a minimum of 48 for the general public, with both groups again reaching a maximum score of 75. The mean score for Video 2 among healthcare workers was 64,47, while the general public's mean score was 63,2. The median score for healthcare workers was 61,5, and for the general public, it was 64.

For Video 3, the healthcare worker group had a minimum score of 56, while the general public scored a minimum of 47, with a maximum of 75 for both groups. The average score for Video 3 among healthcare workers was 67,5, whereas the average score for the general public was 65,17. The median score for healthcare workers was 68, while the median for the general public was 64.

Tabel 6. Friedman Test to Evaluate Differences in Assessment Scores Between Videos				
	N	Chi-Square	df	p-value
Health Worker	30	9,838	2	0,007
General Public	30	10,323	2	0,006
Note: N, number of respondents; p-value, signifikansi; the alpha value is 5 %.				

Table 6 presents the results of the Friedman test, which evaluates whether there are differences in assessment scores among the videos. The findings indicate that the health worker group assigned significantly different scores, with a p-value of 0,007 ($p\text{-value} < \alpha = 0,05$) and a chi-square value of 9,838. This suggests that at least one video was evaluated significantly differently by health workers. Similarly, the general public group also showed significant results, with a p-value of 0,006 ($p\text{-value} < \alpha = 0,05$) and a chi-square value of 10,323, indicating that at least one video was assessed significantly differently by the community group.

Tabel 7. Wilcoxon test to Identify Differences in Video Ratings						
	Video 1 & Video 2		Video 1 & Video 3		Video 2 & Video 3	
	Z	p-value	Z	p-value	Z	p-value
Health Worker	-2,522	0,012	-3,283	0,001	-2,049	0,040
General Public	-3,634	0,0001	-3,087	0,002	-0,990	0,322
Note: Z, z-score; p-value, signifikansi; the alpha value is 5 %.						

A Wilcoxon signed-rank test with a Bonferroni correction ($\alpha = 0,05/3 = 0,017$) was conducted to identify differences in video ratings. Table 6 illustrates that some video ratings were statistically significant, while others were not. The results indicated significant differences in ratings ($p\text{-value} < \alpha$ with Bonferroni correction) between video 1 and video 2, as well as between video 1 and video 3, in both the health worker group and the general public group. However, no significant differences were found between video 2 and video 3; the health worker group had a $p\text{-value}$ of 0,04 (which is greater than $\alpha = 0,017$), and the general public's $p\text{-value}$ was 0,322 (also greater than $\alpha = 0,017$).

Tabel 8. Mann-Whitney U test to Identify Differences in Video Ratings Between Work Group	
Mann-Whitney U	398,00
Z	-0,207
p-value	0,836
Note: Mann-Whitney U, score of Mann-Whitney; Z, z-score; p-value, signifikansi; the alpha value is 5 %.	

Furthermore, the researchers sought to investigate differences in video information quality ratings between the two groups. Table 8 presents the results of the Mann-Whitney U test, which was used to determine whether differences existed between healthcare workers and the general public. The results showed no significant difference between the two groups ($U = 398$, $p\text{-value} = 0,836$), although healthcare workers provided higher ratings than the general public, as indicated in table 5.

DISCUSSION

Information is a fundamental human need that arises from curiosity, a natural aspect of human nature. This curiosity drives people to seek answers or explanations about events or realities.⁽²⁴⁾ In today's digital era, the easy access to various social media platforms and the internet allows individuals to quickly obtain information from a wide range of sources. One study found that nearly all respondents preferred digital information over conventional media. However, this convenience also presents a significant challenge: the widespread proliferation of false information or hoaxes.⁽²⁵⁾

It is essential for everyone to possess information literacy skills. Information literacy is a fundamental competency that enables individuals to filter through the vast amount of information available today. This skill not only involves the ability to recognize information but also plays a crucial role in evaluating and making informed decisions.⁽²⁶⁾ On the other hand, health literacy refers to the capacity to search for, understand, evaluate, and use health information to make informed health-related choices. Moreover, the ability to assess the quality of YouTube videos is also considered a component of health literacy.⁽²⁷⁾

Literacy skills can be enhanced in several ways: (1) finding reliable sources of information, (2) verifying the accuracy of these sources, (3) reading information thoroughly, (4) analyzing content carefully, critically, and logically, (5) seeking additional sources of information, (6) comparing various sources obtained, and (7) being responsible when disseminating information.⁽²⁸⁾

This study employed the Medical Quality Video Evaluation Tool (MQ-VET) to assess information literacy in YouTube videos. The MQ-VET was developed to evaluate the quality and reliability of medical videos, making it useful for both patients and healthcare professionals. It aims to address existing issues related to health information videos, and its validity and reliability have been demonstrated across various medical topics. The MQ-VET is particularly effective at assessing the quality of medical videos, while some existing assessment methods have not yet been thoroughly applied to such content.

The MQ-VET comprises 15 questions organized into four sections.⁽²²⁾ The results indicated no significant differences in assessments between healthcare professionals and the general public, suggesting that both groups rated the videos similarly. Additionally, the small sample size may have limited sensitivity, causing individual variations to obscure distinctions between the groups. Therefore, it is recommended to consider increasing the sample size to enhance the robustness of the study.

A related study found no differences in assessment scores between healthcare workers and patients. Although the videos provided more in-depth information, much of the content fell outside the realm of basic patient education and did not contribute to improved assessment scores.⁽²⁹⁾

However, when analyzing each video individually, both healthcare workers and the general public produced similar results. Differences in assessments were observed between video 1 and video 2, as well as between video 1 and video 3. There was no difference in assessments between video 2 and video 3. Further analysis indicated that video 1 was sourced from the general public, video 2 from non-medical healthcare workers, and video 3 from hospital experts, specifically orthopedic specialists.

Previous research has also suggested similar findings. One study noted quality score differences based on the source of the videos, reporting that videos from Ministry, Academic, or Hospital channels had higher average scores than those from individual or parent content channels.⁽³⁰⁾ Other studies have confirmed that videos produced by doctors and physiotherapists tend to be of higher quality than those created by patients, which are often less comprehensive and accurate.⁽³¹⁾ Additionally, other research has indicated that videos from doctors generally maintain a higher standard than those from commercial or non-medical sources. Doctors are frequently viewed as a trusted and preferred source of information by the general public.⁽³²⁾

Chai *et al.*⁽³³⁾ conducted a study that evaluated videos on the treatment of distal radius fractures. They discovered a disconnect between patient-oriented and provider-oriented educational videos. Similarly, another study examined the quality of YouTube information regarding post-cesarean pain and found significant limitations in the available content. Only a small percentage of the videos met the criteria for high-quality health education. As a result, individuals searching for information on YouTube may encounter videos that are not comprehensive or reliable. Physicians should advise patients to exercise caution when using YouTube as a source of information.⁽³⁴⁾

This study has several limitations. First, the sample size was moderate (n=60), and the participants were divided into two groups. Second, the number of videos assessed was small (3 videos). Third, this study used only one quality assessment method (MQ-VET) and did not compare it with others. Fourth, only Indonesian-language videos were assessed. Future research could include more participants, more videos, and more video types. Future researchers can also use more assessment methods, compare them with other methods, or add more variables to increase variety.

CONCLUSIONS

The rapid advancement of health information in the digital age emphasizes the importance of assessing the quality of such information. YouTube has become a popular platform for accessing health-related content. One useful tool for evaluating the quality of information presented on YouTube is the MQ-VET. The results of this study indicated no significant difference in ratings between healthcare professionals and the general public. However, a detailed analysis revealed noteworthy differences in scores among videos 1 and 2, as well as videos 1 and 3. Specifically, Video 1 was created by a member of the general public, Video 2 was produced by non-medical healthcare professionals, and Video 3 was presented by experts. It is important to note that this study had a small sample size. Future researchers interested in conducting similar studies should consider increasing the sample size to enhance the reliability of the findings. A larger sample size is expected to improve sensitivity and reduce individual variation, leading to a better understanding of the differences between groups. Additionally, there is a need to develop literacy skills among the public to enable individuals to critically assess and sort the information they encounter, particularly from YouTube videos.

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