

# Investigation and quality evaluation of Internet videos related to diet therapy for chronic pancreatitis

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## Abstract

Diet therapy can help alleviate chronic pancreatitis symptoms. The quality of diet therapy content in Internet videos varies markedly. Evaluating and assessing these videos is crucial for providing reliable patient education. This study aims to analyze 102 Internet videos regarding dietary therapy for chronic pancreatitis on media platforms in China (Bilibili, Weibo, and Tiktok) and rate their content, reliability, and quality. Videos were categorized into 3 sources: hospital or university officials, medical doctors, and independent users. An 8-point scale was used to score content (smoking, drinking, eating frequency, overeating, and nutrient intake [high-quality protein, low fat, nutrition, and dietary fiber]). An adapted DISCERN tool was used to assess reliability, with the Global Quality Scale employed to measure quality. Among the 102 videos analyzed, 34 (4, 9, and 21 from hospital or university officials, medical doctors, and independent users, respectively) were rated as low quality, 37 (8, 12, and 17 from hospital or university officials, medical doctors, and independent users, respectively) were rated as moderate quality, and 31 (7, 19, and 6 from hospital or university officials, medical doctors, and independent users, respectively) were rated as high quality. Thus, among 102 videos from Tiktok, Weibo, and Bilibili, only 31 (30.4%) were considered high quality based on reliability and quality assessments, and some were misleading. Our findings suggest nearly 70% of health videos fail to meet high-quality standards, highlighting critical needs for improved content moderation across media platforms. Medical professionals and institutions should be encouraged to produce more high-quality Internet videos with comprehensive content to better guide and support patients with pancreatitis in adopting effective dietary therapy.

**Keywords:** chronic pancreatitis, content score, diet therapy, Internet videos, quality score, reliability score

## 1. Introduction

Chronic pancreatitis is a chronic necrotizing inflammatory disease of the pancreas, characterized by upper abdominal pain, diabetes, loss of endocrine and exocrine functions, and fatty diarrhea. Recent studies indicated a rising trend in the prevalence of chronic pancreatitis.<sup>[1,2]</sup> Dietary factors, including mineral intake, are linked to chronic pancreatitis.<sup>[3]</sup> Emerging evidence demonstrated that a Mediterranean diet may lower the risk of chronic pancreatitis.<sup>[4]</sup> By 2019, the incidence of chronic pancreatitis had risen sharply to approximately 5 cases per 10,000 individuals.<sup>[5]</sup>

Indigestion, a complication of chronic pancreatitis, can lead to malnutrition.<sup>[6–8]</sup> Depending on the definition of malnutrition and the study setting, the prevalence of malnutrition among patients with chronic pancreatitis ranges from 10% to 46%.<sup>[9–11]</sup> Malnutrition is linked to reduced quality of life for such patients. Therefore, in addition to necessary

drug therapy, dietary therapy should be a major component of chronic pancreatitis treatment. Previous studies have shown that approximately 40.2% of individuals have insufficient energy intake, with nearly a third experiencing severe energy deficiency,<sup>[12]</sup> highlighting the need for a structured nutritional plan with focused dietary counseling for patients with chronic pancreatitis.

With the increasing popularity of smartphones, individuals are more inclined to use the Internet to search for health information.<sup>[13,14]</sup> Numerous digital platforms enable patients to obtain health-related information online. However, such information may be inaccurate and misleading, potentially compromising patient health.<sup>[15–17]</sup> For example, researchers found that blogs written by unregistered nutritionists contained many self-contradictory and false claims.<sup>[15]</sup> Patients with chronic pancreatitis, informed by their medical doctors about the importance of diet, are likely to seek out Internet videos for dietary plans to supplement their nutrition. However, the effectiveness

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All data generated or analyzed during this study are included in this published article [and its supplementary information files].

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of these dietary plans depends on the content and quality of the videos. Patients often cannot assess the authenticity and reliability of these videos or determine whether their content is useful or misleading. Currently, there is no assessment of the content and quality of Internet videos on dietary therapy for chronic pancreatitis; therefore, evaluating their content and quality is essential.

There are numerous Internet video platforms in China. For our research, we selected TikTok, Weibo, and Bilibili, the top 3 most popular platforms in mainland China. We analyzed the selected diet therapy videos in terms of quality, content, reliability, and source to assess their relevance to dietary therapy for patients with chronic pancreatitis.

## 2. Materials and methods

This section outlines our methods for evaluating Internet videos related to dietary therapy for patients with chronic pancreatitis.

### 2.1. Video collection

We searched for relevant Internet videos on dietary therapy for chronic pancreatitis using the phrases “How to eat for patients with chronic pancreatitis” or “Dietary therapy for patients with chronic pancreatitis” on TikTok (mainland China), Weibo, and Bilibili. Videos were excluded if they were repetitive, irrelevant to the theme, featured nonhuman subjects, or were not in Chinese. All videos were downloaded and saved. The full process is shown in Figure 1.

### 2.2. Video classification

Two researchers independently categorized each video into 3 sources: hospital or university officials, medical doctors, and independent users. Inter-rater reliability was assessed using  $\kappa$  values, with those  $> 0.8$  considered “excellent” agreement, those

between 0.6 and 0.8 considered “substantial” agreement, those between 0.4 and 0.6 considered “moderate” agreement, and those  $< 0.4$  considered “poor” agreement.<sup>[18]</sup>

### 2.3. Content evaluation

An 8-point score was used to evaluate Internet video content based on smoking, drinking, eating frequency, overeating, nutrient intake (high-quality protein, low fat, vitamins, and dietary fiber). Details of the 8-point scale are provided in Table 1. Scores were assigned as follows: no smoking, no drinking, high eating frequency ( $>4$  times a day), and no overeating received a score of 1. For nutrients, each point was scored as 0 (not included) or 1 (included). Videos scoring 1 to 2 were classified as poor content, those scoring of 3 to 5 as moderate content, and those scoring 6 to 8 as rich content.

### 2.4. Reliability evaluation

An adapted DISCERN tool was used to evaluate content reliability. The survey comprised 5 questions,<sup>[19]</sup> with a “yes” response scoring 1 point and a “no” response scoring 0 points. The questions are listed in Table 2. Videos scoring 0 were considered misleading, those scoring 1 to 2 were considered useless, and those scoring 3 to 5 were considered useful.

### 2.5. Quality assessment

The quality of the videos was assessed using the Global Quality Scale,<sup>[20]</sup> which rated videos on a 5-point scale across 3 aspects: content, flow, and source reliability. Details of the 5-point scale are shown in Table 3. Videos scoring 1 to 2 were considered low quality, those scoring 3 were considered moderate quality, and those scoring 4 to 5 were considered high quality. Video with strong fluency and useful content received scores of 4 to 5, whereas those with weak fluency and controversial or unhelpful content typically received scores of 1 to 2.

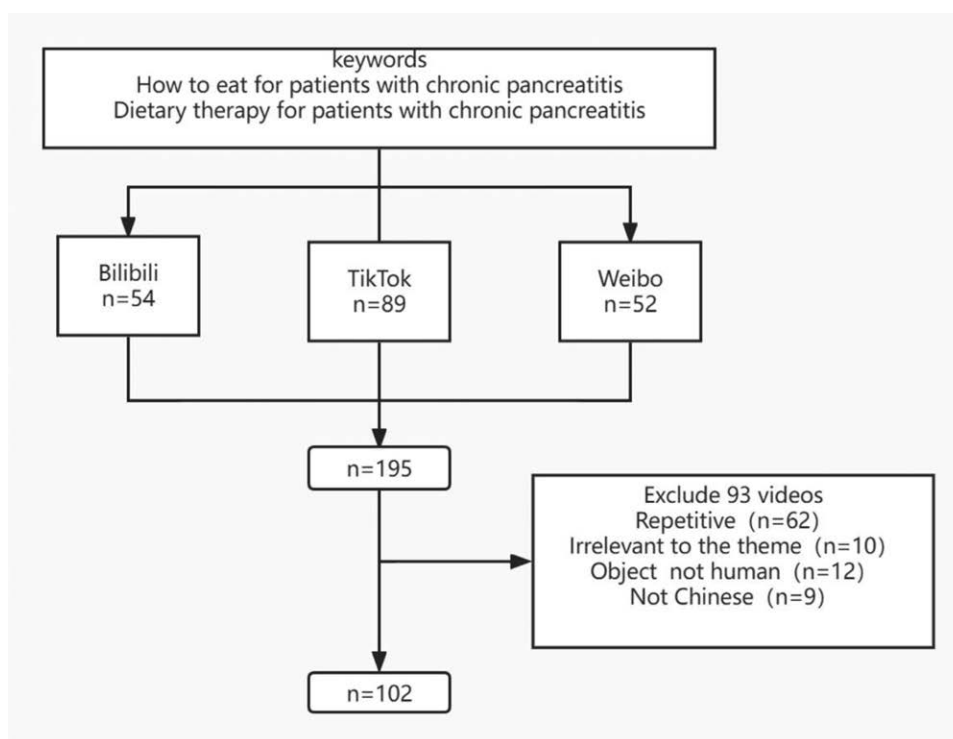


Figure 1. Search process flow diagram.

2.6. Statistical analysis

Statistical analyses were performed using SPSS (Statistical Package for the Social Sciences) and GraphPad Prism. Continuous variables were compared using Student *t* test. Significance was set at two-tailed *P* < .05. Data visualization included composition charts generated using GraphPad Prism.

3. Results

3.1. Quantity of Internet videos

In total, 195 Internet videos related to dietary therapy for patients with chronic pancreatitis were collected from Bilibili, TikTok, and Weibo. Of these, 93 videos were excluded for the following reasons: repetitive content (62), irrelevant to the theme (10), nonhuman subjects (12), and non-Chinese language (9) (Fig. 1).

3.2. Classification results

The remaining 102 Internet videos were categorized into 3 sources: hospital or university officials (19), medical doctors (40), and independent users (43) (Fig. 2).

3.3. Content scores

All 102 Internet videos were evaluated for content. Figure 3 shows that only 3 (2.9%) videos contained rich content, including 2 from medical doctors and 1 from hospital or university officials. In total, 42 (41.2%) videos contained moderate content, with 20 from medical doctors, 12 from hospital or university officials, and 10 from independent users. The remaining 57 (55.9%) videos were classified as poor content, including 18 from medical doctors, 6 from hospital or university officials, and 33 from independent users. Furthermore, only 18 (17.6%) videos mentioned no smoking, 52 (51.0%) mentioned no drinking, 16 (15.7%) mentioned high eating

frequency, 24 (23.5%) mentioned no overeating, 22 (21.6%) mentioned high-quality protein, 70 (68.6%) mentioned low fat, 23 (22.5%) mentioned vitamins, 27 (26.5%) mentioned dietary fiber, and 17 (16.7%) did not mention nutrient intake (Table 1). Notably, many videos were rated as having medium content owing to no mention of smoking, possibly because it is widely recognized that smoking is harmful to health, and video creators may assume that viewers are already aware of this.

3.4. Reliability scores

The reliability scores for the 102 Internet videos are shown in Figure 4. Of these, 61 videos were considered useful (14, 37, and 10 videos from hospital or university officials, medical doctors, and independent users, respectively), 31 were considered useless (3, 3, and 25 videos from hospital or university officials, medical doctors, and independent users, respectively), and 10 were considered misleading (2, 0, and 8 videos from hospital or university officials, medical doctors, and independent users, respectively).

3.5. Quality scores

Among the 102 analyzed Internet videos, 34 were rated as low quality, 37 as moderate quality, and 31 as high quality (Fig. 5). Specifically, of the 19 videos from hospital or university officials, 4, 8, and 7 were judged to be of low, moderate, and high quality, respectively. Of the 40 videos from medical doctors, 9, 12, and 19 were judged to be of low, moderate, and high quality, respectively. Among the 43 videos from independent users, 21, 17, and 5 were judged to be of low, moderate, high quality, respectively.

4. Discussion

Chronic pancreatitis is a persistent pancreatic disease with the potential to develop into pancreatic cancer. Besides drug therapy, long-term dietary therapy can improve body composition and muscle function, thereby enhancing overall physical condition.<sup>[21–24]</sup> With the increasing use of smartphones, individuals are more likely to search for information online. Therefore, patients with chronic pancreatitis often consult Internet videos for information regarding dietary therapy.

Table 1  
8-point scale.

Content		Number n (%)
Smoking	No	84 (82.4%)
	No smoking	18 (17.6%)
Drinking	No	50 (49.0%)
	No drinking	52 (51.0%)
Eating frequency	No	86 (84.3%)
	High frequency	16 (15.7%)
Overeating	No	78 (76.5%)
	No overeating	24 (23.5%)
Intake of nutrients	No	17 (16.7%)
	High quality protein	22 (21.6%)
	Low fat	70 (68.6%)
	Vitamins	23 (22.5%)
	Dietary fiber	27 (26.5%)

Table 2  
Reliability evaluation.

Reliability score
1. Is the video clear, concise, and understandable?
2. Are valid sources cited?
3. Is the content presented balanced and unbiased?
4. Are additional sources of content listed for patient reference?
5. Are areas of uncertainty mentioned?

Table 3  
Global Quality Scale.

GQS definition	GQS score
Poor quality, poor flow of the video, most information missing, not at all useful for patients	1
Generally poor quality and poor flow, some information listed but many important topics missing, of very limited use to patients	2
Moderate quality, some important information is adequately discussed	3
Good quality good flow, most relevant information is covered, useful for patients	4
Excellent quality and flow, very useful for patients	5

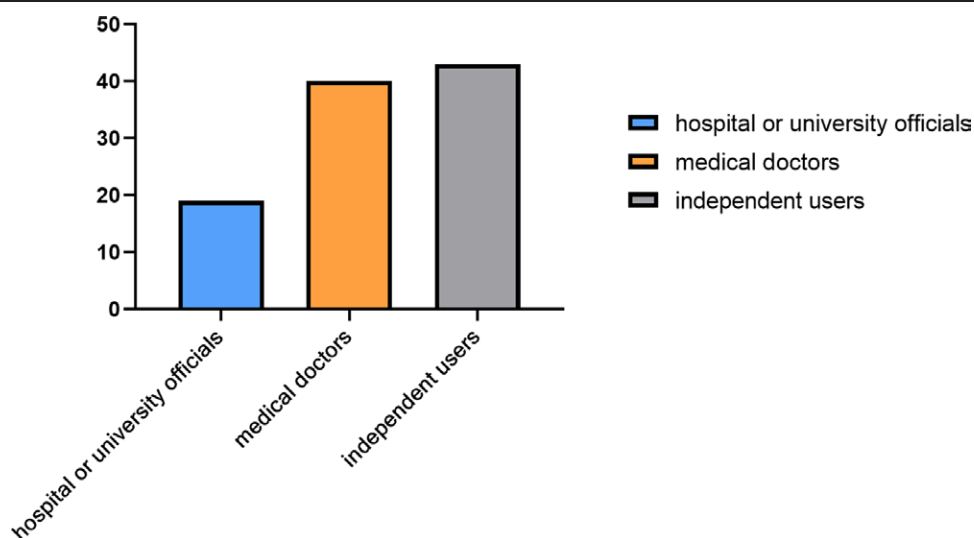


Figure 2. Number of Internet videos from 3 sources.

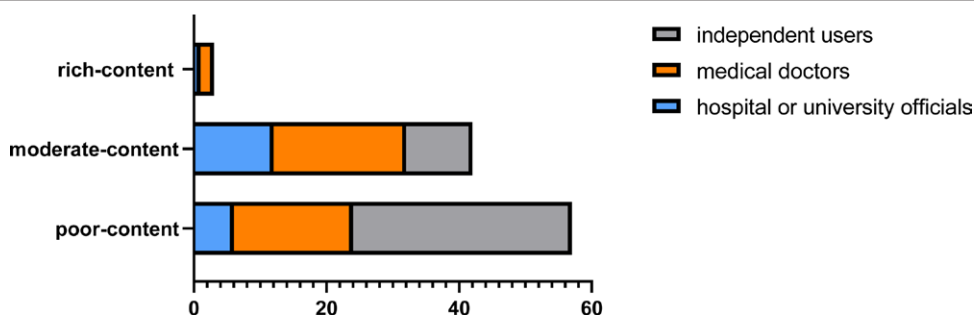


Figure 3. Content scores of Internet videos from 3 sources.

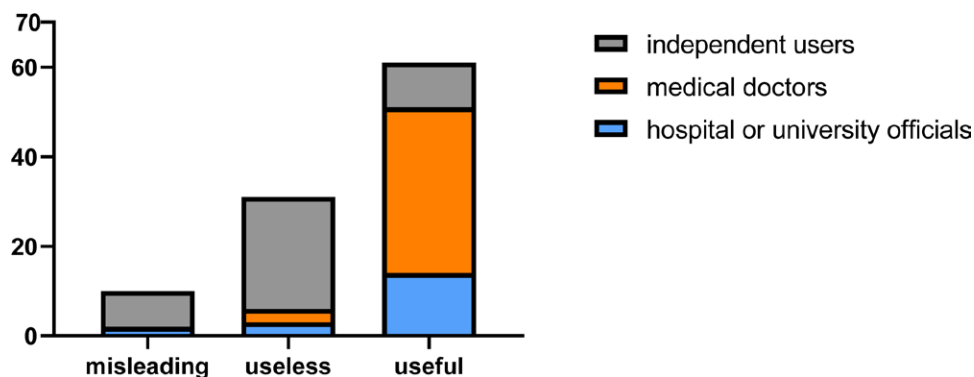


Figure 4. Reliability scores of Internet videos from 3 sources.

Smoking, drinking, eating frequency, overeating, and nutrient intake (high-quality protein, low fat, vitamins, and dietary fiber) are all relevant to dietary therapy for chronic pancreatitis.<sup>[25–28]</sup> We evaluated Internet videos from TikTok, Weibo, and Bilibili, scoring them according to 8 aspects of their content and reliability to determine their effectiveness for patients with chronic pancreatitis. Unfortunately, videos from “Wechat Video” were too disorganized and mostly unrelated to the theme; hence, they were not included in our collection.

In this study, the distribution of video quality was as follows: 34 (33.3%) were low quality, 37 (36.3%) were moderate quality, and 31 (30.4%) were high quality. High-quality videos were not predominant, mainly due to the lack of

comprehensive content. For example, 70 (68.6%) videos mentioned low fat, and 52 (51.0%) mentioned no alcohol intake. However, only 16 (15.7%) videos addressed these aspects with high frequency. What is worse, as smoking is associated with worse clinical outcomes in chronic pancreatitis,<sup>[29]</sup> we have found that only 18 (17.6%) videos discussing no smoking. This omission may be attributed to the prevalence of nonclinical content creators and the inherent brevity constraints of short-video platforms. Most videos focused on low fat diets and no drinking, neglecting other factors that affect chronic pancreatitis, such as vitamins and dietary fiber. Consequently, patients following these videos may not see symptom improvement owing to the overlooked factors. Interestingly, some videos discussed dietary therapies based on traditional Chinese

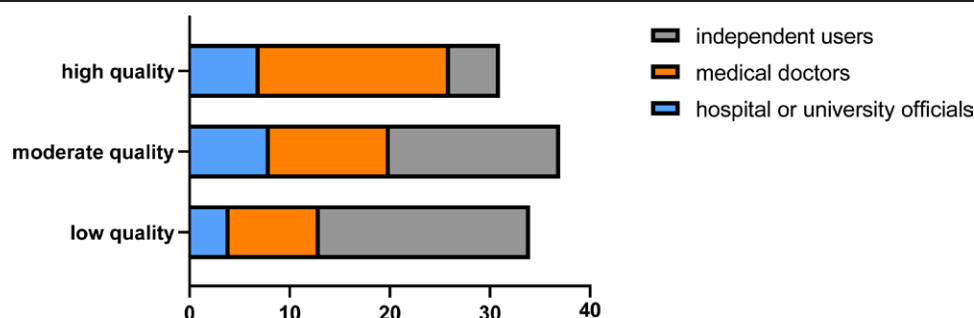


Figure 5. Quality scores of Internet videos from 3 sources.

medicine, such as “Fujingzimi Tang” and “Xiaoyao San,” which have functions including “warming Yang and dispersing Cold”; thus, daily dietary intake of these Chinese medicines may promote blood circulation and alleviate blood stasis. This suggests a potential novel therapeutic approach involving Chinese medicine, highlighting the need for the investigator to have expertise in Chinese medicine to differentiate reliable information from misleading claims. Among videos from medical doctors and hospital or university officials, 19 (61.3%) and 7 (22.3%) were rated as high quality, respectively, indicating that most high-quality videos come from these sources. Conversely, 21 (48.8%) videos from independent users were deemed low quality owing to nonscientific content that may mislead viewers. Based on our survey, we recommend that medical doctors and hospital or university officials produce more high-quality Internet videos with comprehensive content to guide patients with chronic pancreatitis, encourage them to adopt dietary therapy, and support their recovery. Independent users should focus on providing reliable information rather than personal dietary experiences.

In conclusion, we analyzed 102 videos from TikTok, Weibo, and Bilibili, evaluating their content, reliability, and quality. The results revealed that only 31 (30.4%) videos were of high quality, with some even being misleading. Our findings are consistent with the research about rheumatoid arthritis information on YouTube in US (United States), which found 30.4% misinformation.<sup>[19]</sup> Therefore, We urge medical doctors and hospital or university officials spanning from China to international settings to produce more high-quality videos offering structured nutritional plans for patients with chronic pancreatitis to aid their recovery. For video platforms, we recommend implementing credential verification badges for healthcare creators and adjusting algorithms to prioritize evidence-based content. Establish joint review committees to evaluate video content, facilitating collaboration between platforms and healthcare providers.

To the best of our knowledge, this is the first study examining the impact of public media on chronic pancreatitis recovery. However, platform algorithms may have introduced selection bias by preferentially promoting certain video types, and we did not examine the impact of video content on therapeutic outcomes. Further studies are needed to explore how media influence affects treatment outcomes in patients with chronic pancreatitis, potentially preventing cancer development and disease exacerbation.

## Author contributions

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**Writing – review & editing:** Lixiang Wang, Hao-Jie Huang, Zhen-Dong Jin.

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