

# A Study on the Psychological Response Mechanism of the Public to Government Health Information Self-Disclosure from the Perspective of Health Psychology

## --A Cognitive-Affective-Behavioral Analysis Based on YouTube Comments

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### Abstract

This study uses the 2026 U.S. Dietary Guidelines self-disclosure of capital manipulation as a case, applying the cognitive-affective-behavioral model to text-mine and sentiment-analyze 6,533 YouTube comments. Cognitively, the public focused on pre-existing frames—historical lessons, nutrient controversies, and institutional accountability—rather than the official admission itself. Affectively, neutral comments dominated, polarity fluctuated cyclically without polarization, and low-to-mid subjectivity scores indicated predominantly rational discourse. Behaviorally, interactions revolved around technical dietary debates rather than collective deliberation on government action, and likes showed no emotional mobilization. The findings demonstrate that official self-disclosure was “technicized” into a knowledge-validation arena instead of triggering a trust crisis or emotional polarization. This challenges the linear “honesty repairs trust” assumption in crisis communication and suggests that trust rebuilding in health communication should account for cognitive inertia, knowledge-centered discussion, and long-term psychological contracts, offering empirical and theoretical insights for health psychology-based public opinion analysis.

### Keywords

Health Psychology; Self-Disclosure; Cognitive-Affective-Behavioral Model; Public Opinion; Health Communication; Trust Rebuilding.

## 1. Research Background

In public health and health communication, public trust in government-issued health guidelines critically shapes the acceptance of such information. As the WHO Constitution's Preamble states, 'Informed opinion and active co-operation on the part of the public are of the utmost importance in the improvement of the health of the people,' underscoring that public attitudes can influence the refinement of health systems, policies, and guidelines. Thus, deepening the understanding of public attitudes toward health information and their psychological mechanisms stands as a vital research focus in health psychology.

Since the first dietary goals were issued in 1977, U.S. dietary guidelines have undergone ten revisions. On January 8, 2026, officials released the latest edition and openly acknowledged that earlier versions had been influenced and manipulated by powerful capital interests, resulting in inaccuracies and substantive errors. This rare official self-disclosure quickly captured

widespread public attention, and the new guidelines spread rapidly across numerous social media platforms and online forums.

When the government proactively admits its prior health information was unreliable, does the public's cognitive focus shift from the guidelines' content to the institution's trustworthiness? Does this institutional self-impeachment transform affective responses from trust toward skepticism? And what psychological attitudes are reflected in how the public comments, interacts, and assigns approval cues like 'likes'?

This study seizes upon the unique opportunity of this governmental self-disclosure as its empirical focus. Employing the cognitive-affective-behavioral model as its guiding framework, it conducts a systematic textual analysis of comments on selected YouTube short videos about the dietary guidelines update. The aim is to explicate the psychological response mechanisms exhibited by the American public when processing this health information. By doing so, the study aspires to contribute theoretical and empirical evidence to public opinion analysis within health psychology.

## 2. Literature Review

### 2.1. Health Information Disclosure and Public Psychological Response

Research in health psychology has consistently shown that public acceptance and trust in health information are not determined by content alone, but are moderated by source credibility, disclosure method, and pre-existing trust in the disclosing entity.

In a study during the COVID-19 pandemic in China, Huang and colleagues provided robust empirical evidence indicating that government intervention in formal information disclosure mechanisms and instances of voluntary disclosure by disease control authorities all contributed significantly to an acceleration in the speed of diagnosis. Moreover, these varied forms of disclosure were also found to be effective in heightening the degree of vigilance and self-protective awareness exhibited by populations deemed to be at elevated risk of contracting the virus. This investigation further served to empirically validate the unique and valuable contribution that voluntary forms of disclosure can make toward the objective of reducing the overall duration of localized disease outbreaks.

Wu et al. found that government information disclosure in public emergencies has three core functions: easing social uncertainty, supporting organizational responses, and promoting societal coordination in crisis governance. They further found that disclosure effects are not uniform but hinge on local government execution capacity and pre-existing public trust in those institutions.

However, most prior studies treat the government as an authoritative source whose disclosures equal objective fact. The situation becomes more complex when the government self-discloses that its previous information was distorted by capital interests and contained errors, potentially transforming the public's psychological response.

Chen and his collaborators examined the causal relationship between the disclosure of negative information and public trust in political institutions, using a quasi-natural experiment, and the findings revealed a nuanced pattern. While the act of information disclosure, in and of itself, was observed to exert a generally positive influence on measures of political trust, this positive main effect was found to be significantly and negatively moderated by the actual, objective levels of air pollution present in the local environment. In essence, the more severe the problem of air pollution was in a given locality, the more the otherwise beneficial effect of disclosure on public trust was diminished or eroded. Even more strikingly, in areas where air pollution was not severe and the public lacked firsthand experience, the disclosure policy increased negative evaluations of the government..

Thus, the central question framed by this self-disclosure remains: When the government admits past error, does public attention shift from the health guidance content to institutional trustworthiness, and does trust give way to skepticism?

## 2.2. The Cognitive-Affective-Behavioral Model

The cognitive-affective-behavioral model, rooted in Fishbein and Ajzen's Theory of Reasoned Action (1975), is a central framework in psychology and communication for explaining attitude formation and behavioral drivers, positing that cognitions, affects, and behavioral intentions together shape behavior. It has been used to analyze consumers' willingness of constant usage. Meanwhile, it has been productively applied in health psychology to health information acceptance, risk perception, and vaccination uptake, serving as a heuristic to trace how users process health information and form behavioral intentions. For instance, scholars studying large language models in medicine have used it to track cognitive deepening from awareness to adoption; Pirolli et al. built a computational cognitive model integrating expectancy-value, attitudes, self-efficacy, and motivation to simulate how individual decisions during COVID-19 modulated viral transmission; Huang He et al. employed it to examine how early COVID-19 risk information aroused public emotions and clarified sentiment and behavior changes under different frames; Yu Guoming and Chen Xuejiao proposed an "Information Environment → Cognition → Behavioral Intention" causal model, validating distinct media-use orientations and links to risk perception and vaccination intentions among Chinese residents. The model also suits the analysis of user-generated comments: Fan Ying et al. used it to examine young audiences' focus, emotions, and behavioral inclinations regarding national identity in Bilibili comments on tech videos; Xiong Wei and Wang Bei applied it to foreign viewers' responses to YouTube videos of IShow Speed's Shaolin Temple experience, identifying focal interests, affective evaluations, and behavioral intentions, and confirming internet celebrities as "cultural intermediaries" that drive emotional engagement and behavioral change. In summary, the model offers a reliable pathway from awareness to acceptance or action; by capturing attitudes and intentions in spontaneously generated online comments, it demonstrates clear operational feasibility in audience research. Huo and Li note that "the continuous use intention is not equal to the continuous use behavior", underscoring the importance of distinguishing between intention and actual behavior in sustained usage contexts. This study adopts it as the overarching analytical framework. and, accordingly, proposes the following research questions:

RQ1 (Cognitive): When the U.S. government self-discloses deficiencies in prior dietary guidelines, what characteristic concerns and narrative frameworks define the public's cognitive processing of this health information?

RQ2 (Affective): What patterns, structures, and developmental trajectories characterize the public's affective responses over time?

RQ3 (Behavioral): What specific attitudes and action tendencies are expressed in the public's observable online behavioral responses?

## 3. Research Design

Data acquisition combined convenience and purposive sampling. Systematic YouTube searches identified videos on the 2025–2030 Dietary Guidelines update; after screening, comments from six videos posted within the first week of the event were selected. A custom Python scraper collected 6,634 raw comments. Manual cleaning removed non-text entries and off-topic content, yielding 6,533 valid entries.

Data analysis implemented multi-dimensional text mining in Python. Word frequency analysis (minimum threshold 200 occurrences) identified core discursive foci. Reply relationships were parsed to quantify dialogue depth and density. Sentiment analysis used TextBlob to compute



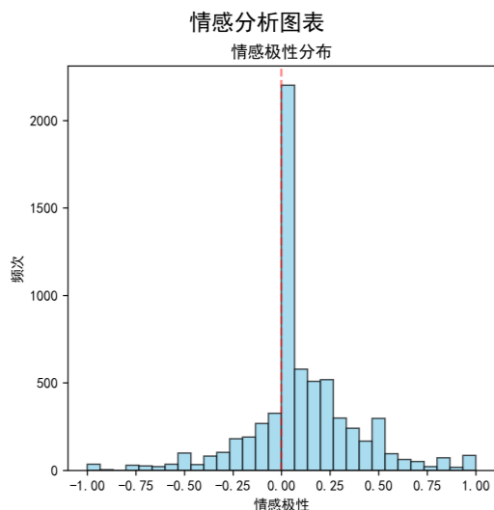


Figure 2: YouTube Comments Sentiment Polarity Distribution

Temporal sentiment analysis revealed a cyclical pattern within a 0.10–0.24 range rather than a simple linear trend. Mean polarity started at 0.24 (near comment 0), declined to 0.18 (100), 0.12 (200), and reached a low of 0.10 (300), rebounded to 0.15 (400) and 0.18 (500), then fell again to 0.10 (600). Total fluctuation amplitude was approximately 0.14, with two local minima (near 300 and 600) and one initial maximum.

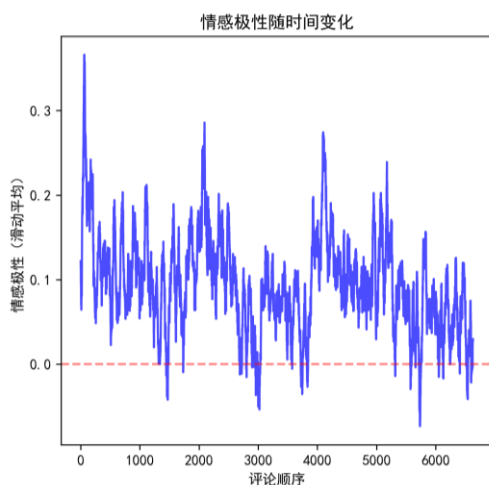


Figure 3: YouTube Comments Sentiment Polarity Over Time

Subjectivity scores (0.00 fully objective, 1.00 fully subjective) ranged from 0.00 to 0.92, concentrated mainly between 0.30 and 0.50. The absolute peak occurred at 0.34, with 5,800 comments—the highest across the entire range. The lower end (0.00–0.30) accumulated approximately 25,960 comments, and the higher end (0.52–0.80) accumulated 17,750. An anomalous spike of 2,800 comments was observed at 0.90.

Overall, at the affective level, the American public did not exhibit a widespread trust crisis or acute emotional polarization. The dominant tone was rational, deliberative, and emotionally neutral. Negative sentiment was limited, focused on specific critiques of policy content or scientific evidence, and did not generalize into diffuse distrust of the government.

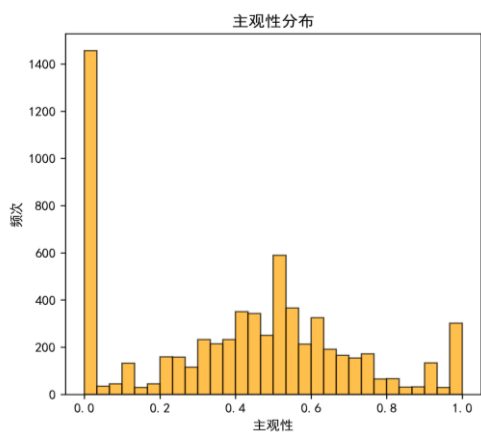


Figure 4: YouTube Comments Subjectivity Distribution

### 4.3. Interaction Data Analysis

Analysis of YouTube comment interaction metrics produced three findings:

- ① Like count distribution (0–2900) followed a highly right-skewed power-law distribution. Frequencies were highest in the 0–100 range and declined steeply, approaching zero beyond ~500 likes, a classic online engagement pattern.
- ② Hierarchical structure revealed high interactivity: 3,494 first-level comments and 3,134 second-level comments, a ratio of approximately 1:0.90, indicating deep conversational engagement.
- ③ Average likes by sentiment category were strikingly uniform: 10.6 (negative), 10.3 (positive), and 10.1 (neutral), with a range of only 0.5. This suggests likes were not meaningfully driven by emotional valence.

Manual review showed interactions overwhelmingly focused on technical debates about dietary content (e.g., health effects of fats, merits and dangers of processed foods), with little evidence of collective evaluation of the government’s self-disclosure. Thus, at the behavioral level, the public’s primary inclination was toward knowledge exchange, evidence-based argumentation, and collective negotiation of factual claims, effectively transforming the interactive space into an arena for technical vetting rather than a referendum on governmental integrity.

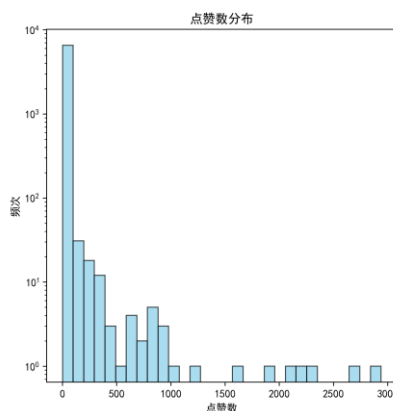


Figure 5: YouTube Comments Like Distribution

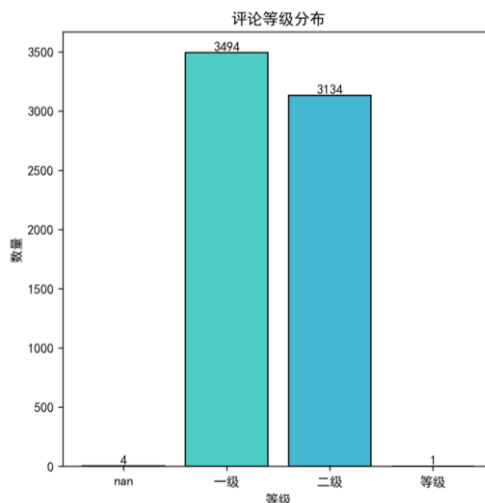


Figure 6: YouTube Comments Level Distribution

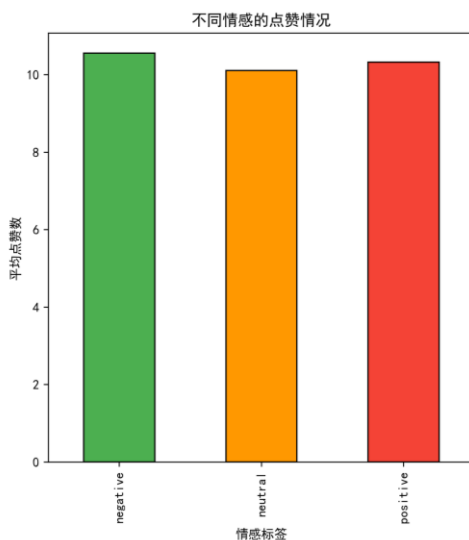


Figure 7: YouTube Comments Average Likes by Sentiment

## 5. Conclusion

### 5.1. Focus of Attention Level

Word frequency analysis identified three lexical centers: "pyramid" (581), "food" (1,980), and "government" (316), pointing respectively to historical guideline critique, nutrient controversies (fat 833, meat 684, processed 382, whole 261), and government-people power relations. This indicates public attention did not pivot toward the "official admission of error" but instead extended pre-existing issue frameworks of scientific validity, historical lessons, and institutional accountability. Thus, a "strategy of honesty" does not inherently redirect attention toward trust re-evaluation; such disclosure is assimilated into the public's stable cognitive structures for evaluating health matters.

### 5.2. Affective Level

Sentiment analysis revealed a neutral-dominant, unimodal polarity distribution without polarization, while subjectivity scores indicated rational, emotionally balanced contributions. Most comments, even those expressing personal judgment, remained anchored in reasoned argumentation. Negative sentiment was limited and targeted specific policy content, scientific evidence, or industry influence rather than expressing generalized distrust. Self-disclosure did

not trigger large-scale affective polarization or a collapse in trust; sentiment primarily served informational claims rather than sweeping affective judgment.

### 5.3. Interaction Level

Interaction data showed dense reply dialogues and virtually indistinguishable "liking" patterns across sentiment categories. Qualitative review revealed that exchanges overwhelmingly centered on technical debates about dietary content—particularly fats and processed foods—with interactive energies absorbed in dissecting specific nutritional claims. There was little evidence the space served for collective deliberation on the government's self-disclosure. User behaviors oriented toward knowledge exchange, collaborative evidence-sifting, and technical debate rather than public judgment on government character. Self-disclosure thus activated a vigorous discussion fundamentally about "what constitutes correct and trustworthy health knowledge."

## 6. Discussion

### 6.1. Theoretical Contribution: Self-Disclosure as "Knowledge Activation" Rather Than "Trust Repair"

Traditional crisis communication theory holds that voluntary admission of error initiates trust repair. This study challenges that linear assumption. The American public did not interpret self-disclosure primarily as a trust repair signal; they repurposed it, transforming the discursive space into an arena for knowledge validation. Self-disclosure did not become the focal point. Instead, the public engaged in "dimensional reduction," converting the explosive question of institutional trustworthiness into concrete technical disputes—debating whether dietary fat is harmful or whether the food pyramid model was fundamentally flawed. This pragmatic coping strategy enables critical expression while avoiding a direct assault on institutional legitimacy, preserving space for critique without precipitating an immediate trust crisis. For health communication, this implies that trust evaluation is not binary but embedded in long-standing issue agendas; self-disclosure functions mainly as corroborating evidence absorbed into pre-existing discourse—less a starting bell than a gust of wind to an already ongoing race.

### 6.2. Insights for Health Psychology: Trust Rebuilding Starts with "Discussability"

Affective and interaction data portray a public neither credulous nor cynical. Users neither descended into trust crisis nor blindly restored trust. Negative sentiment was sparse but precise, targeting specific policy and science; interactions were dense but focused on technical debates (e.g., saturated fat) rather than government trustworthiness. This reduction of institutional trust issues to technical disputes constitutes a culturally inflected American response pattern. From a health psychology perspective, official self-criticism may be the starting point, not the endpoint, of trust rebuilding. Its significance lies in enabling public discussion of health information—a vital act of collective knowledge construction. Through replies, evidence, and rebuttals, the public collaboratively pieces together credible health answers. Whether this participatory process fosters more transparent institutions depends on subsequent actions that substantively address the questions and critiques raised.

### 6.3. Practical Recommendations

Health information issuers should recognize that public trust evaluation is multi-dimensional, dynamic, and embedded in cognitive structures. Mere honesty is insufficient; more nuanced strategies are needed. This study points toward:

Technicized Communication: Reframing contentious institutional issues in a register of scientific discussability, as matters of ongoing inquiry, may lower emotional defenses and foster collaborative evidence consideration.

Building Psychological Contracts: Rebuilding public cognitive frameworks requires sustained, transparent, and accountable behavior over time, gradually forging a more resilient psychological contract.

Activating Knowledge Discussion: Moving beyond unidirectional broadcast models to actively encourage public participation in critical analysis and debate. Skepticism can be productively channeled by providing tools and discursive space for evidence evaluation, transforming distrust into constructive knowledge production.

## 7. Limitations and Future Research

Several limitations point to future research directions. First, data came solely from YouTube; multi-platform comparisons are needed to assess cross-platform consistency. Second, focusing only on the American public, future studies should employ cross-cultural comparisons (e.g., based on Hofstede's dimensions) to examine cultural contingencies. Third, descriptive textual analysis cannot establish causality or track change; future research could use experiments and multi-wave designs to test causal effects and long-term trust evolution. In sum, this study offers preliminary evidence; deeper exploration across platforms, cultures, and methods could shift the paradigm from information effect evaluation toward dynamic public psychology processes, providing a more ecologically valid framework for trust rebuilding and collective knowledge construction in risk communication.

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