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## From Rumor to Information Leakage: Characteristics of Pandemic-Related Information Noise and Its Governance Postprint

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### Abstract

Pandemic-related information noise, exemplified by epidemic rumors and personal information leaks, is characterized by phased and repetitive features. In the context of a mediated society, the primary causes of its propagation include the mismatch between information governance bodies and diverse communication networks, coupled with insufficient personal media literacy. To effectively govern pandemic-related information noise, concerted efforts are required in the construction of news legal frameworks, the development of governance bodies, information gatekeeping, and the enhancement of personal media literacy.

### Full Text

## From Rumors to Information Leaks: Characteristics and Governance of Pandemic-Related Information Noise

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**Abstract:** Pandemic-related information noise, represented by epidemic rumors and personal information leaks, exhibits phased and repetitive characteristics. Against the backdrop of a mediated society, the mismatch between insufficient information governance entities and diverse communication networks, along with inadequate individual media literacy, constitute the main causes of pandemic noise propagation. To govern pandemic-related information noise, actions are needed in news legal system construction, governance entity development, information gatekeeping, and individual media literacy.

**Keywords:** COVID-19 pandemic; information noise; media technology; diverse communication networks; information governance

Since the outbreak of COVID-19, the Party Central Committee and governments at all levels have worked together to combat the epidemic and achieved globally remarkable results. However, it must be acknowledged that due to the rapid onset of the pandemic and initial difficulties in human response, society and people's lives have been significantly impacted. These impacts extend beyond the economic sphere to public opinion, specifically manifested in epidemic-related rumors and personal information leaks that have exacerbated the challenges of pandemic governance and hindered the healthy functioning of society. As China enters a new development stage, strengthening governance of epidemic-related rumors and personal information leaks not only aids in combating the pandemic but also aligns with the objective requirements of modernizing national governance capabilities. In view of this, deeper understanding is needed regarding improper information dissemination during pandemic communication: what characteristics define such information, what causes its propagation, and what governance measures can be implemented.

Current academic research on pandemic information communication can be divided into two main categories. The first examines pandemic information release, focusing on the communication structures and characteristics of government agencies and social organizations when releasing epidemic information [1-5], including studies on communication methods used by mainstream media, public hospital WeChat official accounts, and university official accounts. The second category investigates rumor propagation in pandemic information dissemination, such as Zhou Yu's research on rumor evolution during the pandemic period [6]. In studies on the causes of rumor propagation, most scholars follow Allport's tradition [7], interpreting rumors as a social phenomenon from the perspective of communication psychology [8-11], while some research explains the causes of pandemic information rumors from the characteristics of new media communication [12]. These studies have summarized the features of pandemic-related information communication and the causes of epidemic rumor propagation, providing valuable insights for this paper. Building on existing research, this paper argues that personal information leaks should be studied alongside epidemic rumors as pandemic-related information noise to expand the connotation of pandemic information communication. Using a structural perspective, this paper focuses on interpreting the causes of pandemic information noise from the angles of social change and individual knowledge reproduction to propose countermeasures and suggestions.

## 1. Characteristics of Information Noise in Pandemic Communication

Since the global COVID-19 pandemic began, China has adhered to scientific prevention and control strategies, effectively managing the pandemic's development. While government governance practices involving epidemic information have provided effective communication channels and timely release of valid information, pandemic-related information noise has emerged alongside these

developments, represented by epidemic rumors and personal information leaks. This noise exhibits the following characteristics.

### **1.1 The Phased Nature of Pandemic Information Noise Propagation**

This is mainly manifested as follows: First, during the initial stage of the pandemic, information noise primarily consisted of epidemic rumors. At the pandemic's onset, rumors related to specific individuals, locations, and transmission methods circulated prominently until government information releases began to debunk them. Examples include rumors such as "A certain expert rushed to the scene in a location where an outbreak occurred," "The virus has multiple transmission methods and can spread through tap water," or "Drinking alcohol can resist the virus." Second, after the pandemic entered a sustained phase, personal information leaks related to epidemiology became the main manifestation of pandemic information noise. While disclosing basic information about confirmed cases helps control the pandemic's development—representing both an objective requirement for prevention work and an effective measure to respond to early-stage rumors—varying degrees of personal information leakage occurred during this process. Cases such as "Personal whereabouts of a Zhengzhou man exposed" or "A Chengdu woman visited a certain public place before diagnosis" not only disclosed necessary personal information related to the pandemic but also leaked private information such as ID numbers and occupations, attracting social attention and causing significant negative impacts on individual lives and normal social operations.

### **1.2 The Repetitive Nature of Pandemic Information Noise Propagation**

This is mainly manifested in that, throughout the entire pandemic development process, pandemic information noise presents a repetitive change path from rumor emergence to personal information leakage and finally to noise disappearance. From the perspective of sporadic cases continuously occurring domestically and their related information dissemination processes, this propagation change has become a relatively regular social issue as a byproduct of pandemic development. For example, during the pandemic development processes in Chengdu, Liaoning, and other places, the propagation of pandemic information noise all demonstrated a pattern: from rumor emergence to government information disclosure, then to personal information leakage, and finally to government governance and noise disappearance. If an outbreak occurs in a certain location, relevant rumors inevitably emerge and, to some extent, lead to the leakage of private information about patients or related individuals. While local governments coordinate resources to combat the epidemic, they must also dedicate specialized personnel to address issues in the public information space to reduce resulting negative social impacts, undoubtedly increasing the cost of epidemic response and diverting primary energy. Only through multi-party efforts does the information noise eventually disappear with the conclusion of the

phased epidemic.

## 2. Causes of Pandemic Information Noise

The propagation of pandemic-related information noise reflects current problems of insufficient quantity and capacity of information governance entities. Whether considering the evolving pandemic or the advancement of Digital China construction, strengthening information governance system construction and increasing and expanding the quantity and capacity of information governance entities are essential components of modernizing national governance levels. While primarily relying on state power, effectively introducing social forces to increase the number of information governance entities can improve flexibility in responding to pandemic-related information noise, reduce government workload, allow more energy to be devoted to pandemic response practices, and leverage institutional advantages. In regions where social forces for responding to public opinion are underdeveloped, it is necessary to enhance government professional capabilities through training and enriching media usage forms, expanding information governance capabilities beyond basic functions.

### 2.1 Social Causes of Pandemic Information Noise Propagation

Since the beginning of the 21st century, continuous development of new communication technologies has gradually formed a mediated society. The decentralization of information dissemination through technological innovation has made it possible for every citizen to become an information publisher. Every individual with access to pandemic information can use new media to publish opinions through developed and complex media communication networks. The mediated society and diverse communication subjects constitute the social foundation for the emergence and propagation of pandemic information. Meanwhile, compared with diverse pandemic information communication subjects, pandemic information governance subjects are relatively singular, primarily undertaken by government departments. This asymmetry between communication and regulatory forces, caused by the development of new communication technologies, enables the propagation of noise in pandemic information and constitutes its social background.

### 2.2 Individual Causes of Pandemic Information Noise Propagation

Within the unbalanced development between existing pandemic information governance systems and communication systems, insufficient individual media literacy constitutes an important aspect affecting pandemic information noise propagation. This can be understood from two perspectives: First, from a technical standpoint, individuals lack experience and ability in using new media technologies. This is mainly reflected in the interaction processes between government staff and media and the public during pandemic information release, which is related to individual factors such as rank in Chinese government officials' me-

media usage capabilities [13]. Second, from a media content perspective, people's relevant medical knowledge about COVID-19 has been continuously evolving and improving. Due to insufficient pandemic-related knowledge, a mismatch emerged between existing knowledge and pandemic development, making it difficult for both pandemic information communicators and governance entities to formulate appropriate response strategies in the early stages. These two aspects collectively contribute to noise propagation in pandemic information from the perspective of individual media literacy.

### **3. Governance Recommendations for Pandemic-Related Information Noise**

Based on the characteristics and causes of pandemic-related information noise, this paper recommends implementing governance measures from the following three aspects.

#### **3.1 Accelerating News Legal System Construction**

From a macro perspective, noise in pandemic information communication occurs within the broad historical and social context of a mediated society. China's news legal system construction has been ongoing, and with continuous social development and changes, it is necessary to further improve the news legal system. The COVID-19 pandemic outbreak and the resulting pandemic-related information noise have not only exposed deficiencies in China's current news legal system construction but also provided an opportunity to accelerate it. News legal system construction must consider not only norms for public opinion information dissemination under normal social operation but also propose communication norms for sudden public opinion under crisis events. Concepts of news law, systemic structures, and basic rights and obligations of individuals in the communication process all require consideration.

#### **3.3 Improving Multi-level Gatekeeping and Enhancing Public Media Literacy**

From the perspective of communication subjects, pandemic-related information noise propagation exhibits diversity characteristics, including both the diversity of communicators and the diversity of communication media. The multiple sources of noise make its propagation process more dispersed and concealed compared to ordinary information dissemination. Under these circumstances, government agencies and related institutions need to improve diversified information gatekeeping, carefully distinguishing between valid pandemic information and invalid pandemic noise. Attention must be paid not only to the accuracy of mainstream media information but also to the legality of information on new online media, video streams, and other new information carriers. Particular attention should be paid to short video content, as its simple production, rapid dissemination, and brief content characteristics can lead to misinformation af-

ter multi-level propagation. From the perspective of communication objects, the public as the audience of pandemic information needs to enhance individual media literacy by obtaining correct pandemic knowledge from mainstream media and disseminating it while resisting and refusing to spread illegal epidemic rumors and private information when the accuracy of information sources is not confirmed. As COVID-19 continues to evolve, pandemic-related information also constantly enriches, requiring the public to update pandemic knowledge in a timely manner, including not only medical knowledge but also pandemic management methods issued by government departments. Consciously establishing the concept of pandemic prevention and control that reduces pandemic-related information noise—from improving individual media literacy to establishing a sound pandemic media environment—enhances public cooperation in epidemic prevention efforts.

#### 4. Summary and Discussion

Accompanying the COVID-19 pandemic are social deviance phenomena of epidemic rumors and personal information leaks. The propagation of pandemic-related information noise, represented by epidemic rumors and personal information leaks, exhibits phased and repetitive characteristics. The diverse communication forms in a mediated society, the lack of information governance entities, and insufficient individual media literacy constitute the main causes of pandemic-related information noise. Solutions require attention to institutions, society, and individuals.

The COVID-19 pandemic struck suddenly. Combating it is not only a war between humans and viruses but also a war between humans and the “goddess of rumor.” The pandemic is essentially a social crisis event. People in crisis have a need to obtain correct information and make decisions and actions, which gives rise to a public opinion field related to the crisis event. If mainstream, accurate, and positive information does not occupy the primary position, it may be replaced by erroneous, extreme, and one-sided information, leading to a “spiral of silence” where mainstream information cannot effectively speak out, which then reflects into social structures and forms social problems. To avoid adverse consequences, the Party and state have made timely assessments and flexibly adjusted corresponding policies based on pandemic development and social response. While stopping rumors, they have also effectively controlled personal privacy leaks and continue to adjust and improve. To achieve positive results, action and cooperation from the entire society are needed.

Reflecting on the mismatch between existing government communication structures and the development of mediated society, the propagation of pandemic-related information noise reminds us that strengthening the modernization of national governance capabilities requires not only the ability to address normal social problems but also the adaptability to respond to sudden social crises. It is necessary to extend national governance capabilities multi-dimensionally and deeply while focusing on the social foundations of governance actions.

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