



Analysis of the Impact of Different Media on Audience Perception and Behavior During the COVID-19 Pandemic

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Abstract. The COVID-19 epidemic is the largest human public crisis event after the outbreak of SARS, and it is also a significant information dissemination event in which the media has demonstrated enormous influence. This study is based on a survey questionnaire distributed to the public who have experienced the epidemic, focusing on dimensions such as the frequency of media information exposure, epidemic prevention behaviors, risk perception, opinion leader dissemination influence, and government credibility, and specifically analyzes the impact of media on the audience's cognition and behavior. The study found that using a specific medium has a weak impact on the audience's risk perception, and opinion leaders have a greater impact on the audience in the dissemination of major public crisis events. The development of optimized channels for information dissemination should be a collaborative effort to avoid the leakage and spread of false information, in which the government should play a major role in improving public awareness and prevention.

Keyword: Public Crisis Risk Perception Opinion Leaders Anti-epidemic behavior Government Trust

1 Literature Review

1.1 The Effect of Media Exposure on Risk Perception

Risk perception refers to the subjective perception and cognition of various objective risks in the external environment by individuals. Factors such as psychology, social culture, and others can influence the degree of risk perception. While risks themselves should be objective, individual risk perception carries distinct subjective features (Zhang et al., 2020). [1] Research by scholars has noted that public risk information mostly comes from media reports, thus media coverage affects public risk perception. The internet is the medium that people are most often exposed to, but as rumors spread and amplify through social media, it leads to significant "secondary disasters", which can reconstruct social risks, and the public can unconsciously put themselves in the field of risk transmission, further amplifying individual risk perceptions (W.Y. Zhang, X.R. Zhang, Wu, 2021). [2] Based on these studies, we propose a research hypothesis.

H1 The more frequently the public is exposed to information about the new crown outbreak through social media, the higher the level of risk perception.

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1.2 The Role of Opinion Leaders in Influencing Audience Attitudes Toward Epidemic Prevention in Interpersonal Communication

Opinion leaders are representatives of the masses or public opinion, and are highly influential groups (Weimann, 1991). [3] In today's highly developed network society, opinion leaders continuously influence the dissemination and development of information, even surpassing some mainstream media (Chen, 2022). [4] In 2019, with the outbreak of the COVID-19 pandemic, medical experts such as Zhong Nanshan and Zhang Wenhong, as authoritative figures in medicine, frequently appeared in the media to convey information, provide advice, answer questions, and clear up confusion, fully assuming the role of opinion leaders (Wang, 2021). [5] These medical experts, as opinion leaders, became a dose of medicine for social stability, playing a role in calming people's minds. In other words, the opinions and speeches of opinion leaders can effectively influence the government's work in epidemic prevention and control (Chen, 2022).[4] From this, we can infer that the expression of opinion leaders and the expression of emotions effectively influence the audience's cognitive bias (Wu, Yu, Yan, 2022). [6] Based on the investigation of the expressive effect of opinion leader public opinion, we propose a research hypothesis.

H2: Do online opinion leaders have an impact on the audience's attitude towards epidemic prevention?

1.3 The Effect of Media Exposure on the Level of Trust in Government During a Public Crisis

In public crisis communication, the media is the primary information channel (Zhao, 2007), [7] and media play a major role in bridging the gap. Until the 1950s, traditional media such as television and newspapers were the main components of mass media. However, since the 1950s, mankind has entered a new era of digital media, with the information technology revolution represented by computers, microelectronics, modern communication technology and network technology sweeping the world (Zhao, 2007). [7] New media such as social media have emerged. According to McLuhan (1964), "Media are extensions of the human body" [8], so various media will bring different extensions. Opinions on the influence of the media on government trust vary in the West, and studies based on the relationship between television and political attitudes fall into three main categories: I. The "media depression theory" argues that media exposure leads to a decline in trust in government (Robinson, 1976). [9] II. The view that media exposure is conducive to increased trust in government (O'Keefe, 1980; Becker & Whitney, 1980). [10, 11] III. The media is regarded as a neutral communication mediator, and the content of the media is the main causal factor, while in our local studies, there is a convergence that official media exposure has a significant positive effect on government trust and unofficial media exposure has a negative effect on government trust. (Xue, L.H.Yu, M.Y.Yu, 2017) [12] However, these studies are based on the effect of media exposure on trust in government in everyday settings, not in the context of public crises, which is why we propose our hypothesis.

H3 Is there a correlation between the frequency of receiving coverage of the New Crown epidemic through television and the level of trust in the government during a major public crisis?

H4 Is the frequency of social media coverage of the Newcastle outbreak in a major public crisis associated with the level of trust in the government?

2 Research Methodology

The researchers adopted a snowball sampling method to conduct a survey of individuals over the age of 18 on platforms such as Questionnaire Star and social media from April to July 2022. The survey tool for this study includes two parts: a general information questionnaire, designed after reviewing relevant literature, which includes questions about gender, age, marital status, education level, health status, whether they have been to Hubei Province, and contact with people from Hubei Province. The second part is the questionnaire on public awareness of the COVID-19 pandemic, which was created using a Likert five-point scale and comprises 106 questions based on the “COVID-19 Transmission and Prevention Guidelines” issued by the Chinese Center for Disease Control and Prevention and the “Diagnosis and Treatment Protocol for COVID-19” issued by the National Health Commission. The questionnaire was validated for a Content Validity Index (CVI) of 0.715–0.802 and Cronbach’s Alpha of 0.9255.

Due to the impact of the pandemic, the convenience sampling method was used to distribute the questionnaire on both Wenjuanxing and WeChat Moments from May to July 2022. Participants filled out basic information and were informed of the purpose and significance of the survey before providing their consent. A total of 370 questionnaires were collected, and after screening out invalid questionnaires, 351 valid questionnaires were obtained, with an effective recovery rate of 95%. After the data collection was completed for numbering, excel was used for content entry. The different contents of the questionnaires were integrated, and the variables in them were combined using SPSS 23.0 for correlation and regression analysis of descriptive statistics.

3 Results

A total of 351 valid questionnaires were collected in this study. The average age of the sample was 30.94 years old, with 55% of the respondents being male. 71.5% of the respondents had obtained a bachelor’s degree or above, while 19% had education levels below college, and 9.4% were postgraduate students. In the basic survey of the sample population, we found that 5.7% of people had traveled to Hubei within 14 days, and 6% had contact with those who had traveled to Hubei. This indicates that the analysis of the sample is reliable and representative.

The variables measured and analyzed in this study are described as follows: for the hypothesis of H1, we selected the summed and averaged results of the two indicators of the frequency of exposure to local news about the new epidemic through Internet viewing and the frequency of exposure to national news about the new epidemic through television as the new variable internet message ($M = 4.0499$, $SD = 0.73655$). For the selection of risk perception indicators, we chose to sum and average the results of the relevant indicators Q19, Q21, Q22, Q23, and Q25 in the scale as the new variable: perceived risk ($M = 3.6587$, $SD = 0.69024$). To test hypothesis H1, we chose to pass

the bivariate correlation, and the correlation between the two variables was significant when the Pearson correlation value was $< = 0.05$.

The data results do not match the H1 hypothesis, therefore we reject the hypothesis of H1. In major public crisis events, there is no correlation or regression relationship between the frequency of public exposure to information on the COVID-19 epidemic through the Internet and the level of risk perception. Therefore, the frequency of public exposure to the COVID-19 epidemic through the Internet does not necessarily affect the public's level of risk perception.

For the hypothesis about H2 mentioned earlier, we have chosen to measure the impact of medical experts on the audience's attitudes towards Q98, Q101, and Q103, and obtained a new variable by summing and averaging them, named *opinion leader*. Additionally, we have measured the audience's perception of the COVID-19 outbreak and their emotional attitudes towards it, using the relevant indicators Q53, Q57, Q66, Q71, Q72, and Q60, and obtained a new variable by summing and averaging them, named *audience attitude*. For hypothesis H2, we have chosen to analyze and test its correlation through bivariate analysis and its causality through regression analysis, concluding that opinion leaders play a positive role in epidemic prevention in interpersonal communication (Table 1).

Data analysis shows that there is a significant negative correlation between the attitudes towards epidemic prevention of opinion leaders and the audience. However, since the indicators Q98, Q101, and Q103 that we used to select opinion leaders all reflect the negative impact of opinion leaders on the audience, based on the data, we can conclude that there is a significant correlation between the attitudes towards epidemic prevention of the audience influenced by opinion leaders in interpersonal communication.

Regarding hypothesis H3, we selected the measurement results of the frequency of local and national COVID-19 news on television and added them together before averaging them to create a new variable called *TV-media-message* ($M = 3.5883$, $SD = 0.9888$). For hypothesis H4, we selected the measurement results of the frequency of local and national COVID-19 news on social media and added them together before

Table 1. Regression coefficient

Model		Unstandardized Coefficient	Standardized Coefficient	Beta	t	Significance
		B	Standardized Coefficient	Beta		
1	(Constant)	4.538	0.109		41.747	0
	Opinion leader	-0.074	0.033	-0.119	-2.231	0.026
a	Dependent variable: Audience Attitude					

averaging them to create a new variable called *social-media-message* ($M = 4.0499$, $SD = 4.0499$). To measure the level of trust in the government during a major public crisis, we added and averaged the measurement results of Q46, Q47, and Q48 to create a new variable called *gov-trust*. When testing hypothesis H3, we chose to analyze and test it through bivariate correlation, and when Pearson correlation value $< = 0.05$, the correlation between the two variables is significant (Table 2).

The data results support the H3 hypothesis, which suggests that there is a correlation between the frequency of obtaining COVID-19 news reports through television and the level of trust in the government during major public crises. There is a significant positive correlation, meaning that those who obtain COVID-19 news reports more frequently through television tend to have higher levels of trust in the government (Table 3).

To test the H4 hypothesis, we use the same approach of measuring the correlation between the variables *social-media-message* and *gov-trust* through a bivariate correlation test. (Specific numerical values in the Table.)

Meanwhile, we use regression analysis to examine the specific causal correlation among three variables: TV-media-message, social-media-message, and government-trust (Table 4).

- a. Dependent variable: gov-trust
- b. $p < = 0.005$ showed a significant correlation

Table 2. Relevance of TV access to information and government trust

		TV-media-message	gov-trust
TV-media-message	Pearson Correlation	1	.273**
	Sig.(2-tailed)		.000
	Number of Cases	351	351
gov-trust	Pearson Correlation	.273**	1
	Sig.(2-tailed)	.000	
	Number of Cases	351	351

Table 3. Correlation between social media access to information and government trust

		social-media-message	gov-trust
social-media-message	Pearson Correlation	1	.141**
	Sig.(2-tailed)		.008
	Number of Cases	351	351
gov-trust	Pearson Correlation	.141**	1
	Sig.(2-tailed)	.008	
	Number of Cases	351	351

Table 4. Regression correlation coefficient

Model	Unstandardized Coefficient	Standardized Coefficient	t	Significance	
	B	Standard Deviation	Beta		
1(Constant)	2.918	.217		13.471	.000
social-media-message	.119	.044	.137	2.674	.008
TV-media-message	.176	.033	.271	5.301	.000

The data results support the H4 hypothesis that, in major crisis events, there is a correlation between the frequency of COVID-19 reporting on social media and the level of government trust. However, compared to television media, there is no significant regression correlation between the level of government trust and the audience who obtain COVID-19 reporting through social media.

4 Discussion and Conclusion

This study is based on data from the “Public Perception Research on the COVID-19 Outbreak” and discusses the potential impact of different media on audiences during major public crises. Of the four hypotheses presented in this paper, H1 ($\text{sig} = .201 > .05$), H2 ($\text{sig} = 0.026 < 0.05$), and H3 ($\text{sig} = .000, < .05$, $\text{Beta} = 0.271$) were supported. During major public crises, people who frequently receive COVID-19 news via TV tend to have higher levels of trust in the government. H4 ($\text{sig} = .008 < .05$, but $> .001$, $\text{Beta} = 0.137$) showed a significant correlation between frequent exposure to COVID-19 news on social media and trust in the government but did not exhibit a clear regression relationship.

In major public crises, there is no correlation or regression relationship between the frequency of exposure to COVID-19 information on the internet and risk perception among the public. Therefore, frequent exposure to COVID-19 information on the internet may not necessarily affect the public’s risk perception. Rather, the key factor influencing people’s attitudes and perceptions is their level of trust in the information they receive (Yan & Wen, 2020). [13] As an emerging medium, the Internet often contains mixed information which leads to lower levels of trust among audiences compared to traditional official media outlets like newspapers and television. Official media outlets have a higher agenda-setting capability, making it difficult for audiences to obtain negative reports on the COVID-19 outbreak, resulting in lower perceived risk levels.

Given the decline in the credibility of traditional news media caused by the COVID-19 pandemic, opinion leaders have played a crucial role in information dissemination, acting as a bridge between information sources and audiences. Moreover, opinion leaders have also played a strong role in dispelling rumors, but the negative impacts resulting from their misconduct cannot be ignored (Rao & Zeng, 2021). [14].

Lipman proposed that human beings live in “two environments”, one being the “real environment” independent of human perception, while the other is the “virtual environment” closely linked to human perception (Lippman, 1997). [15] In modern society, people’s perception and attention abilities are affected by modernization to a certain extent, resulting in an increasing proportion of human life being occupied by the virtual environment, in which the media plays an important shaping role. Especially when it comes to major events involving professional fields, such as the current COVID-19 pandemic, people find it difficult to make accurate judgments based on their existing knowledge, so they rely on more powerful media to understand the situation. At this point, television, as a mainstream medium, creates a virtual environment for the public to understand the crisis. As China’s media has long been an affiliated institution of the government in the administrative system (Yu, 2003), [16] it has become a “mouthpiece” either actively or passively, cooperating with the government to shape the virtual environment and increase the public’s trust in the government.

There is a correlation between the frequency of COVID-19 reporting on social media and the level of trust in the government during major public crisis events, but there is no significant regression correlation. Social media is an interactive community built on the Internet, especially web2.0 technology. Its biggest feature is to empower everyone with the ability to create and disseminate content (Cao, 2011). [17] Compared with traditional mainstream media such as television, social media is less influenced by government control. In the media age, “everyone is a communicator”. However, in major public crises, the public still seeks more powerful sources of information due to their increased sense of insecurity in the real world. They tend to favor more “mainstream” voices in trusted social media.

In general, governments should better guide the direction of public opinion facing major health events. By using opinion leaders and network media to actively promote information and knowledge, the government can enhance their credibility. In daily life, basic prevention measures for some diseases should be promoted, with an emphasis on targeting specific populations. By guiding public opinion and enhancing community awareness, unnecessary panic among citizens can be reduced.

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