

The Study on the Generation and Spread of Internet Rumors about the New Crown Epidemic

Yingzhen Ji

English, Jilin International Studies University, Changchun, Jilin, 130117, China

Abstract. Since the 21st century, Internet rumors as a new thing has received wide attention from scholars, and with the help of the Internet Internet rumors have taken on accelerated wings. Due to the two main characteristics of the New Crown Pneumonia epidemic itself, coupled with the current development of Internet technology to provide people with more convenient communication and communication channels, making the Internet rumors during the New Crown Pneumonia epidemic rampant, a thousand disturb people's normal life. This study investigates the management of online rumors in the context of the New Crown pneumonia epidemic, using the relevant knowledge of communication science and sociology of mass media.

1 INTRODUCTION

As of September 2022, Johns Hopkins University released real-time statistics showing that the cumulative number of novel coronaviruses diagnosed worldwide exceeded 600 million, constituting a major public health emergency in recent years in China and globally. The creation of the new coronavirus has undoubtedly provided the "ground" for rumors, and while people continue to be highly concerned about the progress of the epidemic, the asymmetry in information transmission has led to a proliferation of rumors with the epidemic as the central word, which has had a certain impact on the national epidemic prevention and control efforts. The term "rumor" has frequently appeared in public view due to the emergence of coronavirus, and the understanding and interpretation of rumors vary among Internet users and authorities in professional fields. The American psychologist Alpert has proposed that a rumor is a statement that is allegedly true but not proven by definite evidence[1-2]. Although the definitions of rumors vary widely, they emphasize the unknown and uncertainty of rumors. With the development of Internet technology and the constant updating of new media with microblogs and WeChat as carriers, Internet rumors have changed the way rumors used to spread, breaking the limitations of time and space of traditional rumors and speeding up the spread of rumors. Compared with traditional rumors, online rumors have the characteristics of fast spreading, wide range, anonymity of spreading channels and diversified spreading methods[3]. Internet rumors are no longer limited to a specific group of people, time and space, and the scope of dissemination, this means of dissemination that breaks time and space limitations, once a rumor is generated, within just a few minutes

*Corresponding author. Email: Gyngyngpearl@163.com

through the likes of netizens comments forwarded, making the rumor spread rapidly; when people no longer face a live person, they tend to become less cautious, "freedom of speech The right to "freedom of speech" in turn makes them make arbitrary comments and spread rumors on the Internet[4-5].

2 Statistical analysis

2.1 Descriptive statistics and basic information on survey respondents

The descriptive statistics mainly show the mean, standard deviation and correlation of each variable. At the gender level, there were 100 women (47.39%) and 111 men (52.61%), with a balanced distribution of men and women; at the age level, the largest proportion of respondents were aged 19-35 (49.29%), followed by aged 36-60, 1-18 and over 60 (28.91%, 12.32% and 9.48% respectively). At the occupational level, students and other occupations accounted for the largest proportion of respondents, both accounting for 18.96%, followed by those engaged in production, those engaged in services and medical workers, retired, and military personnel, accounting for 15.17%, 14.69%, 9.48%, and 8.06%, respectively. At the level of education, the largest proportion of respondents with education of undergraduate/university specialist, accounting for 33.65%, followed by high school/college, junior high school, primary school, and postgraduate/doctoral/postdoctoral, accounting for 29.86%, 16.11%, 10.43%, and 9.95% respectively, the respondents have a high level of education.

Table 1. Basic information on survey respondents (The following charts are self-drawn)

name (of a thing)	options	frequency	Percentage (%)	Cumulative percentage (%)
sex	women	100	47.39	47.39
	male	111	52.61	100.00
age	1-18 years	26	12.32	12.32
	19-35 years	104	49.29	61.61
	36-60 years	61	28.91	90.52
	60+ years	20	9.48	100.00
careers	Engaged in service industry	31	14.69	14.69
	engaged in the production industry	32	15.17	29.86
	other than it	40	18.96	48.82
	military personnel	17	8.06	56.87
	medical worker	31	14.69	71.56
	students	40	18.96	90.52
	retirement	20	9.48	100.00
Education level	junior high school	34	16.11	16.11
	Undergraduate/University	71	33.65	49.76
	secondary school	22	10.43	60.19
	Postgraduate/PhD/Postdoctoral	21	9.95	70.14
	High school/college	63	29.86	100.00
	add up the total	211	100.0	100.0

The analysis was carried out using the chi-square

2.2 Rumor channel survey

The analysis was carried out using the chi-square goodness of fit test for the uniformity of the distribution of the proportion of choices for each option of the multiple choice questions. As can be seen from the table below, the goodness-of-fit test showed significance ($\chi^2 = 41.558$, $p = 0.000 < 0.05$), implying that the proportion of choices for each item is significantly different, and the difference can be specifically compared by response rate or prevalence rate. Specifically, the response rates of a total of 4 items, 3, (Weibo/friends/space), 2, (various hot search lists), 4, (video websites (ShakeYin/Quick Hands/bilibili, etc.)), and 6, (relatives/friends/classmates), were 20.62%, 19.54%, 19.00%, and 18.33%, respectively, which were all greater than the average response rate of 16.67%, with significantly higher response rates and prevalence rates high, i.e., survey respondents saw epidemic-related rumors mainly from Weibo/friends' circle/space, various hot lists, video websites (ShakeYin/QuickTime/bilibili, etc.), and relatives/friends/classmates.

Table 2. here do you usually see rumors related to the outbreak

item	respond to		Prevalence rate (n=211)
	n	responsiveness	
1. Mainstream	75	10.11%	35.55%

authoritative media			
2. Various hot lists	145	19.54%	68.72%
3. Twitter/friendship/space	153	20.62%	72.51%
4. Video sites (Jitterbug/Quickfire/bilibili, etc.)	141	19.00%	66.82%
5. Newspaper	92	12.40%	43.60%
6. Relatives/friends/classmates	136	18.33%	64.45%
aggregation	742	100%	351.66%

Goodness-of-fit test: $\chi^2 = 41.558$ $p = 0.000$

2.3 Survey on first response to rumors

The results are shown in the figure below. 37.44% of the respondents' first reaction to information about the epidemic was "I know but don't forward it", accounting for the largest proportion, followed by 29.38%, 14.22%, 10.90%, 8.06% and 29.38% respectively for determining source of information, ignoring, other and forwarding. The largest proportion of respondents were identified as the source of information, ignored, other, and forwarded, accounting for 29.38%, 14.22%, 10.90%, and 8.06%, respectively, and the smallest proportion was forwarded when they saw the information about the epidemic.

2.4 Survey of attitudes towards rumors

The results are shown in the figure below. 39.34% of the respondents' attitude towards the news of the epidemic with a large number of readers and retweets is "half believe, don't care, just take a look", accounting for the largest proportion, followed by "I don't believe in it, I only believe in official authoritative news", "I remain skeptical, but will actively seek to confirm whether it is true", "I believe it, many people say so, it should be true", accounting for 28.44%, 22.27%, 22.27% respectively. 28.44%, 22.27%, 9.95%, and the smallest percentage of people believed the news of the epidemic with a large number of readers and retweets.

2.5 Survey on types of rumours

As can be seen from the table below, the goodness of fit test did not show significance ($\chi^2 = 6.803$, $p = 0.339 > 0.05$), implying that the selection ratio for each item was relatively even and not significantly different, i.e., survey respondents had heard confirmed persons entering their area, new confirmed cases in multiple areas, that oral solution of diflucan can prevent neo-crown pneumonia, that drinking Panax notoginseng can prevent the virus, that pets can transmit the virus, injectable/oral disinfectant water can disinfect, and boiling vinegar can kill virus multiple rumors did not differ significantly.

Table 3. What rumors have you heard?

item	respond to		Prevalence rate (n=211)
	n	responsiveness	
1. Confirmation of	141	14.19%	66.82%

entry of persons into the region			
2. New confirmed cases in several areas	148	14.89%	70.14%
3. Shuanghuanglian oral liquid can prevent neoonjunctivitis	158	15.90%	74.88%
4. Drinking Panax notoginseng can prevent viruses	152	15.290%	72.04%
5. Pets can transmit viruses	129	12.98%	61.14%
6. Injectable/oral disinfectant water can be disinfected	122	12.27%	57.82%
7. Boiling vinegar kills the virus	144	14.49%	68.25%
aggregation	994	100%	471.09%

Goodness-of-fit test: $\chi^2 = 6.803$ $p = 0.339$

2.6 Survey on the extent of the impact of rumours

The results are shown in the table below. In terms of economic loss (e.g. buying drugs by mistake), rumors had the greatest impact on survey respondents with a little impact, accounting for 73.46%, followed by greater impact and no impact, accounting for 19.43% and 7.11% respectively, with a mean value of 2.54. In terms of physical health (e.g. buying drugs by mistake), rumors had the greatest impact on survey respondents with a little impact, accounting for 65.4%, followed by greater impact, respectively, with a mean value of 2.54. In terms of physical health (e.g. believing rumors and eating by mistake), rumors had the greatest impact on survey respondents with a little impact, accounting for 65.4%, followed by a great impact and no impact, accounting for 21.33% and 13.27% respectively, with a mean value of 2.44. In terms of mental health (e.g. rumor-causing anxiety), rumors had the greatest impact on survey respondents with a little impact, accounting for 65.4%, followed by a great impact and no impact, accounting for 21.33% and 13.27% respectively, with a mean value of 2.44. In terms of scientific cognition (e.g., misunderstanding the nature of neoconiosis), rumors had the greatest impact on the respondents with a little impact, accounting for 70.14%, followed by a great impact and no impact, accounting for 21.33% and 8.53%, respectively, with a mean value of 2.49. In terms of scientific cognition (e.g., misunderstanding the nature of neoconiosis), rumors had the greatest impact on the respondents with a little impact, accounting for 64.93%, followed by a great impact and no impact, respectively, with a mean value of 19.91. Overall, rumors had the greatest impact (68.48%) and the least impact (11.02%). In these four areas, rumors had the greatest impact on the economic loss of the respondents (2.54) and the least impact on the physical health of the respondents (2.44).

Table 4. Please select the level of impact the rumor has had on youSurvey of disinformation channels

effects	Greater impact	No impact	There is a slight impact	Average value
Economic loss (e.g., misinformation about drugs)	41	15	155	2.54
	19.43%	7.11%	73.46%	
Physical health (if you believe the rumor and eat it by mistake)	45	28	138	2.44
	21.33%	13.27%	65.4%	
Mental health (e.g. rumor mongering anxiety)	45	18	148	2.49
	21.33%	8.53%	70.14%	
Scientific perception (e.g., misunderstanding the nature of neocoronary pneumonia)	42	32	137	2.45
	19.91%	15.17%	64.93%	
population (statistics)	43.25	23.25	144.5	2.48
	20.50%	11.02%	68.48%	

2.7 Survey of disinformation channels

As can be seen from the table below, the goodness-of-fit test showed significance ($\chi^2 = 134.265$, $p = 0.000 < 0.05$), implying that there is a significant variability in the proportion of choices for each item, and the variability can be specifically compared by response rate or prevalence. Specifically, the response rates of a total of 3 (social software), 2 (search website), and 3 (video website) were, respectively, 34.01%, 32.43%, and 32.43%, all of which were greater than the average response rate of 25.00%, and the response rates and popularity rates were significantly higher, i.e., the way survey respondents found disinformation was mainly through social software, search websites, and video websites.

Table 5. How did you find out about disinformation?

item	Respond to		Prevalence rate (n=211)
	n	responsiveness	
1. Search the site	143	32.43%	67.77%
2. Video sites	143	32.43%	67.77%
3. Social software	150	34.01%	71.09%
4. Other	5	1.13%	2.37%
aggregation	441	100%	209.00%

2.8 Investigation of measures to deal with rumours

As can be seen from the table below, the goodness-of-fittest showed significance ($\chi^2 = 74.830$, $p = 0.000 < 0.05$), implying that there is a significant difference in the proportion of choices for each item, and the difference can be specifically compared by response rate or

prevalence rate. Specifically, the response rates of a total of 3 items, 2 (maintain a skeptical attitude and do not believe easily), 3 (promote the spirit of proof and be brave to dispel rumors) and 4 (learn more about science and improve the ability to discriminate), were 27.83%, 25.00% and 22.92% respectively, which were all greater than the average response rate of 20.00%, and the response rates and prevalence rates were significantly higher, i.e., the survey respondents believed that measures that could be taken to deal with rumors. The main ones are to maintain a skeptical attitude and not to believe easily, to promote the spirit of proof, to be brave in dispelling rumors, and to learn more about science and improve the ability to discriminate[6].

Table 6. What do you think can be done to deal with rumours

item	Respond to		Prevalence rate (n=211)
	n	responsiveness	
1. Reduce internet access, don't want to see too many messages	91	13.54%	43.13%
2. Remain skeptical and do not trust easily	187	27.83%	88.63%
3. Promote the spirit of proof and be brave enough to dispel rumours	168	25.00%	79.62%
4. Learn more about science and improve discernment	154	22.92%	72.99%
5. Just looking, hard to manage even if you don't want to	72	10.71%	34.12%
aggregation	672	100%	318.48%

Goodness-of-fit test: $\chi^2 = 74.830$ $p=0.000$

2.9 Investigation into rumour governance

The results are shown in the chart below. 41.23% of the respondents think the most effective measure is "tackling rumors at the source and cracking down on individuals or groups who publish rumors", accounting for the largest proportion, followed by "tackling rumors at the end of dissemination, disbelieving rumors and not The next most effective measures are "to deal with rumors at the source and crack down on individuals or groups who publish rumors"[7], accounting for 32.70% and 26.07% respectively.

3 conclusion

3.1 Research findings

In conclusion, the spread of rumours was more prominent in the major health events of the New Coronavirus outbreak. First of all, the strong need for life safety is the intrinsic reason; in addition, the suddenness, severity and uncontrollability of the event itself and the special measures taken by the government in different

situations, the untimely disclosure of information about the virus by the government and official media, and the weakness of scientific protection propaganda have intensified the panic of the public and provided a breeding ground for rumors. The information text evokes excessive concern and panic about life awareness through the call structure, thus spreading related rumors; Internet users surveyed have high demand for life protection and basically get information about rumors from new media channels; people with higher education are more concerned about social injustice; few people choose to forward directly; rumors cause psychological panic among some people as well as unscientific and incorrect understanding of the epidemic. The majority of people have an optimistic and supportive attitude towards rumor management[8].

3.2 Shortcomings and outlook

There are three shortcomings in this paper: First, the survey sample is only representative of a certain group of people, and the findings cannot be generalized to the whole population, which limits the external validity of the analysis. Second, the channels provided in the questionnaire are not the only source of information about rumors among the population, and some people may have access to multiple media at the same time. However, this paper only examines the role of a particular type of use. Third, how rumor formation affects the behavior of society, the state, etc. is not discussed in this study and deserves further in-depth exploration in future studies. Fourth, the data used in this paper is cross-sectional, which does not prove the veracity of the causal relationship and should be further explored in the future using longitudinal data or using survey-experimental methods.

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