A study on users' information preferences and response behaviors to information related to COVID-19 epidemic in the new media era

Yuyu Yao[1], Yue Yu[1], Yu Jiang[2]

[1]International Joint Audit Institute, Nanjing Audit University, Nanjing, 211815, China
[2]School of Statistics and Data Science, Nanjing Audit University, Nanjing, 211815, China

Abstract: *With the rapid development of Internet technology, new media such as Weibo, WeChat, TikTok and other major portals or APPs have gradually become important platforms for people to obtain information. At present, the impact of COVID-19 epidemic on people's lives nationwide is still not to be underestimated, and it has also given rise to an information epidemic. In the era of widespread use of the Internet and social media, news, rumors, speculation and other information about the epidemic have made the information epidemic break out at the same time. This requires information platforms to monitor the spread of epidemic information and public opinion in real time, in order to address the "information epidemic" in the context of the epidemic, and to prevent people from being disturbed by inaccurate information. Therefore, this research project is dedicated to exploring the common ways and preferences of people to acquire information in the new media era, and to analyzing the portrait of Internet users, so as to lay the foundation for research on the ways, paths and effects of information dissemination.*

Keywords: *information acquisition, information channel, dissemination influence*

1. Introduction

From the perspective of modern information technology development, media is not only limited to news publishing and radio, television and film, but also includes new media and self-media that use digital technology and network technology to provide information and entertainment services to users through the Internet, broadband local area networks, wireless communication networks, satellites and other channels, and with terminals such as computers, mobile phones and digital TVs.

With the further development of the Internet economy, new media such as Weibo, WeChat, TikTok and other major portals or APPs are constantly developing and improving, gradually becoming important platforms for people to acquire various kinds of information nowadays. Such new media have the characteristics of fast update, strong interaction, great communication power and high sensitivity to hotspots, but due to the low cost of publishing information for users, the excessive pursuit of information timeliness for the platform and the lack of network supervision, accountability and disciplinary mechanism, the authenticity of information is difficult to be guaranteed, and at certain times such platforms become the powerful tools for rumor spreading.[1]

The new media environment with huge amount of information, complicated information types and fragmented reading caused by users' reliance on electronic products influence each other. In order to seize the flow and heat of news, media also choose to adopt the way of fragmented information reporting, thus emerging the phenomenon of news distortion under the impetus of interests. In addition, new media use the advantages of the Internet platform to cater to fragmented reading, but ignore the authority and credibility of news information. This industry trend of hotspotting has led some new media to abandon the value principle of news media in the network environment and evade the supervision of news order, which not only causes the chaos of rumors, but also causes unnecessary economic and spiritual losses. At the same time, the blind following of the hotspotting theory has led to a lowering of self-imposed requirements in the new media and a growing problem of homogenization of news, which has undermined the diversity and comprehensiveness of news and easily caused misunderstanding among readers. Moreover, the ductility and inclusiveness of new media provide space for some inaccurate, ambiguous or leading statements to grow, and even cause public opinion to be vocal, forming cyber violence or causing panic.[2]

Therefore, we are committed to exploring the common ways and preferences of people to acquire

information in the new media era, and conducting a portrait analysis of online users, so as to lay the foundation for research on the ways, paths and effects of speech dissemination. Our research is divided into two parts. The first part focuses on understanding people's preferences for information acquisition in the new media era, aiming to find and identify the platforms that people use most frequently and acquire the most information, so as to conduct targeted research on the information from one specific platform. In the second part, we investigate the response behavior of Internet users to information about COVID-19 epidemic, aiming to understand people's behaviors and attitudes toward viewing, receiving, and disseminating information about the epidemic. Through the survey and analysis, we hope to paint a portrait of people in the new media era, understand the preferences of people of all ages and regions in the use of new media and the specific ways of acquiring information, and get closer to individuals in the new media network to explore their attitudes toward new media and their reaction and handling of news.

2. Descriptive statistics of information acquisition preferences

We conducted a research survey on *users' preference for information and their reaction behavior to information related to COVID-19 epidemic in the new media era* by distributing questionnaires online to new media users of all ages from all over China. A total of 1127 questionnaires were completed, of which 1023 were valid, with an effective rate of 90.77%. According to the survey sample statistics, excluding the extreme sample data, there are some similarities in the individual characteristics of new media users.

2.1. Education level Characteristics

Among the respondents of this questionnaire (as shown in Figure 1), 67.6% have undergraduate or junior college education, 20.4% have high school (technical secondary school) education or below, and the remaining 11.9% have postgraduate education or above. The group characteristics of college students in school are high acceptance of new information and new things, independent thinking, self-awareness of needs, and more comprehensive self-knowledge and evaluation. Their personalized characteristics are more obvious and their sense of participation is stronger, which in turn increases the complexity and interactivity of online information.[3] From the percentage of people with different education levels, we can observe that most of the new media users are highly educated, accounting for 79.6% of people with undergraduate or college education and above, constituting the main constituent group of this interviewed population. At this time, the development of the Internet is in the stage of rapid expansion of scale and extensive expansion of application fields, featuring a large number of platforms, diversified forms, and rapidly updated application functions.
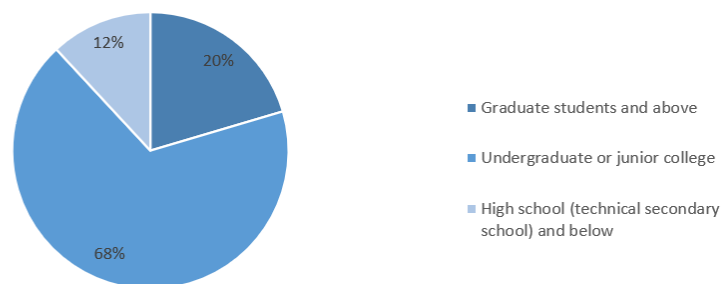

Figure 1: Distribution of respondents' education level

2.2. Gender Characteristics

In this survey, the ratio of male to female respondents is relatively coordinated (as Figure 2 shows), with 53.1% of female respondents and 46.9% of male respondents. Combined with the education level, the largest group of respondents in this questionnaire is women with undergraduate or college degrees, with 404 people, accounting for 35.96% of the total respondents. It is also noted that the proportion of male respondents exceeds that of female among those with education levels of high school (technical secondary school) and below and postgraduate education or above. It can be concluded that the data of this questionnaire, when responding to the data of female respondents, shows more preference for accessing information among the group with undergraduate or college education level or above, and when responding to the data of male respondents, it is more even in terms of education level.
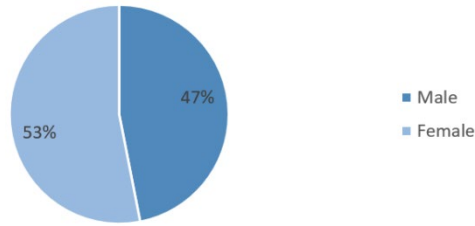
Figure 2: Distribution of respondents' gender

2.3. Geographical Characteristics

The respondents who filled in the questionnaire came from all provinces and cities in China, including 202 in Jiangsu Province, 114 in Guangdong Province, 85 in Shanxi Province and so on.
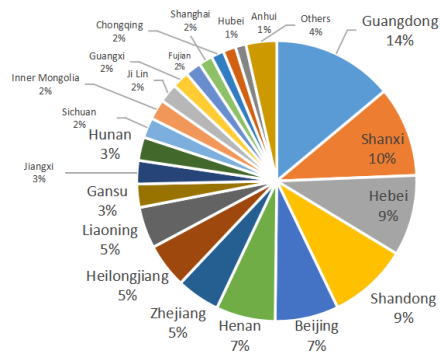

Figure 3: Geographical Distribution of Respondents

As Figure 3 shows, 379 people from East China (Shanghai, Jiangsu, Zhejiang, Anhui, Fujian, Jiangxi, Shandong and Taiwan) accounted for 33.66% of the respondents, with respondents from Jiangsu Province (202 people accounting for 17.99% of the total) being the largest proportional group; 242 people from North China (Beijing, Tianjin, Hebei, Shanxi and Inner Mongolia) accounted for 21.55% of all respondents; 112 people from Central China (Hunan, Hubei, Henan and Jiangxi) accounted for 9.97%; 149 people from South China (Guangdong, Guangxi, Hainan and Fujian) accounted for 13.27%; 99 people from Northeast China (including Liaoning, Jilin and Heilongjiang) accounted for 8.82%; 35 people from Southwest China (including Sichuan, Chongqing, Guizhou, Yunnan and Tibet) accounted for 3.12%; 40 people from Northwest China (Shaanxi, Gansu, Xinjiang, Qinghai and Ningxia) accounted for 3.56%. Among all respondents, Jiangsu, Guangdong, Shanxi, Hebei and Shandong Province were the main groups, accounting for 49.15% of the total respondents. Therefore, it can be concluded that the regional distribution of the respondent population is composed of East China as the most dominant region, with North, South and Central China also being major regions, and Northeast, Southwest and Northwest China accounting for a relatively small number of respondents.

2.4. Age Characteristics

The age distribution of the total respondent population is shown in the Figure 4, with 41.6% of respondents between the ages of 18 and 24, and 36.8% between the ages of 25 and 45. It can be concluded that the respondents are mainly young people and men in their prime, while teenagers aged 14 to 18 and middle-aged and older people aged 45 or above also account for a certain proportion.
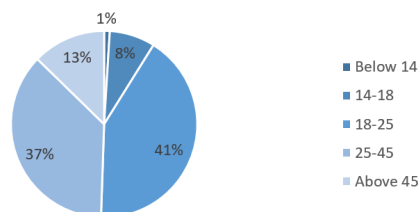

Figure 4: Distribution of respondents' age

Combined with the gender analysis, there are slightly more males than females in the youth and prime age groups. While there are more females than males in the youth group, which accounts for the largest proportion, and more females than males in the middle-aged and older age groups above 45 years old. Overall, there are slightly more females than males. Figure 5 also reflects, to some extent, that there are more female respondents among the youth group, who are the main group using new media, in this questionnaire survey.
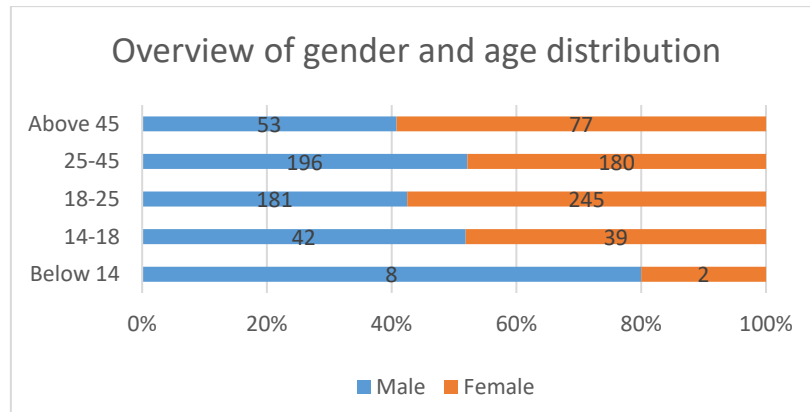

Figure 5: Overview of gender and age distribution

3. Status of access to information and preferences

3.1. Preference of old and new media choices

We counted the respondents' preferences for 11 kinds of old and new media choices which were ranked by the selection priority preference used to obtain information. According to Figure 6, among the 1023 valid questionnaires, 411 people chose Weibo as the first preferred media platform, 178 people chose WeChat (including Official Accounts and video Accounts, etc.), and 125 people chose TikTok, and a total of 714 people who chose for these three platforms accounted for 69.79% of the respondents. This proportional data shows that the usage rate of the above new media access accounts for almost 70% of all new and old media, has become the main force of the new media era platform.

Among the 1123 respondents, 192 people chose Weibo as the second preferred media platform, 334 chose WeChat and 120 chose TikTok, and a total of 646 people chose these three platforms accounting for 57.52% of the respondents. Compared with the first preference, Weibo is the first-choice preference of more than 40%, WeChat is the second-choice preference of about 30%. By comparison, it can be found that Weibo is a social media platform with higher openness, wider population attributes. Its information dissemination carriers are mainly text and pictures, with video and livestreaming modes supporting. It also promotes the formation of hyper-communication groups, hot search lists and topic tags for special topics. In terms of information dissemination, Wechat's emphasis on private space and TikTok's emphasis on personalized short video entertainment do not have Weibo's advantages. However, the information between WeChat friends is spread in the form of links and pictures, which will have a more accurate influence in the group of acquaintances. Therefore, combining Weibo and WeChat as the two new media tools to obtain information is in line with the use of habits and the background of Internet development.

Among the third preference choices, the number of people who chose Weibo, WeChat and TikTok were 90, 161 and 225 respectively. They accounted for 8%, 14.34% and 20.04% of the total number of respondents respectively, or a total of 42.39%. TikTok exceeds Weibo and WeChat in the third preference share, which also corresponds to the characteristics of Weibo and WeChat and TikTok considered above. Looking at the combined top three preferences, 693 or 61.71% of the 1123 respondents chose Weibo as the top three sequentially preferred information access platforms, 673 or 59.93% of the respondents chose WeChat as the top three sequentially preferred information access platforms, and 500 or 44.52% of the respondents chose TikTok as the top three sequentially preferred information access platforms. It can be observed that the platforms represented by these three new media have deeply penetrated into users' lives in the context of Internet development, and have an important role and influence on information acquisition and information dissemination.

On the contrary, traditional media such as TV, radio and newspaper, there are 631 people(56.19% of

respondents) choose TV as the first five order preference, and mainly the second, third and fourth preference, while the preference position of newspaper and radio is mainly concentrated in is the ninth, tenth and eleventh: there are 459 people(40.87% of respondents) choose radio as the last three preference order, 630 people(56.10% of respondents) choose newspaper chose newspaper as the last three preference order, and the original influence of traditional media in the daily information acquisition is gradually decreasing.
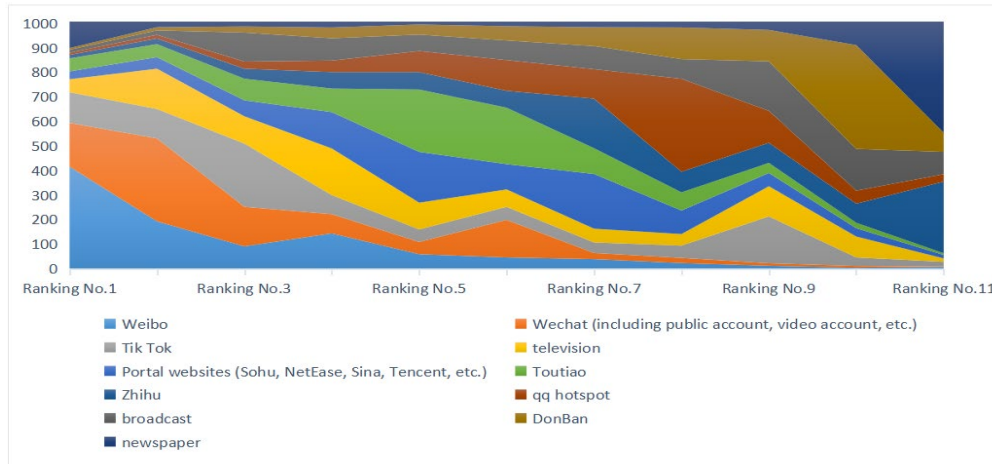

Figure 6: Preference ranking statistics of access to information acquisition channels

This fully reflects the high degree of acceptance of new media. In this era of Internet, Weibo hot search is often on people's mind, or many people rely on WeChat Official accounts to know the news they are concerned about. The act of subscribing to a newspaper and watching a program on TV has indeed been eliminated by the public in the fast-paced era.

3.2. Usage habits of new media

Based on the results of ranking the current major information acquisition channels, we continued to explore the usage preferences of the top three new media platforms in terms of frequency of use: Weibo, WeChat and TikTok in this segment of the population. According to Figure 7, these three giants in the ranking basically occupy the preferred information access channel for nearly 75% of the respondents, with more than 40% of them using Weibo as the primary channel for information access, about 19% using Weibo as the second channel for information access, and about 9% using Weibo as the third choice for collecting first-hand information. Similarly, the percentage of respondents who use WeChat as the first information channel is around 17%, while the second way is about 33% and the third alternative is about 16%. From the chart, it is easy to see that Weibo and WeChat are the first and second usual ways to obtain information, while TikTok, one of the three giants, is relatively weak, with only about 12% of respondents chose it as their first choice for news, and most of them ranked TikTok as the third and later ninth and tenth way to collect news.

We believe this is mainly related to the operational tone and content characteristics of these three new media platforms:

As a relatively well-developed media platform, which has been in operation for nearly 20 years, tapping into the Weibo hot list to learn about the latest events has become an important means for people to get news. Weibo's high number of active users, ease of publication, and the topological diffusion and winding characteristics of social networks enhance the high-speed dissemination of various news information, thus becoming the most centralized platform for official media. Weibo's home page spreads almost all types of news, and is enhanced by open interactive features such as comment section, private message exchange, reposting, etc. Obviously, users of Weibo have more forms and wider range of communication, and have good conditions to form multi-level communication.[4] Meanwhile, Weibo has a unique word design (WeChat video accounts have since been added in this way). By condensing the topic, summarizing the main points, marking the asterisk, as long as the words are posted with the word tag, the relevant content will be linked to the word, which brings convenience to the searchers and discussants in the topic, and also contributes to the initial rapid growth of the discussion volume of the topic and the external attraction to other users.
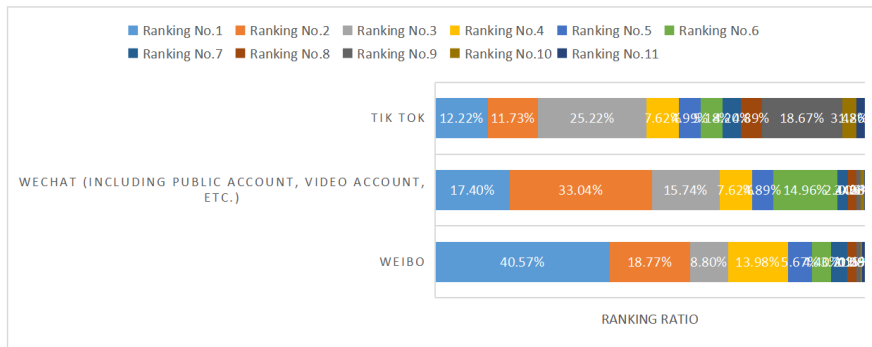
Figure 7: Scale Diagram of Preferred Information Acquisition Channels

WeChat, as the most commonly used chatting software, has seen a boom in public accounts for disseminating information. In the new Internet era, WeChat has gradually played the function of propaganda and communication, and many departments have set up Wechat official accounts as a new media notification platform. [5]In the process of further improvement, the passage has a relatively strict review system, and the propaganda methods such as public accounts and video accounts are relatively limited. So, the influence range and speed cannot reach the ability shown by Weibo, explaining why the respondents prefer Weibo in terms of the timeliness of news to some degree.

As for TikTok, the short video software with the widest dissemination of information and the fastest collection of hotspots, its tone is more entertainment-oriented and non-professional. Its open release and comments cause a lot of distortion or reprocessing of the original information, and the authenticity of the information fade away in the dissemination and tracking, which is also an important factor why many respondents are not keen on using TikTok to receive news information.

Other new media platforms such as portals, Douban and Zhihu mostly play a secondary role, attracting their own unique "fan" base to a certain extent and forming a channel for information exchange and dissemination.

4. Attitudes and reactions to relevant information during the epidemic

4.1. Degree and manner of dissemination of epidemic-related information

During the epidemic there were a lot of news and information that attracted a large number of people's attention and also gave rise to relatively large social reactions, so we selected some representative events and information that were relatively hot at that time and had relatively complete preservation of words for the respondents to understand the degree of popularity of related information during the survey. As shown in Figure 8, 61.3% respondents had heard the news that "Shuanghuanglian can prevent Covid-19", "Salt water, tea and vinegar can remove Covid-19" accounted for 42.5%, "Swing the mask before wearing to get rid of carcinogens" accounted for 33.5%, "COVID-19 vaccine mixing will have side effects" accounted for 26.8%, "Drinking high alcohol can resist Covid-19" accounted for 20.3%, "Veterinary drug ivermectin is a 'magic medicine' for treating COVID-19" and "The stronger the vaccination response, the better the effect" accounted for 18.9% and 11.1%, respectively; while other events such as "Infrared thermometer hurts eyes and can cause permanent damage" just accounted for 3.7% of the total, which is relatively less hot, and therefore they did not appear in our survey list.
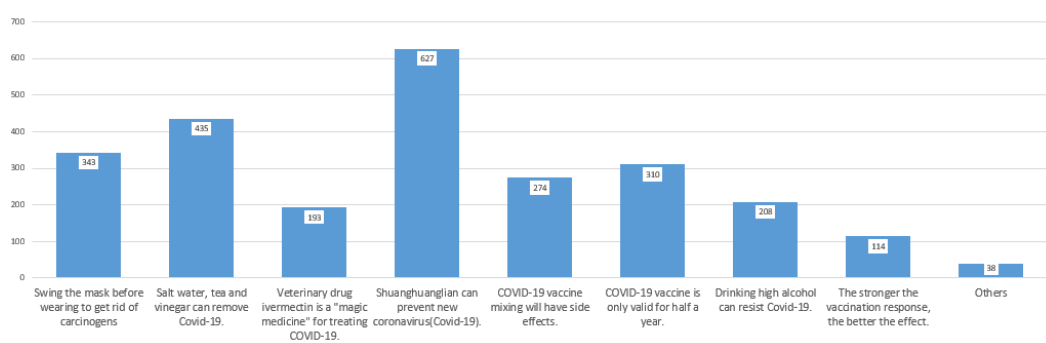

Figure 8: Respondents' knowledge of rumors related to the epidemic

During the epidemic, especially in the early stage when the new coronavirus was not yet known, the population paid great attention to news related to the epidemic, and all kinds of related news, regardless of whether they were true or false, had strong spreading power. According to the survey (as show in Figure 9), 32% respondents were concerned about the progress in prevention and treatment of the epidemic, 31.8% were concerned about the change and adjustment of social life under epidemic, 26% were concerned about epidemic spread and number of patients, while only 10% were concerned about the obstacle of epidemic to economic, social work and production. In general, people are more sensitive and conscious of the news that concerns themselves.
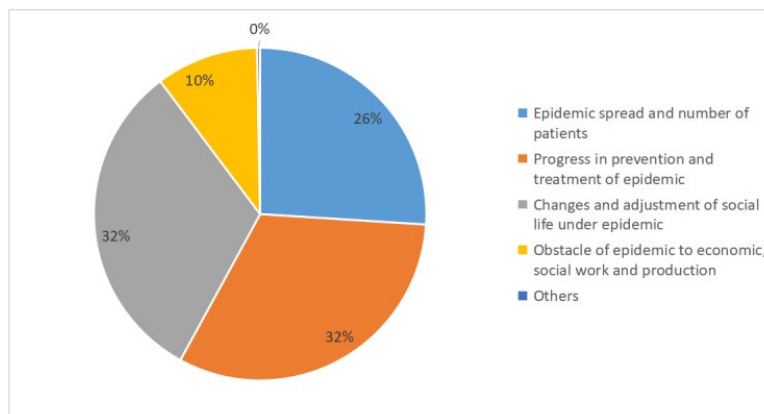

Figure 9: The respondents' main concern for news related to the epidemic

At the same time, new media users nowadays generally have a strong sense of autonomy and big-picture view, and have their own subjective awareness and judgment when receiving and disseminating relevant information. Among the main reasons for following the epidemic-related news, 58.36% of the respondents said they were concerned about the overall trend of the epidemic, 19.55% said they were looking forward to the latest effective drugs and measures, 16.03% showed their attention to one's own health problems, while only 6.06% said they just conformity psychology, and concerned only because it is a hot topic of public discussion (as shown in Figure 10). This indicates that users nowadays are very active in searching for information related to the epidemic, and their receptiveness and scope of news will also increase accordingly. We are pleased to see that most of the respondents are concerned about their own health development and at the same time can focus on the overall stability of society, which also lays a good foundation for the correct dissemination of information.
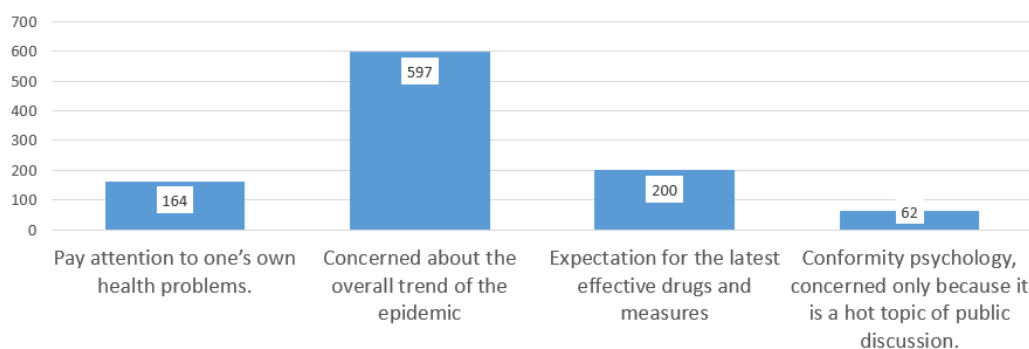

Figure 10: The main reasons of respondents' concerns about news related to the epidemic

4.2. Acceptance and discernment of epidemic-related information

In the face of a lot of news, especially during the epidemic prevention and control period, individuals' acceptance and reaction to news vary, mainly focusing on positive acceptance (as shown in Figure 11), with 76.4% of respondents showing their positive attitude: "believe the epidemic will be gradually solved ","will adjust their lives according to relevant news" and "trust the information and react to it", while only 14.08% decided that do not spread the news and express opinion. Rest of 9.58% may "feel worried about such news". This reflects that users generally have a high degree of acceptance and trust in news, and still have a high tendency to accept the source and authenticity of information, while a large portion of the population maintains a more rational attitude toward information and has a sense of discrimination,

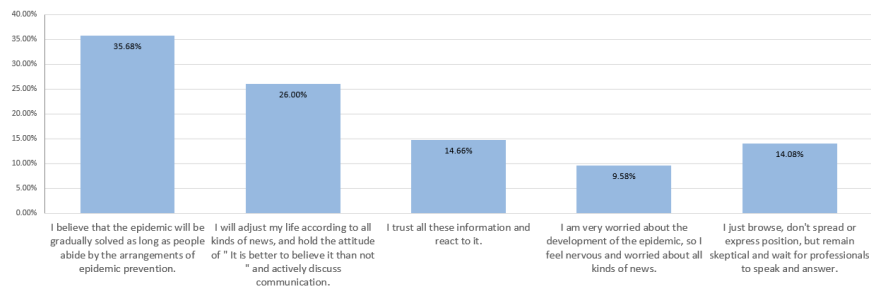but overall the emotional attitude tends to be positive acceptance.

Figure 11: Respondents' ways of reception and processing of news related to the epidemic

4.3. Handling of epidemic-related news

As recipients of such news, respondents of all ages and strata who are at the gates of epidemic prevention and control also play different roles in the dissemination of relevant news and information. In the questionnaire, we divided the attitudes into three categories: active dissemination, neutral, and refusal, and subdivided the specific behavioral categories under these three attitudes as behavioral judgment options. Among them, as Figure 12 shows, 51.7% of total respondents directly said they would not repost or publish tendentious comments on new media platforms, which is slightly less than the percentage of those who would actively disseminate. This means that more than half of the population will eventually become the disseminators and promoters of various information. Although there are still different attitudes among people from the above various categories who do not post comments or disseminate such messages, the percentages of the two types of people in the behavioral judgment are approximately equal, which means that the extraordinary development and convenience of the information delivery network has made the current information complicated and indistinguishable.
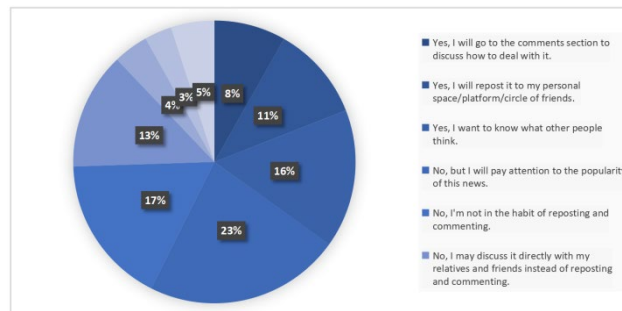

Figure 12: Respondents' attitudes and actions towards information dissemination

5. Main conclusions and inspirations

This research collected a series of data on users' information preference and their response to specific information related to COVID-19 in the era of new media by means of questionnaires. We characterized the individual characteristics of new media users based on gender, age, education level, and geographical distribution for the survey subjects. Moreover, the conclusion comes to that new media users have a certain degree of similarity.

Besides, this paper specifically investigated and analyzed some popular events during the epidemic, summarized the common characteristics and usage habits of some new media users, and also found the differences in the way people choose and process news information and the degree of acceptance and discrimination. According to the research, the news and information audience in the new media era has a wide distribution and a large range of influence. With mobile phones and the Internet, the information dissemination barriers and users' age entry have been greatly reduced, which is a major factor causing the mixed information sources, and also brings people's different attitudes on the daily judgment and processing of the authenticity and accuracy of information.

Summarizing and analyzing the data, this paper concludes that Weibo is the main new media channel for the current population to receive information. Every new media user is a receiver of information, as well as a potential disseminator and debunker, and nearly half of the them will become disseminators.

The vast user base and information popularity calculation method of Weibo have made every user play a huge role in spreading news. Based on such findings, distinguishing the authenticity of information and preventing the spread of rumors have become important topics in public opinion processing in the new media era. Similarly, in other new media platforms such as TikTok and WeChat, the heterogeneity and unity of the information dissemination network also deserve further study. It is necessary to combine the common characteristics of new media in the big data era, explore the multi-channel and full link development mode of information dissemination in order to make accurate predictions and judgments while complying with logic and ensuring rationality.

Acknowledgement

References

[1] Kangyi Cheng, Gang Lin. Research on Internet Rumors Based on the Perspective of Public Health Emergencies [J]. News Communication, 2023, No. 442(01):12-14.

[2] Qiang Sheng, Juan Cao, H. Russell Bernard, Kai Shu, Jintao Li, Huan Liu, Characterizing multi-domain false news and underlying user effects on Chinese Weibo, Information Processing & Management, Vol. 59, No. 4, 2022.

[3] Guangying Wang, Feifei Wang. The dilemma and countermeasures faced by college students' mental health education in social media environmen [J]. Leadership Science Forum, 2023, No. 209(03):153-156.

[4] Bingyi Liao, Hexian Di, Youwei Wen. Research on the guidance mechanism of microblog public opinion in brand public welfare marketing--Based on the analysis of Hongxing Erke Weibo public opinion big data [J]. Journal of Global Media, 2022, 9(06):102-116.

[5] Qi Hu, Kun Yang, Yang Yang. The psychological mechanism and governance path of online rumor generation in the era of full media [J]. Social Scientist, 2022, No. 307(11):135-141.