

# “Positive Energy”: Perceptions and Attitudes Towards COVID-19 Information on Social Media in China

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The COVID-19 outbreak has resulted in a worldwide public health crisis. In such times of crisis, access to relevant and accurate information is critical. For many people in China, domestic social media platforms such as WeChat and Weibo have become dominant sources of COVID-19-related information and news. People have to evaluate the trustworthiness of COVID-19-related information and make sharing decisions using platforms that have to contend with government censorship policies, astroturfers, and other government interventions. We interviewed 33 Chinese WeChat users to understand how individuals were seeking COVID-19-related information and how they identified and evaluated specific COVID-19-related misinformation. This work exposes how COVID-19-related content with “positive energy” was prevalent on social media in China. A significant number of interviewees exhibited a willingness to prioritize information *valence* over *veracity* when evaluating and sharing content with others. Further, the work revealed how Chinese citizens’ understanding of information ecosystems played an important role in their attitudes towards censorship and official media, and also influenced their evaluation of domestic and international information during a global crisis.

CCS Concepts: • **Human-centered computing** → **Human computer interaction (HCI)**; *Empirical studies in HCI*.

Additional Key Words and Phrases: Misinformation, social media, fake news, trust, COVID-19

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## 1 INTRODUCTION

Beginning in December 2019, a novel coronavirus (COVID-19) spread rapidly around the world, leading to a global pandemic that has influenced over 160 countries [69]. This global health crisis has resulted in high global morbidity and mortality rates and has severely impacted the global economy due to the large-scale preventive measures employed in major cities around the globe to combat the virus. During this time of uncertainty, social media platforms like Facebook, Twitter, and WeChat have become a major source of pandemic-related information. Social media platforms also help

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individuals seek assistance and support, develop situational awareness, and recover from disruption [29, 34, 77, 87]. However, due to the spread of mis- or dis-information, such as pseudo-science, propaganda, conspiracy theories, and hoaxes, individuals may be uncertain about the veracity of health or other pandemic-related information that is disseminated on social media [29, 42, 43]. Understanding how individuals perceive social media misinformation and what coping strategies they currently use to dispel such information could potentially reduce the negative impacts of misinformation.

China has been particularly influenced by social media misinformation due to the increased adoption rate of social media platforms. Panic and confusion about the cause of COVID-19 has led many individuals to fall for fictitious “cures” to the virus (e.g., Shuanghuanglian, a traditional Chinese herbal medicine) or conspiracy theories about the origins of the virus [94]. The spread of such misinformation is largely influenced by China’s unique social media environment [44, 54, 99]. Most social media users only use domestic platforms, such as WeChat, Weibo, and Toutiao, to connect with others and consume news online. In addition to the broad-reaching censorship imposed by the government, these platforms adopt even stricter self-censorship policies to align with government requirements [54]. Media discourse on these platforms is also influenced by a variety of government interventions. For example, “astroturfing”, i.e., “organized and sponsored efforts by the government or companies to add comments of a certain flavor” [54], could distract and disengage Internet users from civic discussion [41]. “Positive energy” (正能量), a popular social byword, has also seen adoption in everyday Chinese political discourse on social media. Social media users have also gradually “internalized the interests of the state as their own good” [13]. The perception of this discourse and reactions to these activities may influence how people consume and evaluate information during global crises such as pandemics.

Although prior research in HCI and CSCW has explored social media trust in China [96], the perceptions of social media misinformation in China [54], and misinformation and information behaviors during public crises in the USA or Europe [29, 34, 88], few studies in HCI and CSCW have explored how users perceive and make sense of misinformation during public crises in China, where the media landscape differs greatly from the Western countries that have been studied in prior work. Although prior research has investigated misinformation and media dependencies in China during the 2003 SARS epidemic (e.g., [55, 91]), most of this research was conducted prior to the emergence of social media platforms such as WeChat and TikTok, where the “positive energy” discourse is prevalent. The ever-shifting media environments in China thus suggest that there should be a re-examination of misinformation, such as during the COVID-19 public health crisis.

To understand how “positive energy” discourse operated in China during the beginning of the COVID-19 pandemic and how it influenced the way Chinese citizens evaluated, sought, and made sharing decisions about COVID-19-related information on social media, we conducted remote, in-depth semi-structured interviews with 33 Chinese citizens located in rural or urban mainland China between February and May 2020. The interviews identified a diverse range of information sources that these citizens used to seek and encounter COVID-19-related information and uncovered how “positive energy” discourse influenced their evaluation of this information on social media.

The findings demonstrated that veracity was not the only factor that interviewees used to evaluate COVID-19-related information. Many interviewees prioritized information *valence* over information veracity during the pandemic. “Positive energy” discourse, which is prevalent in popular Chinese culture and used for media discourse propaganda by the government, had a significant impact on how interviewees sought and evaluated information during the pandemic. Due to the fear and anxiety that arose during the pandemic, “positive energy”, either political or not, was perceived as necessary and desirable by most interviewees. Many interviewees’ accounts showed that they were easily attracted to information with “positive energy”, and some interviewees even

acted against the spread of information that had “negative energy”, even when they perceived it to be true. On the other hand, for some interviewees, such extreme positivity led to a backlash against “positive energy”. Afraid that it could make others more biased and ignorant, some interviewees described actively attempting to avoid information with “positive energy”.

Although interviewees were aware of censorship on social media, they mostly reported that censorship did not have much influence on their trust of COVID-19 information shared by official media and the government. The interviewees’ general trust in the government originates from their understanding of the social and political infrastructure in China. In addition to thinking from their own perspective as an individual in the society, interviewees tended to consider the perspective of the government and had independent attitudes towards central and local governments. Interviewees’ generally indicated trust in domestic media, and thus did not seek out domestic COVID-19 information from foreign media. For coverage related to COVID-19 abroad, interviewees either consumed domestic official and citizen media or used virtual private networks to access foreign media.

These findings shed light on the challenges that exist with misinformation in the social media ecosystem during a global crisis and discusses the implications of understanding misinformation problems in a global context. Thus, this work makes the following contributions:

- This study broadly documents how interviewees from both rural and urban China received, evaluated, and made sharing decisions about COVID-19-related information on social media in China during the pandemic. These findings will help the research community better understand the critically important Chinese social media environment in this historical context.
- This study demonstrates the degree to which “positive energy” is used by Chinese social media users to interpret global and local crisis information, such as during the COVID-19 pandemic. It highlights how not only do confirmation and myside biases exist, but also how *valence biases* influence the ways in which people seek, evaluate, and share information on social media.

## 2 BACKGROUND AND RELATED WORK

To provide context for the study findings, we first provide a description of the unique social media environment in China. We then summarize insights from prior research on social media, health crises, and misinformation to situate the study within the broader research landscape.

### 2.1 The Chinese Social Media Environment and Government Interventions

China has the largest population of active social media users in the world [15, 89]. Many of these users only use domestic platforms such as WeChat, Weibo, or Toutiao. On these platforms, individuals, companies, organizations, or government agencies can create public-facing accounts, e.g., ‘public accounts’ on WeChat, to exchange information or broadcast [54]. With such accounts, content creators can publish blog posts, news articles, podcasts, or short-form videos. Other users can then subscribe to the content creators to get notifications whenever the account publishes something new. These content creation accounts can be classified into one of two types of media, i.e., official media and citizen media [54, 96].

**2.1.1 Official Media and Citizen Media.** Official media refers to media outlets that are state-run or under governmental control, e.g., Xinhua, CCTV, and People’s Daily. The information shared on official media is often created by professional journalists and is subject to editorial procedures, fact-checking, and government sanctions [75]. Citizen media, on the other hand, is often created by individual content providers, organizations, or commercial companies and is used as a means of

self-expression, for economic interests, or to promote social or political goals [23]. Citizen media enables “random acts of journalism” to occur when content creators are present at a newsworthy event and then publish what they witness or observe firsthand [47]. Content from citizen media also tends to include subjective or emotional comments to attract attention [95]. Citizen media often becomes a public sphere where individuals can freely discuss public affairs, although it has been influenced by censorship or other government interventions in China [54, 96].

**2.1.2 Censorship and Astroturfing.** To maintain the status quo, the Chinese government censors social media platforms. Chinese citizens are hired to censor sensitive posts, comments, and misinformation on social media according to official government published guidelines [39]. Social media platforms often apply their own stricter removal policies to ensure that the content shared on their platform meets the ever-changing official guidelines. Once a comment or an article is detected as being in violation of the guidelines, the platform would remove the content and block access to it [40, 45]. Astroturfing is another example of government intervention on Chinese social media. “Water warriors” or astroturfers are organized commenters who add comments of a certain “flavor” online. They are often sponsored by companies, organizations, or the government to strategically guide public opinions to create distractions or for other economic, social, or political purposes [41, 61]. However, some individuals who behave like astroturfers may not be organized or sponsored, and they may be average social media users who share the same sentiments and opinions as astroturfers online [30, 31].

**2.1.3 “Positive Energy”.** The popular social byword, “Positive energy” (正能量), was not directly invented by the state, but has been appropriated from popular culture. “Positive energy” is a subculture that emerged in post-reform China [92]. “Positive energy” is defined as ‘the capacity to induce positive emotions and/or attitudes, the potential to induce constructive/conciliatory discourses and/or actions, in individuals or collectives such as the society and nation’ [73]. It gained traction on Weibo during the 2012 Olympics in London as a hashtag movement that supported 10 previously unknown Chinese citizens as they ran in the torch relay [20]. Since then, the phrase has been appropriated by the state and frequently seen in Chinese political speeches and discourse on social media. Despite its political implications, “positive energy” is also closely associated with optimistic attitudes, inspiring manners, and positive behaviors, especially among grassroots communities. It is frequently used by Chinese citizens in their social media posts about their everyday life. For example, many social media platforms such as TikTok have “positive energy” trending pages to promote the state ideology and patriotism [37]. “Positive energy” has gradually encouraged social media users to “internalize the interests of the state as their own good”, and transformed positive emotions (e.g., pride, gratitude, and happiness) into ‘positive propaganda’ [13].

Prior research on “positive energy” focused on how it emerged in China, but never explored how it affects how people seek and share information. This research aims to understand how “positive energy” affects attitudes and beliefs in China after the COVID-19 outbreak.

## 2.2 Social Media and (Mis)Information during Public Health Crises

Online misinformation has been described by the research community using several different terms, including “fake news”, “rumors”, “conspiracy theories”, and so on. In this research, we refer to misinformation as false or misleading information [48], and “rumors” as unverified information that can be true, false, or somewhere in between [3].

During crises, efficiently accessing and exchanging real-time, locally sourced information is important because not having access to such information can often be a matter of life and death [34, 87]. The use of social media to acquire information has become a consistent fixture for those facing crises [32, 35, 36, 60, 70, 71, 74, 82, 84]. During public health crises, social media plays an

important role in disseminating disease outbreak information [63], obtaining useful information about preventive measures [14, 72], and assessing risks to make decisions [16, 29]. However, social media is vulnerable to the spread of misinformation, and often becomes a potential source of misleading information during crises [49, 57]. For example, a recent study by Singh et al. [83] found that a large amount of health misinformation existed on Twitter at the beginning of the COVID-19 pandemic, including misinformation about vaccinations and home remedies, conspiracy theories about the origins of the virus, and misinformation about previous public health crises, such as the spread of Ebola in 2004 and Zika in 2016.

The spreading of rumors is a long-standing tenet during crises as people react to information ambiguity and scarcity [2, 17, 81]. During public health crises, rumors often emerge as the demand for information grows and people begin to cope with uncertainty by reaching a common understanding [68, 81]. Due to the lack of sufficient information, especially official information, rumors become a form of collective sense-making that people use to deal with panic situations [3, 7, 11]. Rumors are often seen as improvised news, collective problem solving, or a social coping mechanisms that serve cathartic purposes [7, 26, 81].

Conspiracy theories are narratives that invoke belief that events are planned by secret and powerful actors [100]. They usually have a long-lasting propagation period [62], and as Starbird et al. [88] suggested, are more persistent than normal rumors as they often peak multiple times on Twitter. Further, McHoskey [59] found that the persistence of conspiracy theories is due to the fact that they are elaborated on over time. Work by Nied et al. [67] also demonstrated that conspiracy theorists on Twitter form a wide network of groups of individuals that hold diverse ideologies and political beliefs. Lastly, Bessi et al. [5] found that most conspiracy posts on Facebook are self-contained to specific topics, resulting in the polarization of readers.

Over the past few decades, a large number of conspiracy theories about public health have emerged, which have had a large impact on public health crises [52, 88]. Grimwood [28] showed that a conspiracy theory about HIV/AIDS impeded prevention efforts by the government so that patients were not able to receive proper treatment. Nerlich and Koteyko [65] suggested that conspiracy theories impeded efforts to resolve public health crises by studying the case of 2009 H1N1 swine flu pandemic. Klonoff and Hope [42] found that depending on one's background and ideologies, some people were more likely to trust specific conspiracy theories more so than others. Abelson et al. [1] conducted a qualitative study of Canadians' values toward the Canadian health system and found that vulnerable groups of people often have a lower level of trust in the public health system, which might lead them to believe conspiracy theories.

Conspiracy theories may also have connections with pseudoscience. For example, an AIDS conspiracy theory was created by the Union of Soviet Socialist Republics (USSR) as a weapon in the Cold War [28]. It promoted the idea that the government created AIDS to attack certain segments of the population by encouraging people to deny AIDS existed. Some pseudo-scientific claims about side effects of vaccines have also driven people to create conspiracy theories about the origins of the Zika virus [19]. Through a qualitative study of conspiracy theories on Reddit during the period of the Zika virus outbreak, Kou et al. [43] found that the reason why conspiracy theories emerged was due to people's distrust in official Zika information, their urgent information needs, and their willingness to make sense of a confusing public health crisis.

Based on the known strengths and weaknesses of social media during crises, this research focuses on understanding how Chinese news consumers seek, evaluate, and perceive social media information differently during the worldwide COVID-19 pandemic. Though rumors and conspiracy theories are relevant, this research does not explicitly focus on them.

### 2.3 Perceptions of Information Trustworthiness on Social Media

The complexity of social media environments and the variety of social media users' attitudes towards seeking and evaluating information might lead to the creation and spread of misinformation [44]. The COVID-19 public health crisis has made this situation even more critical.

Misinformation on social media is widely spread around the world [4, 58, 78–80, 86], and has the potential to impact various aspects of public health [9], public safety [18], and elections [24]. Much prior research has explored how people evaluate the trustworthiness of information on social media. For example, Geeng et al. [27] explored how people react to low-credibility posts on Facebook and Twitter. Wang and Mark [96] found that based on content quality and source credibility [25], most social media users prefer to trust one media channel, either official media or citizen media, over the other. Kow et al. [46] showed that most social media users preferred not to act on political misinformation. Research on social media censorship and trust has come to divergent conclusions regarding whether news consumers become more critical in a censored social media environment [64, 96]. Lu et al. [54] demonstrated the diverse attitudes of Chinese social media users in the complex Chinese social media environment and explored how censorship and fact-checking affected news consumers' perceptions of social media misinformation in China.

To combat misinformation, various fact-checkers operated by the government, academic institutions, individuals, organizations, and social media platforms have become increasingly prevalent around the globe [48]. For example, most social media platforms in China embed fact-checking tools within applications to detect misinformation and let users report misinformation to a platform [54], although such approaches may not sufficiently identify misinformation [22].

During the SARS outbreak in 2003, a deliberate blockade of information led to a debate about information control from the Chinese government [56]. These kinds of media scandals may have significantly affected the level of trust users have in official media and the government [96]. Thus, some social media users sought out alternative channels of information, i.e., citizen media. Due to the advantage of collective action, crowd confirmation, and collective interpretation of citizen media, some users can be exposed to diverse public comments and opinions and develop more trust in news shared by citizen media [96]. However, due to its lack of moderation, citizen media can be easily abused by individuals or organizers, making it challenging for social media users to process and make sense of social media information [54]. In addition, the increasing diversity of public opinions can increase the difficulty for one to digest information [10] because people often prefer to interact with like-minded others [93]. Opinion polarization may also limit meaningful discussions because many people share the same views [98]. Comparing the limited information retrieval channels managed by the government, with the strict information control that Chinese government had during SARS, reveals that the advent and rapid growth of citizen media may lead to different perceptions of social media environments in China under a similar worldwide pandemic occurring 17 years later.

Through a qualitative interview study, this work explored the level of trust and the attitudes social media users have towards different media channels and obtained in-depth perspectives that explained how different factors, such as perceptions of censorship and political and geopolitical perspectives, affected social media users' information trustworthiness during a global health event.

## 3 METHOD

We conducted semi-structured remote interviews with 33 WeChat users in China (Table 1) to understand their perceptions of misinformation during the COVID-19 pandemic and the influence of emotion and positionality on their perceptions and information behaviors during the pandemic.

Table 1. Summary of participants interviewed. Location: U-urban, R-rural

ID	Location	Gender	Occupation	Age	Education	ID	Location	Gender	Occupation	Age	Education
P1	U	M	Student	18-25	High school	P18	U	F	Teacher	25-40	Master’s
P2	U	M	Professional	25-40	Master’s	P19	U	F	Professional	40-55	Master’s
P3	U	M	Professional	25-40	Master’s	P20	U	F	Professional	55+	Master’s
P4	U	F	Unemployed	18-25	Bachelor’s	P21	R	M	Business Owner	40-55	College
P5	U	M	Student	25-40	Master’s	P22	R	F	Teacher	25-40	College
P6	U	F	Professional	25-40	Bachelor’s	P23	R	F	Teacher	25-40	College
P7	U	F	Professional	25-40	Bachelor’s	P24	R	M	Professional	25-40	College
P8	U	F	Student	18-25	Bachelor’s	P25	R	F	Teacher	18-25	College
P9	U	F	Student	25-40	High school	P26	R	M	Teacher	40-55	Bachelor’s
P10	U	F	Student	18-25	Master’s	P27	R	F	Teacher	25-40	College
P11	U	F	Student	25-40	Master’s	P28	R	F	Teacher	25-40	College
P12	U	M	Professional	25-40	Bachelor’s	P29	R	M	Business Owner	25-40	High school
P13	U	F	Student	25-40	PhD	P30	R	M	Farmer	25-40	High school
P14	U	F	Student	25-40	Master’s	P31	R	M	Business Owner	40-55	High school
P15	U	M	Professional	55+	Bachelor’s	P32	R	F	Teacher	18-25	Bachelor’s
P16	U	M	Professional	55+	Master’s	P33	R	F	Teacher	25-40	College
P17	U	M	Professional	25-40	High school						

### 3.1 Interviewees

Because rural and older adults may perceive misinformation differently than young and urban populations [51, 54, 99], we aimed to recruit interviewees from each of these age and geographic backgrounds through a combination of snowball and convenience sampling. We recruited interviewees who were Chinese citizens living in Mainland China through advertisements on WeChat, Weibo, Baidu Tieba, and discussion groups on Douban, via snowball sampling, and also used personal convenience sampling to find more participants from rural areas. Respondents were first asked to disclose their demographic information, i.e., age, gender, location, education, and occupation, when they contacted us through WeChat or QQ. During the recruitment process, because our recruitment posts mainly focused on perceptions of misinformation and information behaviors on social media during COVID-19, many potential candidates did not have concerns about our study and expressed their willingness to participate. We recruited more than enough respondents who were under 35 years old and lived in urban areas (i.e., 31 in total), so to balance age, gender, and location, only 16 were invited to participate in the study. We then tried to reach out to other potential interviewees through personal connections to increase sample diversity, targeting people over 35 years old or those living in rural areas. Seventeen interviewees were recruited through this technique. In the end, a total of 20 people from urban areas and 13 from rural areas were interviewed (N = 18 female; Table 1). The average age of interviewees was 34 (range = 18 – 62 years). On average, the sample was more educated than the general population in China. The interviews were conducted between February 2020 and May 2020.

### 3.2 Interview Procedure

Due to the constraints of COVID-19, semi-structured interviews were conducted remotely in Mandarin using audio calls on WeChat, QQ, or other software of the interviewee’s choice. Before

each interview, interviewees were asked to share several pieces of news about COVID-19 they had read or encountered so that they could be used probes during their interview. During each semi-structured interview, interviewees were asked about what COVID-19-related information mattered to them, what social media platforms they used to seek and share COVID-19 information, and how they evaluated the information they encountered online. We explicitly asked how interviewees sought and evaluated domestic and international news about COVID-19, and how they evaluated the government's response to the COVID-19 pandemic. Then, questions related to their awareness of fact-checking, censorship, and "positive energy" were asked, followed by questions probing interviewees' thoughts about major COVID-19 news stories, such as the death of Wenliang Li, Fang Fang's diary, and the herbal remedy of Shuanghuanglian. With approval from interviewees, all 33 interviews were audio-recorded and transcribed for further analysis. Each interview lasted approximately one hour and interviewees were provided 50 CNY (\$7.0 USD) for their participation. The study protocol was approved by our institutional review board (IRB).

### 3.3 Analysis

The transcriptions of the interviews were analyzed using an open coding method [90]. The COVID-19-related news that interviewees shared prior to their interview was also referenced during the analysis for context. Three authors who were native Mandarin speakers coded segments of the transcriptions by themselves, then came together to discuss their codes and reach an agreement for a codebook. Each author then categorized the rest of the transcriptions using the codebook. All the codes were translated into English, and were discussed by the broader research team in an effort to group them and find emerging themes using sub-categorization and constant comparison [90].

## 4 FINDINGS

The interview analysis identified how interviewees sought or encountered COVID-19-related information. Social media was the primary information source that interviewees used to find COVID-19 news. This is similar to prior findings [44, 54], although there were nuances to which platforms were used and how they were used. Generally speaking, interviewees reported consuming COVID-19 news from a diverse range of social media sources, including close-tie social media like WeChat, Twitter-like social media such as Weibo, and algorithm-based recommendation news feeds such as Toutiao. All interviewees used mobile versions of these platforms and regularly checked COVID-19 information on these platforms on their mobile devices. Thirteen interviewees used mobile web browser apps developed by Tencent, Baidu, or other Chinese companies, and were exposed to COVID-19-related news via news feeds that were curated by these companies. In an emerging trend, several younger interviewees, especially those in rural areas, reported using short video sharing platforms such as TikTok and Kuaishou to find COVID-19 information (N=14). They occasionally encountered COVID-19 information within videos about real-life experiences or local events. Due to the 'playful' nature of these platforms, interviewees did not care too much about the credibility of the videos.

Diverging from prior findings on the low awareness of fact-checking features on WeChat [54], twenty-two interviewees mentioned that they regularly encountered fact-checking information on WeChat and Weibo during COVID-19, such as detailed debunking articles that provided evidence about widely spread misinformation. However, most of these interviewees did not actively browse fact-checking information due to information overload or the lack of value that they placed on knowing something was fake.

Several key factors influencing how interviewees evaluated COVID-19 information, including "positive energy" and their perceptions of censorship, political perspectives, and geopolitical perspectives, emerged from their use of these information sources.

## 4.1 “Positive Energy”

An interesting and unexpectedly prevalent theme that emerged in the data was “positive energy” (正能量). Originating from public discussions of everyday life topics, “positive energy” has been enriched by a variety of virtues that are relevant to positive emotions, including cohesion, love, care, social responsibility, pride for one’s country, and so on. Prior research has argued that the popularity of “positive energy” on social media in China has been promoted in political discourse by the government, who frequently uses it in official speeches for public opinion management [13]. All interviewees mentioned “positive energy” or “negative energy” and shared their perceptions of these concepts in relation to the COVID-19 pandemic and their evaluation of information.

*4.1.1 Information with “Positive Energy” is Perceived as Necessary and Desirable.* As shown in prior research, crisis events and pandemics are often a source of anxiety, fear, or sadness, which influences people’s mental well-being [29, 34]. Our interviewees also explicitly mentioned being emotionally affected by the pandemic. Because of this, 16 interviewees noted that they actively embraced “positive energy” due to its benefits to their personal emotions and well-being, e.g., “I felt so sad when I saw those news about people losing their families. I even needed to go to my psychologist for help. I need “positive energy” to avoid being depressed during this tough time” (P6).

Due to the positive connotations associated with “positive energy”, 22 interviewees noted that they wanted to see stories that reflected “positive energy” shared widely on social media to ‘cheer up the crowd’, e.g., “It is great to report more information with “positive energy”; such as something about national economic development and scientific and technological development” (P16). To this interviewee, “positive energy” could bring confidence to the public that the state has the resources to control the pandemic, which would be desirable to see during the pandemic.

Several interviewees also perceived a high level of credulity when encountering information with “positive energy” on social media, e.g., “I think that if an article is reasonable and can bring us some positive energy, it is a good article” (P13). In fact, interviewees indicated a more lax approach to the evaluation of “positive energy” information and some expressed acceptance of the spread of such information regardless of its veracity, e.g., “For information with “positive energy”, no matter if it is true or false, I think it should be allowed to be spread online. It will not have a negative impact on society” (P26). For this interviewee, valence seemed more important than veracity.

*4.1.2 “Positive Energy” on Official vs. Citizen Media.* An overwhelming number of interviewees (N=30) reported that they trusted official media such as the People’s Daily more than citizen media due to the perceived authoritativeness of official media. “Positive energy” played an important role in their trust in official media. Over half of the interviewees (N=18) noted that the information shared on official media was often related to “positive energy”. They were aware that content with “negative energy”, even if it was true, might not be reported by official media, however, they still preferred to consume news from official media, e.g.,

*“Official media often avoid releasing information that is too negative. It is not because they do not pay attention to negative parts. Even if they talk more about negative situations, problems cannot be solved and it brings more negative emotions to people.” (P32).*

Some interviewees also noted that for official media, promoting content with “positive energy” helped people gain more confidence in the government, e.g., “It is true that some families and individuals are suffering in Wuhan, but official media should not cover all these individual tragedies. They should focus on the overall situation and making good control of COVID-19 on the country level” (P12). In general, citizen media was perceived as less trustworthy by some interviewees because they felt that the content shared by citizen media tended to be emotional, subjective, and related to “negative energy”, e.g., “I followed many WeChat public accounts, for example, local life related. They

all began to share COVID-19 information since its outbreak. A lot of articles are very emotional and lacking evidence ... They sometimes share articles with “negative energy” to drive traffic” (P13). For this interviewee, “positive energy” was an important factor driving them to trust official media more than citizen media.

**4.1.3 “Positive Energy” Associated with Subject-Matter Experts.** Almost all interviewees noted that they trusted experts who were known nationwide, e.g., Nanshan Zhong who is a famous pulmonologist in Guangdong and played an important role in managing the SARS outbreak in 2003. Several interviewees associated “positive energy” with him when they saw news about how he worked hard to help Chinese people control the pandemic, even at the age of 84, which further contributed to their trust in him. Such medical science experts have become authorities and also opinion leaders on social media in China, and what they said was perceived as the golden standard by many interviewees, e.g., “Nanshan Zhong’s speech has a calming effect. Although I’m not sure if we can manage COVID-19 well, it seems that we can if he goes to Wuhan to investigate. Everyone likes to hear from such a person who has enough credibility in his field, and who shows some humor and respectable personalities at the same time” (P4). For this interviewee, the abstract concept of “positive energy” was associated with subject-matter experts with merits and virtues, and thus become more tangible.

**4.1.4 Acting Against “Negative Energy”.** Fifteen interviewees referred to several cases of negative news as “negative energy”. Due to the emotional toll such information may bring, these interviewees wanted to actively avoid seeing such information as much as possible, e.g., “I think the voices of ordinary people should be heard, but stories that were too negative should not be spread. During that time, I kept controlling myself not to watch videos that were showing tragedies of people in Wuhan. I think they should be true, but I don’t want to see them” (P27).

The most notable case was the public story of Fang Fang’s Wuhan Diary [66]. Fang Fang, a Chinese writer in Wuhan, used social media to share her ‘diary’ during the lock-down. The diary included some anecdotes that seemed negative, e.g., the suffering of some patients who could not be treated. The diary soon became controversial when an English translation of the diary began to pre-sell on Amazon. Several interviewees expressed concerns about Fang Fang’s Wuhan Diary, e.g., “Fang Fang’s Diary magnified the negative emotions a lot and caused some misunderstanding. Some tragedies did happen, but there are also positive situations. All the doctors are hard-working and people are trying their best to overcome this tough time. We should see both positive and negative sides” (P16). These interviewees had the impression that content with “negative energy” were often one-sided reports that focused on the negative side, so they actively avoided them.

Several interviewees also noted that they thought that information that could cause negative emotions should be controlled due to fears of the negative impacts it may have, e.g.,

*“Although some negative information may be true, it makes sense to me that the country control it over and over again. Some things are really not appropriate to be reported, or in other words, if reported, they could have a profound negative impact. For example, some anti-social people may retaliate against society after seeing such negative things” (P26).*

In an extreme case, P21 noted that he would take actions to combat “negative energy” and defend “positive energy” if he thought it was necessary, e.g., “If some people publish negative information, we will come up and guide the voice to positive one, just like two forces competing, and the positive one suppresses the negative one. Then they will no longer spread the rumor. For those who have no judgment, we bring out a right voice, and they will not be confused”. This shows that “positive energy” could potentially be the cause of trolling behaviors on social media in some cases.

**4.1.5 Backlash Against “Positive Energy”.** Although most interviewees embraced “positive energy”, there was a backlash against “positive energy”, especially by those who had more access to foreign media and interest in international affairs. For instance, P19, who regularly accessed foreign media through personal connections, thought that due to the government’s propaganda-like use of “positive energy”, many Internet users in China were becoming extremely nationalistic. She thought that this might be the root of some extreme nationalists, such as “the War Wolves”, who used VPNs to visit Facebook, Twitter or other websites blocked in China to troll users who have anti-China opinions [97]. She was afraid that this might have a negative impact on the society and the country, e.g., *“With many ‘War Wolves’ on social media, the Internet environment could be dominated by them, and become extreme and violent. It is like another ‘Culture Revolution’, where dissidents could be punished and trolled”*. She further added her concerns for the impact that extreme “positive energy” could have on geopolitical relationships, e.g.,

*“We could always see propaganda like ‘Amazing China’ on social media and I heard that many ‘War Wolves’ go trolling on Twitter. The Ministry of Foreign Affairs even supports them. I think it is silly, and could intensify conflicts between China and other countries”*.

This sentiment was echoed by P14, who also read news on foreign media regularly, *“It will worsen the impression of other countries on China. For example, when ‘War Wolves’ go on Twitter and troll other people, they will wonder why we are so aggressive? This is absolutely creating enemies”*.

The backlash made these interviewees actively avoid information sources that were full of “positive energy”, e.g., *“I prefer to read more objective facts about COVID-19, instead of just information full of ‘positive energy’”* (P6). These interviewees equated state-owned media with “positive energy”, seeking sources that provided information without this bias, e.g., *“I prefer non-state-owned official media, because they don’t have the responsibility of propaganda. State-owned official media are full of ‘positive energy’. It is meaningless and cannot improve supervision by public opinion. What we should do is to improve the deficiencies, not praise the strength”* (P14).

## 4.2 Perceptions of Censorship and its Effects on “Positive Energy”

“Positive energy” discourse seems to directly relate to how censorship operated during the beginning of COVID-19. During the “shelter in place” (禁足令) orders of COVID-19, interviewees reported urgently seeking up-to-date information on social media and paying attention to the government’s anti-epidemic preventative measures and how the government allocated resources. Information with “positive energy” and “negative energy” about COVID-19 were both spread widely, however, interviewees comments indicated that censorship affected the spread of information and helped maintain “positive energy”, thus contributing to social stability and efficiency in communication. Because of this, the majority of interviewees (N=26) exhibited pro-censorship attitudes.

**4.2.1 Censorship Use to Maintain “Positive Energy”.** Eighteen interviewees noted that the government occasionally censored content with “negative energy” about COVID-19, so it was rare for them to see such content on social media. Among these interviewees, thirteen supported the censoring of content with “negative energy” and believed that it was helpful for people to uphold “positive energy” during the pandemic, e.g., *“Sometimes true information can be negative, so it might be censored. The government censors it because it is not good. The government removing negative information indicates that those government officers have already realized where they made mistakes or did not do well, and thus would do better in the future. I believe our society will become better and better”* (P26). Again, it seems as if some interviewees prioritized valence more than veracity, even with their attitudes towards censorship.

**4.2.2 Censorship Use for Social Stability.** All interviewees claimed that they were aware of government censorship in China. Twenty two interviewees thought that the main purpose of such censorship was to maintain social stability, which was important during the pandemic, e.g.,

*“China has 56 ethnic groups with very different cultural backgrounds. The government needs to have censorship to guide public opinions and limit the spread of misinformation, to prevent people from being affected by information that threatens social stability, so that the entire country can rapidly recover from COVID-19 and continue to develop”* (P10).

These interviewees supported government censorship on “positive energy” because it helped regulate the country during the crisis. They thought that it enabled the government to filter information that might encourage panic about the situation, especially content with “negative energy”. This filtering helped prevent the COVID-19 situation from deteriorating, e.g., *“Many people may feel scared or depressed after consuming too much negative news during the COVID-19 public health crisis. If people become too panicked and anxious, the situation would be out of control. For example, people would stock up necessities, which makes it hard for people who are in need of them to get them”* (P1).

Eight interviewees also noted that censorship might make the voices of individuals unheard, however, five interviewees were still pro-censorship, citing that combating COVID-19 and the public interest were more important, e.g., *“In order to control COVID-19, the government needs to focus on high-level supervision and optimization. They can’t pay much attention to the suffering of individuals during the pandemic”* (P12). Thus, interviewees seemed to have more confidence in the government’s ability to control the pandemic than in other people’s self-consciousness and self-control during the pandemic.

**4.2.3 Censorship Use for Efficient Communication.** Interviewees noted that censorship that preserves “positive energy” could potentially increase efficiency in communication by filtering out inaccurate or ‘negative’ information. Fifteen interviewees thought censorship led to more timely flows of information. Obtaining first-hand and timely information during a crisis is important for people to make decisions [29]. Censorship and government sanctions can save time for those who seek accurate information by reducing the exposure to, and time spent, investigating inaccurate first-hand information online. Interviewees had divergent opinions on this. Several interviewees thought it was necessary to filter first-hand information and sacrifice timeliness for accuracy, e.g., *“Without censorship, it would be harder for the public to know which information is true, while getting reliable information is particular important in such public health crisis ”* (P10) and *“Censorship is necessary as much of the first-hand information about COVID-19 is not accurate. We should censor and filter the information, and then release it once we confirm it is not misinformation”* (P3). On the other hand, seven interviewees thought that timeliness should not be sacrificed and getting first-hand information was important, e.g., *“ We can only think objectively if we get first-hand information. Those content providers added some additional opinions and guidance to non-first-hand information, which would affect our judgement”* (P1).

### 4.3 Political Perspectives and Making Sense of Positive Energy

Since the outbreak of COVID-19, interviewees had been actively following information such as the number of infected cases in their local area and in the most severe areas, measures to protect themselves from being infected, and when they could get back to normal life. Interviewees’ personal understanding of the information ecosystem, as well as the public and private infrastructure that enables it, including their personal understanding of politics and their empathy with the government, all played an important role in their perceptions and evaluation of COVID-19 information. In

particular, several interviewees viewed the government response as in harmony with “positive energy”.

**4.3.1 Perceived Government Structure and Capability.** Interviewees expressed diverse personal understandings of politics and the government’s effect on the information shared on social media. These understandings shaped how they sought and evaluated information on social media.

Five interviewees highlighted some limitations they found in the government that affected the reception and distribution of information during COVID-19, e.g.,

*“Doctor Wenliang Li, one of the first doctors who spread the information of the discovery of COVID-19, did not get enough attention from the government. I think this mistake is due to the complex hierarchical government structure. Too many messages were reported to the government every day. His voice might not be heard by the decision makers” (P12).*

Seven interviewees also noted that the complex hierarchical government structures in China could result in information inconsistency among different levels of government, and thus result in the removal of some information that would cause confusion, e.g.,

*“Sometimes local governments released some information and then some days later they deleted the information. I think that is because sometimes there is some inconsistency between the information released by the central government and by the local government. In this case, the local governments are required to make information consistent with the central government by removing their released information” (P16).*

Although these interviewees were aware of the limitations and drawbacks of the government, they still trusted information shared by official media and the government because they believed that the central government would ultimately make the right decision, e.g., *“I think that our country’s leader can make the right decision. That is why almost everyone supports rules of ‘shelter in place’ and there’s no objection. We don’t want to cause too much trouble to the country” (P23).* It is such beliefs and confidence that made these interviewees trust the government and continue to support the government’s policies.

**4.3.2 Transparency.** Twelve interviewees also mentioned the role of transparency during COVID-19. Although they acknowledged that the hierarchical government structure and censorship made certain information difficult to disseminate to the public and thus reduced transparency, they thought this was necessary, especially during public crises, e.g., *“When something important happens, the government will not report it immediately. They will do research first, considering carefully about it, before letting the public know. This is their responsibility” (P1).* This was echoed by P3, a medical worker, e.g., *“First-hand information should be filtered by experts before being shared to the public, especially for COVID-19 information. Transparency should come after expert review”.*

Interestingly, five interviewees noted that the limitations of the government structure and media control also influenced the transparency of the government’s efforts in combating COVID-19. For them, instead of being concerned about information control, they were more concerned that the efforts of the government were not exposed enough to the public, e.g., *“Compared to Western governments, our government is far from enough for promoting itself. Instead of waiting for other countries to report our country, we should show more about our positive side, such as how hard-working we are to fight COVID-19. Although actions speak louder than words, without words, I can’t see what they’ve done” (P4).* This highlights our interviewees’ different expectations of transparency.

Interviewees held disputing views about transparency during COVID-19. Most mentioned disputes concerning whether the number of confirmed cases released by the government and official media was true. Ten interviewees claimed that the reported number in Wuhan might not be true, e.g., *“I think the government undercounted the number of deaths in Wuhan. One reason is that many*

people died before they were confirmed infected. The other is that the government probably did not want to make the public panicked” (P26). Other interviewees trusted the numbers reported by the government, even though they were aware that the government might sanction the data before publishing it, e.g., “If the government wants to lie to us, it is not meaningful to just undercount a little bit. But if the government undercount a lot, the public would notice it. It is very hard for the government to fool the public” (P16). This echoes findings of prior research, where people were found to use ‘common sense’ to make sense of information [44, 54].

**4.3.3 Overall Evaluation of the Government Response.** Prior research has argued that creating better transparency in crisis communication can significantly affect citizens’ trust in their government and the views of citizens towards government performance [8, 50]. Thus, in our interviews, we asked interviewees what they thought about the government response during COVID-19 and whether censorship and government sanctions had influenced their trust in the government.

When asked to evaluate the government response during COVID-19, most interviewees (23) compared it to other countries’ government responses and showed clear empathy for the government, e.g., “All the countries are faced with great challenges during the pandemic. We have such a large population in China, and the government needs to lead efforts from many different groups to coordinate ... Not many countries did as well as us” (P12). Almost all interviewees thought that after seeing the situation, they were satisfied with what the government had done, and showed tolerance to the mistakes the government had made, e.g., “The central government and all the people in China have tried our best to prevent the spread of COVID-19. The government did make some mistakes, but we should not blame them too much as they have done everything they can and the result is good” (P8). On the other hand, about one third of the interviewees mentioned that the local Wuhan government did not do well at the beginning, resulting in COVID-19 not getting enough attention and control in time, e.g., “I think the local Wuhan government did not report and release the information in time since they want to protect their government reputation” (P26).

## 4.4 Geopolitical Perspectives

As the pandemic spread across many countries, some interviewees also shifted their attention from local or domestic issues to international affairs. Eight interviewees intentionally follow Western media to consume COVID-19-related information about Western countries and understand how Western people view China. They obtained such information by using virtual private networks to visit websites blocked in mainland China, such as Facebook and Twitter, or through personal connections.

The rest of the interviewees (N=25) preferred to use domestic media for foreign news, either due to geopolitical ideologies or for convenience. The degree to which interviewees trust information from other countries does not solely depend on the credibility of source, but also their existing perceptions of international relationships and foreign media. Even if some interviewees were able to visit websites blocked in mainland China, they still chose domestic media as the primary source to obtain information about global COVID-19 pandemic.

**4.4.1 Receiving Information from Chinese Media Only.** Eighteen interviewees showed a strong interest in COVID-19-related information in other countries. Instead of using virtual private networks, they chose to use official Chinese or citizen media as their information source. For example, P16, an engineer in a public institution, was interested in international affairs but he thought that the Western press would not report news about China fairly. He chose not to trust news about the COVID-19 situation in China that was reported by Western media and was concerned about the negative effects of these sources, e.g.,

*“Western media serve Western countries, especially when their governments want to export their views to the world. The press is supposed to report news fairly, but how many of them reported China is controlling the spread of COVID-19 well? I remember that they once said Chinese government was going to abandon 20 thousand people with COVID-19 in Wuhan, which is ridiculous ... there are so many reports against China” (P16).*

With the assumption that Western countries hold a hostile attitude towards China and the knowledge he gained through investigation, he analyzed recent news and suspected that COVID-19’s origin was in the U.S., *“Why was Fort Detrick shut down before COVID-19? Why did COVID-19 outbreak just after Wuhan Military World Games ended? There are so many coincidences.” (P16).*

Some interviewees also mentioned that they encountered *second-hand* information about other countries from Chinese citizen media on Weibo, TikTok, and Kuaishou. On these platforms, citizen media or individual content providers sometimes reposted stories about COVID-19 from YouTube, Facebook, or Twitter. These media were a primary source of COVID-19 information about other countries for several interviewees, especially those who are in rural areas and those who only had local personal connections. For example, P23, a kindergarten teacher in a rural area, never thought about using virtual private networks to visit other countries’ websites and had never intentionally searched for information about COVID-19 from other countries. She saw some videos posted by individual content providers about what was happening on the streets in the U.S. on TikTok and Kuaishou, e.g., *“No one is wearing a mask on the street. People in other countries refused to cooperate with the government. They always want ‘freedom’. I think the Chinese are doing better than them as we know how to follow government’s lead”.* Her opinions on Western countries and Western people were largely shaped by the opinions of content providers on TikTok and Kuaishou and the comments from other Chinese users on the videos she saw.

P21 chose not to visit websites outside China, or discuss any political information coming from abroad. Based on his personal experience in the media industry, he expressed his distrust of Western media in general, e.g., *“I was told that a lot of water warriors were spreading information against our political party both inside and outside the mainland. They are trying to mislead our people. My response is ignoring it and not spreading it”.* Instead of being sponsored by Chinese government, he suggested that these ‘water warriors’ were sponsored by anti-China organizations.

**4.4.2 Actively Seeking Information from Foreign Media.** Seven interviewees reported seeking international COVID-19-related information through friends or acquaintances who have access to blocked websites. For example, P19, a university faculty member, thought that official and citizen media in China were not reliable sources due to their censorship.

Her main source of global information was via friends in a WeChat group of university faculty. She thus made inferences about foreign news based on messages on WeChat, her personal experience, and published local news. Through interactions with the group chat, she believed in the conspiracy theory that COVID-19 was accidentally leaked from a virology laboratory in Wuhan, e.g.,

*“P4 laboratory in Wuhan has a military background. Zhengli Shi’s team applied for a patent of Remdesivir just a few days after Wuhan was locked down. I believe that they have been doing research on COVID-19 for a long time. Americans might cooperate with Chinese in the research. That’s why China and U.S. are shifting the blame to each other right now”.*

Her belief in the conspiracy theory was reinforced by her personal experiences and her knowledge of local news and policies, e.g., *“The university is asking us to be more careful about laboratories’ security to avoid any potential chemical leak. Why did they become so careful at this time? No one goes to the university in these days. This gives me a message that something happened”.*

Though rare, four interviewees with higher education levels used virtual private networks to access foreign media, such as The New York Times, Facebook, and Twitter. For instance, P14, a master's student, used them frequently because she wanted to receive unbiased and uncensored information, e.g., *“Chinese media are trying to give us the impression that other countries are our enemies, and all of them are worse than China. Other countries don't have such a strong censorship as we do, people are free to share their opinions, so there are many different voices”*. With the use of virtual private networks, she found that many foreign media outlets reported about China from multiple perspectives, e.g., *“New York Times used ‘Chinese Virus’ in the report, but it also complimented China's high efficiency in controlling COVID-19. But some Chinese unofficial media only reposted the ‘Chinese Virus’ part”*.

## 5 DISCUSSION

These results provided a snapshot of the information behaviors employed during the COVID-19 pandemic in China and exposed the influences “positive energy”, political trust, geopolitical views, emotions, and propaganda have on information sharing and evaluation behaviors during global events such as pandemics. We now reflect on the findings and tie them into a broader discussion of how people perceive and evaluate the veracity of information on social media.

### 5.1 “Positive Energy” as Strategic Information Operations

*5.1.1 Complicated Information Ecosystems Shaped around “Positive Energy”*. Interviewees used a diverse range of media sources for COVID-19-related information, including WeChat, Weibo, Baidu, Toutiao, TikTok, and traditional media like CCTV. Due to the prevalence of health-related misinformation on WeChat and other Chinese social media platforms [54, 99], interviewees were very cautious about choosing sources of COVID-19 information. They tended to trust platforms where content with ‘positive energy’ is prevalent such as state-owned official media and recognized experts, rather than citizen media. WeChat group chats of close-tie connections and feeds from friends were also an important source of information. In general, even if some interviewees thought the government was not transparent during the early stages of the COVID-19 outbreak in Wuhan, they still trusted official media more than citizen media, which echoes prior findings [54].

In an emerging trend, short videos widely shared on TikTok and Kuaishou were also a significant source of both domestic and international information, especially for young and rural interviewees. For some, videos reposted from YouTube, Facebook, and Twitter by individual content providers were the main sources of information about international affairs, even though most content on these platforms is for entertainment purposes. To attract more attention, these content providers often embed pro-government or “positive energy” sentiments into their content [12]. This is concerning considering that YouTube, Facebook, and Twitter barely track content reposted to Chinese social media, some of which may spread misinformation at scale. Even if the original posts that contain misinformation are moderated on YouTube, Facebook or Twitter, reposted content may be left intact on social media in China. A single case of such reposting would have little impact, but when such inequality persists over years, the cumulative effects could be significant and long-lasting [85], i.e., social media platforms in China may not censor or moderate such misinformation and users could keep receiving misinformation by algorithm-driven information flows on these platforms. This could eventually lead them to form biased geopolitical opinions, become more extreme or nationalistic, or join in collective actions to troll people of different ideologies [97]. This issue also presents obvious challenges with respect to combating bilingual misinformation, cross-platform and cross-border misinformation, and misinformation on modalities beyond text, which as this work has demonstrated, are more pressing and urgent within the context of a pandemic.

**5.1.2 ‘Positive Energy’ and Information Operations.** Emotion is always an important factor that influences people’s behaviors during public crises [34]. Huang et al. [34] found that there was a shift in trust from journalists and mainstream media to social media users who are emotionally close to the information-seeker during the 2013 Boston Marathon Bombings. In the present study, this shift was *not* evident. Compared to prior findings by Wang and Mark [96] that discovered that many young people in China trusted citizen media more than official media, the present study found that most interviewees shifted their trust from citizen media to official media during the COVID-19 pandemic.

This trend might be explained by the emotional manipulation and ideological workings of “positive energy” in China [13]. During the COVID-19 pandemic, which exhibited levels of fear and uncertainty common in crisis situations [88], information with “positive energy” appealed to interviewees. While being exposed to social media filled with content about “positive energy”, users could be manipulated to be emotionally closer to official media. We argue that the use of “positive energy” as a propaganda discourse tool should be considered to be a strategic information operation [85]. It differs from astroturfing or ‘water armies’ in that it does not transmit information through explicitly coordinated actors (e.g., bots or paid workers), but relies heavily on persuading audiences to become “unwitting agents” [6, 76], i.e., actors whose views are shaped by information operation and who unwittingly support the generation and transmission of the operation’s preferred narratives. People who find the discourse of “positive energy” appealing will voluntarily share these messages at a grassroots level, leading the messages to spread through multiple platforms and in multiple modalities (i.e., text, image, videos, etc.) and be amplified by other grassroots intermediaries [85].

Evidence was also found that the effects of “positive energy” may be deeply rooted in social and cultural factors of Chinese social media use. According to Wang [95], many social media users in China are both migrants who moved from rural to urban areas and “digital immigrants” who grew up in the analogue era but joined the digital world at a later stage in life. On their social media accounts, they often shared images and posts that reflected their good will for future life. For these users, social media served as a window to see a wonderful world, where nothing negative existed. This notion applies to some of our interviewees, which could explain why they were easily attracted by “positive energy”, or even willing to defend it on behalf of their country.

## 5.2 “Positive Energy” and its Broader Impact

“Positive energy” appeals to Chinese people mostly due to its association with optimistic attitudes and positive behaviors, especially among grassroots individuals. It encourages average Chinese people to stay positive, remain ambitious, and work hard to make more contributions to the Chinese society [92]. It also encourages people to maintain social harmony and redirects the pursuit of personal success to make contributions to the nation [73]. “Positive energy” can be seen as a type of ‘Chinese dream’ as it aligns people’s personal goals with social desires. “Positive energy” was even more desirable than it normally was during the pandemic because of psychological fatigue due to shelter in place orders, increased anxiety and the lasting uncertainty.

**5.2.1 Patriotism and Nationalism.** “Positive energy” is directly related to *patriotism* and *nationalism*. Nationalism and collectivism are both critical constructs of modern Chinese society and correlate with patriotism [33, 53]. Chinese nationalists claimed that their personal identity was emotionally connected to their national identity. Such emotional attachment often results from top-down government manipulation. [53]. “Positive energy” can be seen as a manipulation strategy of the state that generates emotional attachment between individuals and the state. However, individuals may not realize it because “positive energy” is not directly connected to the state, and the definition

of positivity is vague and subject to manipulation [13]. Such emotional attachment could potentially contribute to individuals' empathy with the government, pro-censorship attitudes, sense of social responsibility, and actions against "negative energy".

The nationalism we witnessed was also a product of contemporary geopolitics. Interviewees have access to information about global affairs either through direct access via virtual private networks or via second-hand information. By comparing how effectively different countries are containing the virus, even through unreliable sources, nationalism or patriotism can be reinforced, which also creates more "positive energy" sentiments. However, it can potentially generate extreme nationalists who collectively act together online to troll people with different ideologies [97].

"Positive energy" is a dispersed and intangible power that can easily be internalized by individuals. As shown in the findings, "positive energy" plays an important role in how interviewees seek and evaluate COVID-19-related information on social media. In general, interviewees prioritized information valence over veracity, and were more willing to follow content providers who share content with "positive energy". Social media platforms where "positive energy" was prevalent were also preferred for seeking information (e.g., TikTok or Kuaishou). Even when evaluating fact-checking, censorship, or political or geopolitical issues, "positive energy" could potentially influence their judgement. These findings suggest that "positive energy" should be carefully considered as an important factor when understanding social media and misinformation, especially in the Chinese context or other contexts where similar information operations exist.

*5.2.2 Public Trust in the Government During the Pandemic.* 'Positive energy' might also make Chinese people hold more positive attitudes towards the government and become more satisfied with the responses of the government during COVID-19. Compared to other countries, public trust in the Chinese government has been highly rated [21]. Generally accepting the government's perspectives, many interviewees trusted the government and supported its measures and policies to control COVID-19. Recent work has claimed that creating better transparency in crisis communications can significantly affect citizens' trust in the government and the views of citizens towards government performance [8]. However, although many interviewees perceived the existence of censorship and decreased transparency, it did not significantly affect their trust in the government or their satisfaction of the government's performance in controlling the pandemic. There was also a high level of tolerance towards past mistakes at the beginning of the outbreak of COVID-19. These views may partly result from the comparisons interviewees made between the responses and achievements of different governments around the globe to controlling COVID-19.

Prior work has also suggested that public trust in central and local governments in China is positively correlated [38], where people in rural China may have more trust in the central government than in local governments [51]. Our results showed that for both urban and rural interviewees, the level of perceived trust in the central government and local government was independent. Most interviewees expressed their satisfaction with the central government's response to the pandemic yet had varying degrees of satisfaction with local governments. Some interviewees also thought that strict local censorship policies were due to local governments applying much stricter censorship restrictions to ensure that they were within the limits of the central government's boundaries.

*5.2.3 Non-Western Values.* In general, this work exposed the unique patterns and practices in the Chinese information ecosystem during crisis events. Most interviewees were likely to accept, and even prefer, information from government sources or state-run media outlets in addition to the censorship of other sources. Attitudes favoring ideals seen in Western countries such as free speech were often non-existent, or took a backseat to practices that promoted information that could prevent unrest, including the consideration of the perceived effect of information on public

opinions and morals. These findings highlight how different the information ecosystem is in China from other countries, not only because of the different structures, infrastructures, government controls and interventions, but also due to the attitudes and beliefs held by the people using these services, regardless of if they were actively managed and manipulated by the government or not.

### 5.3 Limitations

This research has several limitations. To capture users’ behaviors and perceptions, interviewees were recruited not long after the outbreak of COVID-19 in China. However, the recruiting, scheduling and interviewing process, which was done remotely and during a pandemic, lasted longer than desired, with some interviewees joining in a later phase of our study when concerns about COVID-19, depending on where they were located, were lessened. This challenge of conducting real-time research in crisis has been noted by prior research [34].

Additionally, although we attempted to recruit a diverse set of interviewees, the sample was, on average, more educated than the general population. Interviewees from urban areas skewed a little more tech-savvy because they were recruited through social media, while interviewees from rural areas were recruited through snowball sampling and were potentially demographically skewed towards ourselves (i.e., educators and researchers). Recruiting interviewees via posts on social media may have also skewed the sample towards those who were willing to express personal opinions. Censorship of COVID-19-related post could have also skewed the sample, though the high response rate suggests that the impact might be minimal. Due to the constraints of COVID-19, we could not conduct in-person interviews, and instead used software of interviewee’s choice, which could have potentially influenced how interviewees responded to our questions if they were concerned about being censored.

## 6 CONCLUSION

Through interview-based studies with Chinese social media users, this work explored how people in China sought out, and evaluated, information during the COVID-19 pandemic. The results demonstrated that interviewees tended to seek COVID-19-related information from a diverse range of Chinese domestic social media platforms, where content with “positive energy” was prevalent. Most interviewees also perceived content with “positive energy” as desirable and necessary due to its positive impact on their emotions. On the other hand, several interviewees tended to reduce their exposure to, and sharing of, content with “negative energy”, and some even acted to silence such content. This extreme positivity made some interviewees aware of the potential bias and nationalism brought about by “positive energy”, and in turn made them seek out unbiased sources of information, however, a significant number of interviewees expressed a preference for such positive content and exhibited a willingness to prioritize information valence over veracity when reviewing and sharing content. The interviews also revealed that other considerations, including interviewees’ personal and social experiences and their own understanding of the government’s infrastructure, influenced their attitudes towards censorship and their evaluation of the government’s response to the pandemic. For example, for many interviewees, sacrificing the timeliness of information for the sake of information accuracy and social stability was deemed acceptable. Overall, this research has exposed attitudes towards crisis information in China that are markedly different than Western views, and highlighted the unique challenges that exist within the Chinese information ecosystem related to misinformation.

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## A DEMOGRAPHICS OF INTERVIEWEES

Table 2 provides detailed information about demographics of the interviewees for better contextualization of the study and interviewee quotes.

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Table 2. Summary of participants interviewed. Information source: WC-WeChat, WB-Weibo, T-Toutiao, CCTV-China Central Television, P-The Paper, others are specified

ID	Urban/ Rural	Sex	Age	Location	Occupation	Information Source	Education
P1	Urban	M	18	Henan	High school student	WB, Baidu, QQ, WC	High School
P2	Urban	M	33	Hubei	Business manager	WB, Toutiao	Master’s
P3	Urban	M	26	Zhengzhou	Doctor	WC	Master’s
P4	Urban	F	23	Shanghai	Unemployed	WB, Douban	Bachelor’s
P5	Urban	M	27	Yinchuan	Student	WB, WC, Toutiao	Master’s
P6	Urban	F	26	Guangzhou	K12-education	WB, CCTV, Douban	Bachelor’s
P7	Urban	F	26	Shanghai	Marketing assistant	WC, Douban, Caixin	Bachelor’s
P8	Urban	F	21	Hunan	Undergraduate student	WC, Douban, P	Bachelor’s
P9	Urban	F	30	Yunnan	Self-employed	WC	High School
P10	Urban	F	22	Nanchong	Postgraduate student	WC, WB	Master’s
P11	Urban	F	33	Xiamen	Postgraduate student	WC	Master’s
P12	Urban	M	31	Shijiazhuang	Office clerk	WC, Bilibili, TikTok	Bachelor’s
P13	Urban	F	31	Beijing	Postgraduate student	WC, CCTV	PhD
P14	Urban	F	30	Yinchuan	Postgraduate student	WC, WB, P	Master’s
P15	Urban	M	60	Yinchuan	Office clerk	WC	Bachelor
P16	Urban	M	62	Xi’an	Engineer	WC, CCTV	Master’s
P17	Urban	M	33	Wuhan	Cook	WC, Bloomberg	High school
P18	Urban	F	33	Yinchuan	Teacher	WC, WB, Zhihu	Master’s
P19	Urban	F	55	Yinchuan	University faculty	WC	Master’s
P20	Urban	F	57	Yinchuan	Teacher	WC, CCTV	Master’s
P21	Rural	M	43	Huinong	Small business owner	T, Tiktok	College
P22	Rural	F	31	Hongsibu	Teacher	Baidu, WC	College
P23	Rural	F	28	Hongsibu	Kindergarten teacher	WC, T, CCTV	College
P24	Rural	M	31	Hongsibu	Service industry	Baidu, WC	College
P25	Rural	F	23	Hongsibu	Kindergarten teacher	Kuaishou, T	College
P26	Rural	M	45	Hongsibu	Teacher	T, WC	Bachelor’s
P27	Rural	F	40	Hongsibu	Office clerk	CCTV, WC	College
P28	Rural	F	25	Hongsibu	Kindergarten teacher	Kuaishou, WC	College
P29	Rural	M	38	Huinong	Small business owner	CCTV, WC, TikTok	High school
P30	Rural	M	40	Huinong	Farmer	Kuaishou, QQ	High school
P31	Rural	M	53	Huinong	Small business owner	CCTV	High school
P32	Rural	F	23	Hongsibu	Kindergarten teacher	Kuaishou, TikTok	Bachelor’s
P33	Rural	F	29	Hongsibu	Teacher	WC, Baidu, TikTok	College