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

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The outbreak of COVID-19 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. On these platforms, government censorship policies, astroturfers, and other government interventions have contributed to an increasingly complex social media environment. People have to evaluate the trustworthiness of COVID-19-related information and make sharing decisions in such a complex environment. We conducted interviews with 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 that COVID-19-related content with "positive energy" is 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 that Chinese citizens' understanding of information ecosystems plays an important role in their attitudes towards censorship and official media, and their evaluation of both domestic and international information during the 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 individuals seek assistance and support, develop situational awareness, and recover from disruption [29, 34, 77, 87]. However, due to 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.

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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" such as Shuanghuanglian, a traditional Chinese herbal medicine, or conspiracy theories about the origins of the COVID-19 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 are 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 seen adoption in everyday Chinese political discourse on social media, and social media users have gradually "internalized the interests of the state as their own good" [13]. The perception of these activities and factors might influence how people consume and evaluate COVID-19-related information during the pandemic.

Although prior research in HCI and CSCW has explored social media trust in China [96], 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 the health crises in China, where the media landscape is different from most Western countries that have been studied. Although prior research in other domains have investigated misinformation and media dependencies during public health crisis of 2003 SARS epidemic in China (e.g., [55, 91]), most of them were conducted prior to the emergence of many social media platforms such as WeChat and TikTok. The ever-shifting media environments in China require re-examination of misinformation during public health crisis such as COVID-19.

To understand how people evaluate, seek, and make sharing decisions about COVID-19-related information on social media in China and how factors such as 'positive energy' influence these information behaviors during the pandemic, we conducted remote in-depth semi-structured interviews with 33 Chinese citizens located in rural or urban mainland China between February and May 2020, following the COVID-19 outbreak. The interviews identified a diverse range of information sources Chinese people use to seek and encounter COVID-19-related information and key factors that influence their evaluation of this information on social media.

We demonstrate that veracity is not the only factor when people evaluate COVID-19-related information. Many interviewees indicated that they prioritized *valence* over veracity during the pandemic. We found that the notion of "positive energy", prevalent in popular Chinese culture and used for media discourse propaganda by the government, had a significant impact on how people 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 of our interviewees' accounts showed that they were easily attracted to information with "positive energy", and some would even act against the spread of information with "negative energy" even when they perceived it as true. On the other hand, such extreme positivity led to a backlash against "positive energy" for some interviewees. Afraid that it could make more people biased and ignorant, these interviewees described attempting to avoid information with "positive energy".

Although interviewees were aware of censorship on social media, they mostly reported that censorship does not have much influence on their trust in COVID-19 information shared by official media and the government. The interviewees' general trust in government originates

from their understanding of 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 VPNs to access external media.

The findings of our research into perceptions of COVID-19-related information on social media in China shed light on the challenges that exist with misinformation in the digital news ecosystem during the pandemic, and provide implications for understanding misinformation problems in a global context. Thus, this work makes the following contributions to CSCW:

- This study broadly documents how interviewees from both rural and urban China receive, evaluate, and make sharing decisions about COVID-19-related information on social media in China during the pandemic. These findings will help the CSCW community better understand the critically important Chinese social media environment in this historical moment.
- This study shows the importance of "positive energy" in the way that Chinese social media users interpret COVID-19-related information. We highlight that not only confirmation bias and myside bias, but also *valence bias*, can influence how people seek, evaluate, and share information on social media.

2 BACKGROUND AND RELATED WORK

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

2.1 Chinese Social Media Environment and Government Interventions

China is known to have the largest population of active social media users in the world [15, 89], who mostly only use domestic platforms such as WeChat, Weibo, and Toutiao. On these platforms, individuals, companies, organizations, or government agencies can create public-facing accounts, e.g., 'public accounts' on WeChat, for information exchanging and broadcasting [54]. With such accounts, content creators can publish content in forms such as blog post, news article, podcast, or short-form video, and other users can subscribe to get notifications whenever the account publishes something new. These accounts can be classified into two types of media that are of interest in this work: official media and citizen media [54, 96].

2.1.1 Official Media and Citizen Media. Official media often refer 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 often involves professional journalists and is subject to editorial procedures, fact-checking, and government sanctions [75]. Citizen media are often operated by individual content providers, organizations, or commercial companies for self-expression, economic interest, or social and political goals [23]. Citizen media tend to add their own subjective and emotional comments to attract attention [95]. These media also enable "random acts of journalism" to happen when individuals are present at a newsworthy event and publish what they witness or observe [47]. Citizen media can become public spheres where individuals freely discuss public affairs, although they might be 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 applies Internet censorship to social media platforms. Human censors are hired to censor sensitive posts, comments, and misinformation on social media according to the official guidelines [39]. Social

media platforms often apply their own stricter removal policies to ensure that the content shared within the platform meets the ever-changing official criteria for being appropriate. Once a comment or an article is detected as improper, the platform would remove the content and block access to it [40, 45]. Astroturfing is another example of government intervention. "Water warriors" or astroturfers are organized commenters who add comments of certain flavor online. They are often sponsored by companies, organizations, or the government to guide public opinions for strategic distraction or other economic, social, or political purposes [41, 61]. However, some individuals who behave like astroturfers may not be organized or sponsored; they may be average social media users who share the same sentiments and opinions as astroturfers online [30, 31].

2.1.3 "Positive Energy". "Positive energy" (正能量), a popular social byword, was not directly invented by the state but appropriated from popular culture. "Positive energy" is an emergent subculture developed in post-reform China [92] and began to gain traction in 2012 through a hashtag movement on Weibo during the London Olympics that was supporting 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. "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]. Despite its political implications, "positive energy" is also closely associated with optimistic attitudes, inspiring manners, and positive behaviors, especially among 'grassroots'. It is frequently used by Chinese citizens on their social media for everyday life content. For example, many social media platforms such as TikTok have "positive energy" trending pages to promote the state ideology and patriotism [37]. The notion has gradually encouraged social media users to "internalize the interests of the state as their own good", and transformed positive emotion (e.g., pride, gratitude, and happiness) into an emphasis on 'positive propaganda' [13].

Given the complicated and ever-shifting social media environment in China, our work explores how Chinese social media users seek, evaluate, and make sharing decisions about COVID-19 information, and how "positive energy" influences these behaviors during the pandemic.

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

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

During crises, accessing and exchanging real-time, locally sourced information efficiently is important because it is often 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 play an important role in disseminating disease outbreak-related information [63], getting useful information about preventive measures [14, 72], and assessing risks to make decisions [16, 29]. However, social media are vulnerable to the spread of misinformation, thus becoming 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 exists on Twitter during the COVID-19 pandemic, including misinformation about vaccination 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, and so on.

Spreading rumors is a long-standing tenet during crises when people are reacting to information ambiguity and scarcity [2, 17, 81]. During public health crises, rumors often emerge when the demand for information grows and serve as a way for people 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 for people to deal with panic situations [3, 7, 11], and are often seen as improvised news, collective problem solving, or a social coping mechanism for a cathartic purpose [7, 26, 81].

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

Over the past decades, a large number of conspiracy theories about public health have emerged, which have a large impact on public health crises [52, 88]. Their origins and consequences have attracted a lot of attention from researchers. Grimwood [28] showed that a conspiracy theory of HIV/AIDS impeded prevention efforts from the government so that patients were not able to receive proper treatments. Nerlich and Koteyko [65] suggested that conspiracy theories could impede efforts to public health crises by studying the case of 2009 swine flu pandemic. Klonoff and Hope [42] demonstrated that people prefer to trust some specific conspiracy theories based on their background and ideologies. 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 in 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. 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 even drove 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] demonstrated the reasons 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 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, we do not explicitly focus our study on these in our study.

2.3 Perceptions of Information Trustworthiness on Social Media

The complexity of social media environment 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]. Prior research in HCI and CSCW has explored how people evaluate the trustworthiness of information on social media. Geeng et al. [27] explored how people react to low-credibility posts on Facebook and Twitter. Wang and Mark [96] have demonstrated that based on content quality and source credibility [25], most social media users highly prefer to trust one media channel, either official media or citizen media, over another. Kow et al. [46] showed that most social media users preferred not to act on political misinformation. Research on social media censorship and trust came to

different 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 current complex social media environment in China and explored how censorship and fact-checking affect 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 themselves have become increasingly prevalent around the globe [48]. For example, most social media platforms in China embed fact-checking tools to detect misinformation and let users easily report misinformation to the platform [54], although such approaches may not sufficiently identify misinformation [22].

During the SARS outbreak in 2003, the deliberate blockade of information led to a debate about information control from the Chinese government [56]. These kinds of media scandals might have significantly affected the level of trust news consumers have in official media and the government [96]. Thus, some social media users sought alternative channels for information – citizen media. Because of the advantage of collective action, crowd confirmation, and collective interpretation of citizen media, some users are exposed to diverse public comments and opinions and develop more trust in news shared by citizen media [96]. However, because of the lack of moderation, the abuse of citizen media by individuals or organizers makes 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 of digesting information [10] because people often prefer to interact more with like-minded others [93]. Opinion polarization may 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, the advent and rapid growth of citizen media may lead to different perceptions of social media environments in China under a similar worldwide pandemic 17 years later.

With a qualitative interview study, we explore the level of trust and the attitudes of news consumers towards different media channels, obtain in-depth perspectives on how different factors, such as perceptions of censorship and political and geopolitical perspectives, affect news consumers' information trustworthiness during this special COVID-19 period. Prior research on "positive energy" focused on why and how this phenomenon appeared, but never explored how "positive energy" affects how people seek and share information. In this paper, we try to understand how "positive energy" affects attitudes and beliefs in China after the COVID-19 outbreak.

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.

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 via 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

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						

during COVID-19, many potential candidates did not have concerns about our study and expressed their willingness to participate. We received much more than enough respondents from those who were under 35 years old and living in urban areas (31 in total). To balance age, gender, and location, we only invited 16 of them to participate in our study. We then tried to diversify our sample by reaching out to other potential interviewees through personal connections, targeting people over 35 years old or living in rural areas. Seventeen interviewees were recruited through this approach. In the end, a total of 20 people from urban areas and 13 from rural areas were interviewed (18 female). The average age of interviewees was 34 (range = 18 – 62). Nevertheless, our sample was on average more educated than the general population in China, as shown in Table 1. The interviews were conducted between February 2020 to 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, the interviewees were asked to share several pieces of news about COVID-19 they had read or encountered, which were used as probes during their interviews. During each interview, we asked about what COVID-19-related information mattered to the interviewees, 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 the interviewees sought and evaluated both 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. We also asked about interviewees' thoughts related to major news stories that were related to the COVID-19 pandemic, such as the death of Wenliang Li, Fang Fang's diary, and the herbal remedy of Shuanghuanglian. With approval from the 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 the 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 interviewees shared prior to the interviews were also referenced during the analysis for context. Three authors who were native Mandarin speakers coded segments of the transcriptions individually, then discussed to reach agreement on the coding to come up with a codebook. Each author then categorize the rest of the transcriptions according to the codebook. All the codes associated with themes were translated into English, and were discussed by the broader research team to group 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 and several key factors in how they evaluate COVID-19 information, including 'positive energy', perceptions of censorship, political perspectives, and geopolitical perspectives. We first provide a brief description of sources of COVID-19 information of the interviewees for context, then detail how these key factors influence the interviewees' evaluation of COVID-19 information.

Social media was a primary source for our interviewees to seek COVID-19 news, similar to prior findings [44, 54], although there were nuances in what platforms they used and how they used them. Generally speaking, interviewees reported consuming COVID-19 news from a diverse range of social media, including close-tie social media like WeChat, Twitter-like social media such as Weibo, and algorithm-based recommendation news feeds like Toutiao. All interviewees used mobile versions of these platforms and they 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 from these apps that are 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 seek COVID-19 information (N=14). They occasionally encountered COVID-19 information in videos about real-life experiences or local events. Due to the 'playful' nature of these platforms, these interviewees did not care much about the credibility of the videos.

Different from prior findings about low awareness of fact-checking features on WeChat [54], 22 interviewees mentioned that they regularly encountered fact-checking information on WeChat and Weibo during COVID-19, such as detailed debunking articles with evidence about widely spread misinformation. However, most of them did not actively browse fact-checking information due to information overload or the perceived low practical value of knowing something is fake.

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 emotion, including cohesion, love, care, social responsibility, pride for one's country, etc. 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 concerning 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 emotion 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 reflect "positive energy" to be 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 them, "positive energy" could bring confidence to the public that the state has the resources and conditions to control the pandemic, and thus desirable to these interviewees 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, interviewee accounts 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). Valence seems more important than veracity for them.

4.1.2 "Positive Energy" on Official media vs. Citizen Media. An overwhelming number of interviewees (30) reported that they trusted official media such as People's Daily more than citizen media for COVID-19 information due to the perceived authoritativeness of official media. "Positive energy" also plays an important role in their trust in official media. Over half of the interviewees (18) noted that the information shared on official media was often related to "positive energy" . They were mostly aware that content with "negative energy", even 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 of them 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). Citizen media were perceived as less trustworthy in general 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). "Positive energy" is an important factor for them to trust official media more than citizen media.

4.1.3 "Positive Energy" Associated with Subject-Matter Experts. Almost all interviewees also 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 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 for 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). In this case, the abstract concept of "positive energy" is associated with subject-matter experts with merits and virtues, and thus becomes 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 expressed that they 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.*, suffering of some patients who could not be treated. It soon became controversial on the Internet when the English translation of the diary began to pre-sell on Amazon. Several interviewees expressed their 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" was often one-sided report that focused on the negative side, so they actively avoided it.

Several interviewees even 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 suppress 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 some trolling behaviors on social media in some cases.

4.1.5 The 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 and other websites blocked in China to troll users who have anti-China opinions [97]. She was afraid that this might have 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 becomes extreme and violent. It is like another 'Culture Revolution', where dissidents could be punished and trolled*". She further added her concerns for the impact 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 is 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 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 during COVID-19

During the "shelter in place" (禁足令) orders of COVID-19, our interviewees reported urgently seeking up-to-date information on social media and paying much attention to the government's anti-epidemic preventative measures and how the government allocates resources. Interviewees' perceptions of censorship played an important role in their perceptions and evaluations of COVID-19 information. The majority of interviewees (26) exhibited pro-censorship attitudes.

4.2.1 Censorship 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 is 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 because it helped regulate the country during the crisis. They thought that it enabled government to filter out information that might make people panicked about the situation, especially content with "negative energy", in order to 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 voices of individuals unheard, however, 5 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 sufferings of individuals during the pandemic*" (P12). 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.

4.2.2 Censorship for Efficiency in Communication. Fifteen interviewees also 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 on investigating inaccurate first-hand information online. Our interviewees had different 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).

4.2.3 Censorship for Maintaining "Positive Energy". Eighteen interviewees noted that the government sometimes censored content with "negative energy" about COVID-19, so it was rare for them to see such content on social media. Among these interviewees, 13 supported the censoring of content with "negative energy", and believed that it was helpful for people to uphold the "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, valence is more prioritized than veracity, even for their attitudes towards censorship.

4.3 Political Perspectives

Since the outbreak of COVID-19, our interviewees have 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.

4.3.1 Perceived Government Structure and Capability. Our 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 maker"* (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 resulting in 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 support their policies.

4.3.2 Transparency. Twelve interviewees also mentioned their perceptions and attitudes towards transparency during COVID-19. Although they acknowledged that the hierarchical government structure and censorship made certain information hard to reach the public and influenced the transparency, they thought this is necessary especially during public crisis, 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 is 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, 5 interviewees noted that because of the limitations of the government structure and media control, it also influenced the transparency of the government's efforts in combating COVID-19. For them, instead of concerning 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 for transparency.

All interviewees also mentioned several disputing views about transparency during COVID-19. The most mentioned dispute concerned 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 that people often use 'common sense' to make sense of information [44, 54].

4.3.3 Overall Evaluation of Government Response. Prior research has argued that creating better transparency in crisis communication can significantly affect citizens' trust in the government and the views of citizens towards government performance [8, 50]. Thus, in our interviews, we asked how interviewees thought about 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 with other countries' government response to assess it 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 seeing the situation, they were satisfied with what the government had done, and showed tolerance to the mistakes the government made during COVID-19, *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 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 in the world, 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 of Western countries and understand how Western people think about China. They received such information using virtual private networks (i.e., VPNs) to visit websites blocked in mainland China, such as Facebook and Twitter, or through personal connections.

The rest of the interviewees (25) preferred to use domestic media only even for foreign news, either because of geopolitical ideology or for convenience. We found that whether interviewees trust information from other countries does not solely depend on the credibility of source, but also their existing perceptions of international relationship 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 for receiving information about global COVID-19 situation.

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 VPNs, they chose to use Chinese official 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 COVID-19 situation in China reported by Western media, and was concerned about 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 repost stories about the COVID-19 situation from content on 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 VPNs 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 politics-related 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 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, 4 interviewees of higher education levels used VPNs to access foreign media, such as The New York Times, Facebook, and Twitter. For instance, P14, a master's student, used VPNs 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 VPNs, 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 information behaviors 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 our findings and tie our findings into a broader discussion of how people perceive and evaluate the veracity of information on social media.

5.1 Complicated Media Environment in China

5.1.1 Complicated Information Ecosystem. Our 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], our interviewees were very cautious about choosing sources of COVID-19 information. They tended to trust 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, during the COVID-19 pandemic, 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 of Lu et al. [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 on these platforms 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 can 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 lasts 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 and become more extreme or nationalistic or even 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 Public Trust in the Government During the Pandemic. Compared to other countries, public trust in the Chinese government has been highly rated [21]. Generally accepting the government 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 of our interviewees clearly 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. We also witnessed a high level of tolerance of past mistakes at the beginning of the outbreak of COVID-19. This may partly result from the comparison between the responses of different governments around the globe and their achievements regarding controlling COVID-19.

Prior work has also suggested that public trust in central and local governments in China are positively correlated [38], while 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 were independent. Most interviewees expressed their satisfaction with the central government's response to the pandemic, while had various degrees of satisfaction with local governments — they might be either satisfied or unsatisfied based on how local government dealt with the pandemic and how they understand the structure of the government. Some interviewees also thought that strict local censorship policies were due to local governments applying much stricter censorship restrictions to ensure that they were well within the limits of the central government's boundaries.

5.1.3 Non-Western Values. In general, this work exposed the unique patterns and practices in the Chinese information ecosystem during crisis events. In our study, most interviewees were likely to accept — and even prefer — information from government sources or state-run media outlets as well as 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 not only because of the different structures, infrastructures, government controls and

interventions, but also because of the attitudes and beliefs held by the people using these services — whether those are actively managed and manipulated by the government or not.

5.2 "Positive Energy" as Strategic Information Operations

Emotion is always an important factor that influences people's behaviors during public crisis events [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 our study, this shift was *not* evident. Compared to prior findings of Wang and Mark [96] that many young people in China trusted citizen media more than official media, in our study, most interviewees shifted their trust from citizen media to official media during the COVID-19 pandemic.

This trend might be explained by the emotion manipulation and ideological workings of "positive energy" in China [13]. During the COVID-19 pandemic, with the fear and uncertainty common in crisis situation [88], information with "positive energy" appealed to interviewees. While being exposed to social media filled with content of "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 to them 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].

We also found some evidence that the effects of "positive energy" may be deeply rooted in some 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 no negative things should exist. 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.

5.3 "Positive Energy" and its Broader Impact

"Positive energy" appeals to Chinese people mostly because of its association with optimistic attitudes and positive behaviors, especially among grassroots. For individuals, it encourages average Chinese people to stay positive, remain ambitious, and work hard, to make more contributions to the Chinese society [92]. For the society, it encourages people to maintain social harmony and the pursuit of personal success is redirected 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. During the pandemic of COVID-19, psychological fatigue because of the lasting uncertainty can potentially make "positive energy" more desirable than it normally is. Indeed, "positive energy" was among the most mentioned themes in our interviews.

"Positive energy" can be easily related to *patriotism* and *nationalism*. Nationalism and Collectivism are both critical constructs of modern Chinese society, and they correlate with patriotism [33, 53]. For Chinese nationalists, their personal identity was claimed to share a emotional attachment with their national identity, and such emotional attachment can result from manipulation by authorities in a top-down manner [53]. "Positive energy" can be seen as a way of manipulation of the state

that generates such emotional attachment of individuals with 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 are witnessing is also a product of contemporary geopolitics. Interviewees can now at least partly know global affairs through either direct access via VPNs or second-hand information. By comparing how effectively different countries are containing the virus, even through unreliable sources, nationalism or patriotism can potentially be reinforced, which also creates more "positive energy" sentiments. However, it can potentially generate extreme nationalists who even collectively act together online to troll people with different ideologies [97].

"Positive energy" is an dispersed and intangible power that can easily be internalized by individuals. As shown in the results, "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 would be 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 by the CSCW community as an important factor when understanding social media and misinformation, especially in Chinese context or other contexts where similar information operation exists.

5.4 Limitations

This research has several limitations. To capture users' behaviors and perceptions, we started recruiting interviewees not long after the outbreak of COVID-19 in China. However, the recruiting, scheduling and interviewing process — done remotely and during a pandemic — lasted longer than desired, with some interviewees joining in 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 convenient sampling and therefore potentially also skewed in representation. Recruiting interviewees via recruitment posts on social media might also skew the sample to those who are willing to express personal opinions. Censorship could potentially skew the sample, though the high response rate indicated 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 potentially influence how they respond to our questions if they were concerned about being censored.

6 CONCLUSION

Through interview-based studies with Chinese social media users, this work explores how people in China sought, 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 the coverage

of 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. We 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 in the Chinese information ecosystem.

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A DEMOGRAPHICS OF INTERVIEWEES

We include Table 2 to provide the detailed information about demographics of our interviewees for better contextualization of our study and participant quotes.

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	Bachelar
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