

# Information Channel Matters for Coordination During COVID-19 Pandemic: Evidence from Foreigners in China

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Based on an online survey focusing on foreigners living in China, this work finds that there is a noticeable association between information channels and people's attitudes towards the COVID-19 pandemic. To be exact, it is found that the cognitive understanding, risk awareness, and behavioral responses towards the pandemic are different between respondents using different information channels to receive the updates of COVID-19. Although the difference in information channels may be due to some reasons that require further research, experimental observations emphasized that this difference has led to different information consumption and different COVID-19 awareness. Further, it is pointed out that improving accessibility and removing information bottlenecks in media platforms of different languages is crucial in promoting global coordination in the fight against the COVID-19 pandemic.

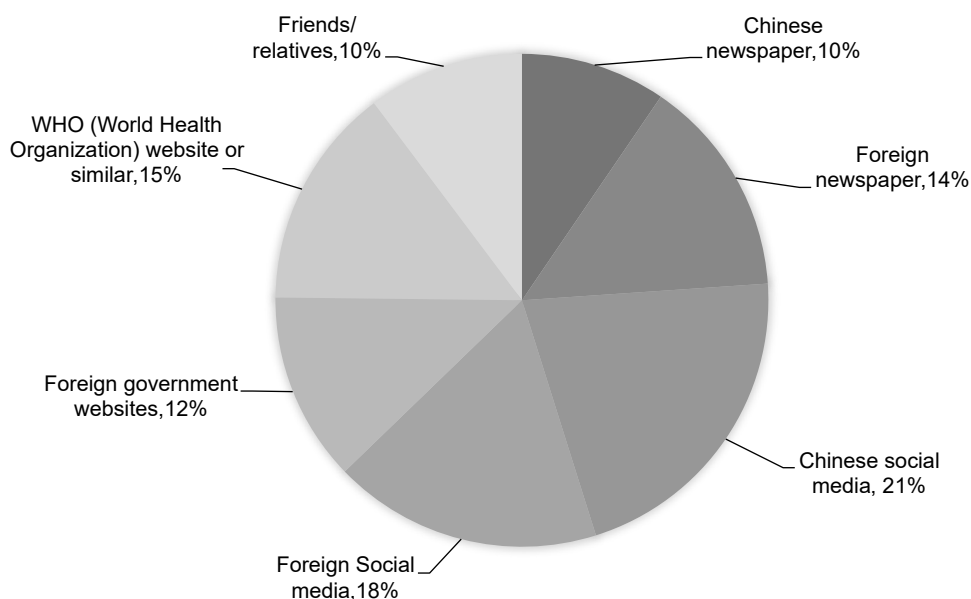
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The pandemic outbreak of coronavirus disease 2019 (COVID-19) had led to an unprecedented global health disaster of the century (WHO, 2020). Despite the strong condemnation of conspiracy theories by scientists from multiple countries (Calisher et al., 2020), a global epidemic of misinformation is still spreading and has seriously jeopardized the global collaboration in the fight against the virus (Zarocostas, 2020). As WHO Director-General Dr. Tedros Adhanom Ghebreyesus said at the Munich Security Conference on February 15, 2020, "we're not just fighting an epidemic; we're fighting an infodemic". There is growing recognition that transparent, responsible, and credible information dissemination plays an extremely important role in this global anti-epidemic war (Ienca & Vayena, 2020; Larson, 2020; The Lancet, 2020a). But so far, there is limited knowledge on the relationship between the information channel and people's cognitive perceptions of COVID-19. A few exceptions of studies related to this issue generally examine people's information search behavior (Depoux et al., 2020), or the dissemination and circulation characteristics of information with different levels of credibility (Pulido et al., 2020; Pulido Rodríguez

et al., 2020), but rarely reveal how people's attitudes towards COVID-19 correlate with their information sources. Previous literature reviews have suggested that geographic distance matters when people choose the source of information they trust more (Flanagin & Metzger, 2000; Castillo, Mendoza & Poblete, 2011), which can partly explain why people in some countries tend to dismiss or ignore useful medical messages from other countries in their anti-pandemic fight.

Nonetheless, as shown in the latter part of this paper, through an online survey, it is observed that foreigners living in China still use many different channels to receive pandemic information as opposed to local Chinese, suggesting that differences in information channels would not disappear when distance disappears. The literature reviews have pointed out that communication methods alter perceptions of environmental issues and ultimately affect people's behavior (Wilkins et al., 2018). In the field of public health, many efforts have invested in using media content as a tool to modify people's attitudes, behavior, and protection of public health (Kreps & Neuhauser, 2010). Previous literature also indicates that, when

**Figure 1. Sources of COVID-19 Information for Foreigners in China**



Note: this figure is based on Chen & Liu (2020).

uncertainty is a potential threat to mankind, people usually actively engage in information seeking from a variety of sources (Westerman, 2014). However, preferences for information channels can vary based on many factors, such as demographic factors, language, usage habitat, and trust (Brewer & Ley, 2013; Westerman, 2014). Trust will have different impacts on information channels that depend on various fields, which will greatly affect the way individuals process and receive information. (Brewer & Ley, 2013).

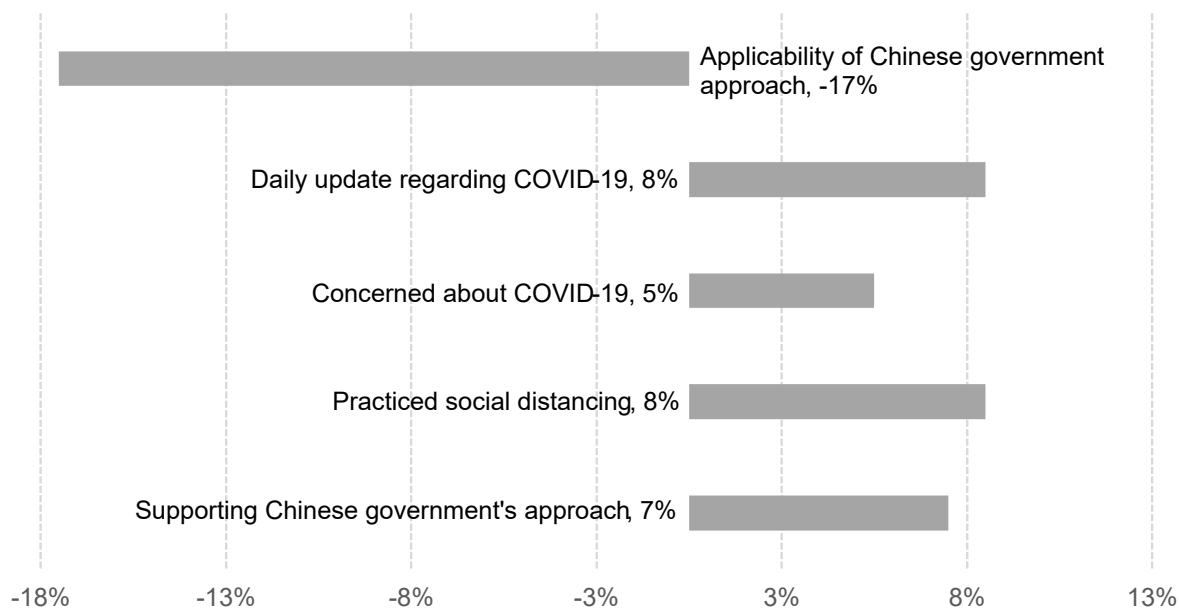
Based on an online survey focusing on foreigners in China conducted between the end of March and early April of 2020 (Chen & Liu, 2020), the relationship between the information sources of COVID-19 and the attitude towards the pandemic were analyzed. The rationale for analyzing the behaviors of foreigners living in China in this study is driven by two considerations. First, they lived in China during the pandemic and thus, unlike people living in other countries, geographic distance is not the reason to exclude or discourage them from accessing pandemic-related information from China directly. Secondly, more or less, they have some language and cultural barriers in understanding Chinese news, so the information sources they choose are at least partly

exogenous, rather than purely endogenous. Based on these two considerations, it is supposed that the population of foreigners living in China is a relatively ideal group to analyze the relationship between the information channels and attitudes toward the pandemic.

The questionnaire was conducted online through QuestionnaireStar (*wenjuanxing*), one of the biggest online questionnaire platforms in China. The survey was distributed on social media platforms such as Facebook and Weibo groups connecting foreigners

living in China. Initially, a total of 302 responses were received, but 83 responses were excluded as invalid due to various reasons, such as those who did not live in China since the COVID-19 outbreak or who did not trust the survey team. The 219 valid respondents come from 38 countries and lived in 22 provinces of China during the study period. According to this survey, only 31% of foreigner respondents reported that their major information sources regarding the COVID-19 epidemic are from China, including Chinese social media such as WeChat or Weibo (21%), or Chinese newspapers (10%). Due to language barrier, usage habitat, and other possible reasons, the majority (with a sum of 69%) of foreigner respondents still chose to receive their COVID-19 information primarily from international or secondary sources, including social media such as Facebook or Twitter (18%), the websites of WHO or similar international organizations (15%), foreign newspapers (14%), foreign government websites (12%) and friends or relatives in home countries (10%) as shown in Figure 1.

The survey further shows that, among foreign people living in China, the difference in information sources significantly correlates with their attitudes towards the pandemic. For example, it is found that the density

**Figure 2. Differences in Attitudes toward the Pandemic and Sources of Information**

Note: \*\*  $p < 0.05$ ; \*  $p < 0.1$ ; this figure is based on Chen & Liu (2020). Percentage differences are based on Group A (information mainly from Chinese sources) minus Group B (information mainly from foreign sources).

of information search varies with the channel of information: 91% of foreigners who received COVID-19-related information mainly from Chinese channels (hereinafter referred to as Group A) search updates of the epidemic at least once a day, while among those foreigners who received information mainly from foreign social media and news channels only 83% (Group B hereafter) search epidemic updates daily (statistically significant at  $p < 0.05$ ). Further, while 30% of Group A respondents replied that they are extremely concerned about the epidemic, 25% of Group B respondents replied the same (significant at  $p < 0.1$ ). It is supposed that this gap is at least partly due to the extent of epidemic tension from foreign social media or newspaper channels, which is much lower than Chinese counterparts. This implies there may be significant information loss when information is disseminated from one information channel to another information channel. Differences in the information channels also correspond to different approaches to the pandemic. For example, 49% of Group A respondents said they had practiced social distancing shortly after the epidemic outbreak, while only 41% of Group B respondents replied they did the same (significant at  $p < 0.1$ ).

Differences in the information channels also correlate with different perspectives on epidemic control policies. For example, 65% of Group A respondents believe the epidemic control measures taken by the Chinese government are proper, while only 58% in Group B think so (significant at  $p < 0.1$ ). However, somewhat unexpected, only 36% of Group A respondents believe the control approach implemented in China is applicable for all countries, in contrast to 53% in Group B (significant at  $p < 0.05$ ). It is assumed that this is due to those who can get COVID-related information from first-hand sources to understand more about the challenges as well as specific institutional supports behind China's epidemic control than those who learn about them from secondary sources. Figure 2 displays the percentage of differences regarding how sources of information affect diverse attitudes toward the pandemic.

As is discussed above, the reasons behind the difference in the channel used to access COVID-19 information can include an array of factors, e.g., language, culture, usage habits, accumulated trust, etc. However, analyzing the exact driving forces behind the different

choice of information source is beyond this small piece of commentary material. This paper mainly intends to draw attention to the association between information channels and attitudes towards the pandemic. Given the pressing need for global coordination to tackle the threat of the COVID-19 pandemic, it is extremely critical to eliminate the information bottleneck caused by language barriers, political disputes and cultural distance, among other obstacles. The term “infodemic” has been frequently used by WHO recently to describe a situation of “an over-abundance of information -- some are real while some are not -- that makes it hard for people to find trustworthy sources and reliable guidance when they need it” (WHO, 2020). Attention should also be given to the content difference of pandemic information across different information channels, which may provoke different cognitive consciousness and behavior responses towards the pandemic. During crises, the public often attempts to find hard-to-obtain information from different sources to dispel confusion and anxious emotions caused by information inconsistencies. It is thus critically important to ensure equal access, reduce content inconsistency, or migrate information loss across different information channels.

The COVID-19 pandemic has uncovered serious information bottlenecks in media platforms. It exposes a fragmented global governance system that does not have the structures to coordinate and share information to battle pandemics (Lancet, 2020b). Information sharing is crucial to understand and assess the need to begin containment activities of the COVID-19 outbreak (David, 2020). The global pandemic not only threatens people’s health, but also exerts a significant impact on both economic development and social stability. The COVID-19 pandemic has sounded the alarm for us that even when extremely strict monitoring and protection measures are adopted, they cannot prevent the virus from spreading. For such a global pandemic, crisis information needs to be fully shared and exchanged to actively respond to the crisis.

The advancement in technology had shown potential in alleviating the blockage of transmitting epidemic information due to language, cultural, political, or other issues. The Global Coalition for Radiotherapy provides

rapid and open communication of global experience on the pandemic (Price & Barney, 2020). Google and Apple have also partnered to develop a global tracking system to share among different countries (The Lancet Diabetes & Endocrinology, 2020). International organizations such as the OECD also install AI-powered alerts on their official websites to promote information dissemination (OECD, 2020). But much more effort should be devoted to ensuring the use of AI and other technologies to eliminate information differences during information transmission of pandemic news and ensure all people can receive reliable and timely information no matter where they live. Improvement in this respect will provide significant benefits for reducing distrust and prejudgement, alleviating disorders, and enhancing global coordination in the current fight against the COVID-19 pandemic.

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