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Using social media to analyze public psychological status during the recovery period of COVID-19 in China

ABSTRACT

Background During the outbreak, billions of people were eager to get information about COVID-19 through social media. Social media can not only deliver reliable information to the public but can in turn reflect changes in the public’s psychological status. Insight into the public’s hotspots of concern and mental status through media background tools contributes to the formulation of public health policies and the clarification of epidemic development mode.

Methods WeChat is the largest social media in China. Taking the recovery period of COVID-19 in China, for example, we collected WeChat Index data and analyzed the public’s concern about the course of COVID-19 and the restoration of emotional tendency through keywords search.

Results With the gradual control of the COVID-19 in China, the public psychological status changes from negative to neutral, accompanied by a weakening of negative emotions and an increase in positive emotions. Every obvious inflection point of improvement in social operation is reflected in the increase of public attention and the relaxation of lifestyle.

Conclusions Social media can be used to monitor the public psychological status and the development mode and trend of infection in one country during a pandemic.

Corona Virus Disease 2019 (COVID-19) is a global epidemic that seriously affects the way people work and get information. During this time, we read with great interest the article by Abdul-Baki et al. and agreed on the substantial awareness role of social media in developing countries during the outbreak of COVID-19. In fact, social media can not only publish based-on-reliable-sources of scientific content but can in turn reflect changes in the psychological status of the public. We take the recovery period of COVID-19 in China as an example to explore this topic.

Billions of people were eager to get information about COVID-19 through social media. Social media can be used to reflect perceptions of topics and public emotional tendency. WeChat is the largest social media in China. The WeChat Index is an official mobile end index based on the analysis of big data. We analyzed the public’s concern about the course of COVID-19 and the recovery of emotional turbulence through its keywords search function.

Firstly, the heat of the words ‘Hubei’ and ‘Wuhan’ has gradually decreased in the past 3 months, except for two fluctuations of ‘Wuhan’ on 8 April and 19 April. The first rise was due to the lifting of the city’s 2-month blockade and the second was related to the issuance of 500 million yuan in shopping vouchers. Because of the large autochthonous cluster outbreak associated with imported cases, the index of ‘Heilongjiang’ reached 12,637,766 on 6 April, about four times that of a week ago (Fig. 1A). The changes in the heat of these cities reflect the situation of the pandemic control and concomitant variations in the psychological distress of the Chinese public.

The popularity of the word ‘work resumption’ remained at a high level from mid-February to early March, reaching a peak of 71,502,024 on 20 February. Relevant topics were rarely mentioned after the majority of enterprises resumed their production. The positive effects of restoring the working state on mental health can be seen in other community crises. The heat of the words ‘research’ and ‘course’ showed a similar trend, both of which declined significantly at the end of February and has remained at a low level ever since, indicating that the pandemic stagnated the work of universities and middle schools (Fig. 1B).
The Chinese Ministry of Education has adopted the scheme of starting terms in batches. The first batch of students is high school seniors who need to prepare for the upcoming College Entrance Examination. The second batch of students are postgraduates who are eager to return to their laboratories and researches as soon as possible.
The heat of the word ‘graduating class of college’ comes bottom (Fig. 1C). A large number of undergraduates choose to pursue a master’s degree, which partly relieves their job-related anxiety.5

As for lifestyle, the heat of the word ‘living at home’ has declined since its peak in early February, while the heat of the entry ‘journey’ has peaked during the May Day holiday, indicating that public tension about the virus has gradually receded. Stocking up on groceries during the quarantine was no longer needed, so the index of ‘supermarket’ dropped significantly. On the contrary, the popularity of foods represented by barbecue began to increase on 24 April, reflecting the public’s appetite growth and consumption recovery (Fig. 1D).

Due to the increase of domestic production capacity and foreign donations, the shortage of masks has been relieved. The downward trend of the word ‘isolation’ is consistent with ‘masks.’ Vaccine’s heat is closely related to the research progress released by scientists and tugs at the heartstrings of people. Migrants to big cities were required to undergo routine nucleic acid testing before returning to work, so the heat of ‘nucleic acid assay’ began to increase on 6 April (Fig. 1E), reflecting a shift in public focus from prevention to diagnosis.

When experts give authoritative advice on the pandemic prevention, their names will appear more frequently on social media. Among the heroic physicians emerging from COVID-19, Zhong Nanshan is the most popular and trusted expert. His heat gradually decreased as the number of confirmed cases dropped. On the contrary, Chinese pop star, Luo Zhixiang, was nine times hotter than Zhong Nanshan on 23 April because of the disclosure of his sexual scandal (Fig. 1F). The increased attention to entertainment news reflects a reduction in a public anxious mood.

With the gradual control of COVID-19 in China, the public psychological status generally changes from negative to neutral, accompanied by a weakening of negative emotions and an increase in positive emotions. The monitoring of big data can help us to clarify the development mode of COVID-19 in China and the real-time change in the public mood. Supplemented by media data, psychosocial surveillance will be more accurate and enlightening in the future.

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Conflicts of interest
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Data availability
The data underlying this article will be shared on a reasonable request to the corresponding author.

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