



Response of Social Media Accounts of Chinese Academic Journals in Humanities and Social Sciences in the Context of the COVID-19 Pandemic

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ABSTRACT

This paper aims to introduce the operation of the official account of WeChat, the most popular social media APP in China during the past COVID-19 pandemic. The operation, experience and issues may have implications for academic journals of other countries to run and improve social media tools. Based on the Chinese Social Science Citation Index (CSSCI) (2021-2022 version) journals of China, samples were selected that WeChat official accounts in the above academic journals for investigation. Then, the operation of the WeChat official account of a typical academic journal during the epidemic period was analyzed by using the network research method. It is found that the WeChat official account of the academic journal responded quickly to the epidemic. Firstly, it actively opened the epidemic column to strengthen agenda-setting. Secondly, it accelerated the pace of publication through cloud publishing. Thirdly, it paid attention to academic popularization to improve readability. Fourthly, it focused on user interaction to enhance relationships between the academic journal and its users. Finally, it strictly handled academic issues to provide reliable information sources. WeChat official accounts promoted the influence of humanities and social sciences academic journals and enhance their transmission capacity during the epidemic. Meanwhile, it's also hoped that the operating experience of the WeChat official account of Chinese academic journals under the epidemic will be beneficial to the academic information communication services of social media in other countries around the world.

1 | Introduction and background information

In Sep 2023, the China Internet Network Information Center (CNNIC) released its 52th Report on China Internet Development Statistics ^[1]. According to this latest report, internet users reached a total of 1079 million by the June of 2023 in China. Among them, the number of mobile Internet users reached 1076 million. What is most significant and relevant to our study, there are the following facts: 99.8% of internet users in China used a smartphone to access the internet. According to the 17th National Reading Survey ^[2] released by the Chinese Academy of Press and Publication in April 2020, 43.5% of Chinese people tend to read by mobile phones in 2019, and the average person spends more than one hour on the internet every day, which is an increase from a year earlier. At the same time, the online activities of netizens mainly include reading news, socializing and watching videos, with obvious characteristics of entertainment and fragmentation. All of this further suggested that reading behavior

has been redefined with the development of science and technology.

In the light of all the rapid changes in cyberspace, Chinese academic journals, especially journals of humanities and social sciences (H&SS), in which have also been actively adopting mobile technology and using social media platforms in response to the changes in their users' behaviors. WeChat, launched by TencentTM in January 2011, is the most popular social media tool in China. As of the fourth quarter of 2020, monthly active users of WeChat reached 1225 million ^[3]. WeChat, it offers a free instant messaging application service for smartphones and enables voice, text, pictures, videos and location information exchange via mobile phones ^[4]. The product of official WeChat account was released by TencentTM in August 2012. It is like a service platform and its subscribers can receive different information and service for reading, storage, sharing and retweeting ^[5]. The launch of WeChat official account has been paid much attention by government, companies, universities

and other organizations across China. And that were resorting to the platform to promote their information and service, which has achieved good effect.

Chinese H&SS academic journals, which are not quite sensitive to new IT, were enthusiastic about trying to use the official WeChat account to expand their academic resources and services to users. The statistics indicated Research Center for Chinese Science Evaluation (2017-2018), among 326 authoritative academic journals included by RCCSE, 182 journals have opened WeChat official accounts [6]. Most of academic journals had a positive view toward the idea of an official WeChat account and developed it as an outreach tool to promote academic information such as papers, academic conferences and research experiences for researchers. It is generally believed that WeChat official accounts provide a new platform for the communication of journal papers. Above all it can provide readers with more convenient and efficient access to academic information, then provide better services for online submission and review. And further strengthen the viscosity between academic journals and users. It is worth noting that the construction of WeChat official accounts has become an important means to expand the dissemination and improve the influence of academic journals in China.

COVID-19 pandemic has spread around the world in 2020-2022, which seriously threatens human health and life safety. The Chinese government has taken strong measures to fight against the epidemic and has achieved great success. Meanwhile, scientific research against the epidemic has become an important strategy to deal with public health emergencies. In January 2020, the Ministry of Science and Technology of China proposed that researchers should devote themselves to the task in science and technology, and write papers at the forefront of fighting the epidemic [7]. Meanwhile, As the carrier of science and technology communication, academic journals assume indispensable social responsibilities in the release and publicity of new knowledge of COVID-19. In this way, academic journals have accelerated the exploration of WeChat official accounts, and are committed to make it a main position for journals to actively respond to the epidemic. More importantly, it has become a major historical responsibility for academic journals and online communication platforms.

All in all, it is an important measure to publish timely, comprehensive and systematic scientific knowledge to the public through the official account of WeChat for Chinese H&SS academic journals to deal with emergencies, which has important theoretical and practical values. Therefore, this paper discussed the operation of official WeChat account of China's representative academic journals during the pandemic. And analyzed the ideas and measures of operation about journals' WeChat official accounts in the epidemic period.

2 | Methodology

2.1 | H&SS academic journals

To the extent, these official account of the academic journals can be more representative and valuable, so as to enhance its applicability of the conclusions, the study is based on the source journals of Chinese Social Sciences Citation Index (CSSCI) 2021-2022 version. The CSSCI is a kind of database for H&SS academic journals in China and is also an important tool for searching and evaluating major literature information. The study selected samples that WeChat official accounts in the above academic journals for investigation.

2.2 | Official Wechat accounts of academic journals

Firstly, on mobile devices, we searched WeChat for these public accounts of the source journals in CSSCI 2021-2022 through the method of "add friends". Behind the typical WeChat official accounts of journals were chosen as the targets of our research, and then summarized its operation in the context of COVID-19 pandemic. Specific implementation steps are as follows: once a new WeChat official account of academic journal was found, we became its "followers." We read daily messages on all the journals' subscription accounts, which have been uploaded from the end of 2019 until now, then tracked and recorded the operation of WeChat official account, such as its content, column construction and other relevant situations. We read daily messages on their service accounts and checked on new functions and their improvements.

3 | Results and analysis

3.1 | Setting special column for COVID-19

Previous studies on risk communication suggest that it is difficult for people to listen to and understand information under the pressure of negative emotions [8]. Therefore, in order to make the academic achievements of the epidemic more effective, the WeChat official account of academic journals is necessary to reprocess the information for users. In the construction of the WeChat official account of the academic journal, set the column of COVID-19 is a relatively effective way of information integration. It can set the agenda more effectively, so that readers can find the relevant epidemic information most directly and quickly, save time and attract wide attention of the audience.

According to the crisis stage analysis theory of Steven Fink, an American management scientist, a public health emergency can be divided into several stages from its occurrence to its end, such as the period of incubation, the period of outbreak, the period of spread and the period of recovery [9]. For example, the incubation period needs to take various measures and means to perceive or forewarn the crisis. Then, proper guidance should be given to eliminate panic in the second stage. In the spreading stage, the key points of guidance are to transform emotions and enhance cohesion. After that we should actively and profoundly reflect in the third stage.

According to the characteristics of public sentiment at different stages, the WeChat official account of academic journals should enhance their agenda-setting ability through construction of special column. In this way, targeted publicity and guidance can be carried

out to enable people to rationally respond to the epidemic with a scientific attitude and reduce secondary disasters. For instance, during the last stage of the COVID-19, and the journal of humanities and social sciences should actively respond to the call of the country to fight against the epidemic. Including carrying out disaster guidance, cultivating the public's awareness of disaster prevention and response during the process, so that show the mission and responsibility of humanities and social science workers. Taking official account of the International Economic Review (IER) as an example, IER has set up a special column on the epidemic, inviting many experts and scholars in the economic field to conduct exclusive interviews, discussing the global and Chinese economic trends in the context of the epidemic, as well as China's economic policy in the recovery period of the epidemic. In addition, the WeChat official account of Public Finance Research, in the context of epidemic prevention and control, the countermeasures, mechanisms and implementation effects of China's fiscal policies were comprehensively summarized, and the differences between domestic and foreign fiscal policies were discussed so as to provide reference for continuing to play the key role of fiscal policies in promoting the comprehensive and high-quality development of the economy and society in the post-epidemic period. By the way, WeChat official account of Editorial Friend launched the COVID-19 epidemic series of topics, it considered that the impact of the epidemic on China's publishing and media industry systematically and deeply, and contribute ideas to their development in the post-epidemic era.

3.2 | Applying cloud publishing

Cloud publishing is a new form of digital publishing. It attaches cloud technology to digital publishing, which provides new vitality for digital publishing of academic journals and makes free path publishing possible. Through cloud computing technology, academic journal editorial departments can save more investment and have a wider and more flexible publishing business ^[10]. Scholars have affirmed the role of cloud publishing to the improvement of traditional journal publishing mode. And they believe that cloud publishing can provide a technical support and possibility to alleviate the contradiction between the editorial department of traditional academic journals and the digital publishing platform ^[11].

Due to the special environment brought by the epidemic, the traditional printing, distribution and other publishing links of journals cannot operate normally. Faced with this situation, many academic journals continue to carry out online manuscript review, editing and manuscript feedback by using the official account of WeChat instead of online publish through website. Meanwhile, journals have extensively solicited contributions through the official account of WeChat and open a fast channel for the publication of excellent research results. The way of cloud publishing is adopted to break through the difficulties and ensure the normal publication of periodicals.

For example, the Journal of Zhejiang Gongshang University has called for papers on the topic of "Legalization of major epidemic prevention and control". In addition to the traditional online submission system, it has specially noted that authors can pay

attention to journal's WeChat official account for online submission and mobile phone can be consulted. This initiative has greatly improved the response speed of the journal publishing process, which not only facilitated readers but also expanded the spread range and influence of WeChat official account. Under the background of the epidemic, new media technology has been used to enhance the user cohesion and improve the performance for user experience. Moreover, in order to further improve the service quality, so that the general readers can more timely and complete access to the research results, and effectively protect the intellectual property rights of the authors. The Journal of Finance and Economics continued to publish "Working papers" through the WeChat official account during the epidemic. The "Working paper" is a complete version of the paper to be published in the journal, which is available for scholars to consult before it is officially published. In addition, the official account of Journal of Beijing Sport University published a call for papers on "The impact of the COVID-19 on sports: viewpoints and thoughts from sports scholars", and successively published academic papers on sports with the epidemic, such as related to home fitness, sports industry, sports recognition, sports education and other aspects.

3.3 | Focusing on shallow reading

Some researchers have suggested that the science popularization is an important social responsibility of sci-tech periodicals. In this epidemic period, academic journals are one of the most influential mass media and play an important role in popularizing professional content of COVID-19 ^[12]. The target audience of academic journals is more inclined to researchers in professional fields. However, in the special period of epidemic prevention and control, academic journals should take the initiative to adjust and assume more social responsibilities in the popular science work. Only when academic journals combine research and popularization better, can they popularize more professional and understandable epidemic prevention knowledge to the general audience in a timely and accurate way, and expand their influence and credibility accordingly.

Therefore, some academic journals have changed the presentation form of research results, then make use of WeChat official account to vividly and categorically publicize the epidemic to users through the combination of pictures, text, sound and pictures. For example, the official account of China Sport Science introduced various methods about scientific fitness with 20-28 words and dynamic pictures assisted, which greatly enhanced the readability during the epidemic period. The other WeChat official account of Journal of Finance and Economics, it abstracted the core facts and opinions based on the key words of the article, and then presented the simplified version. The most important thing is to convey the way of thinking academically to the public in the process of academic popularization.

Since the COVID-19 outbreaks, the official account of academic journals with the capability of technological development and content production has also launched various forms of popular science popularization resources in a short time, becoming the main body of authoritative system for the popularization of epidemic knowledge. For example, the WeChat official accounts such as Publishing Journal, China Publishing Journal, and Journal of

Chengdu Sport University, which have launched popular science readings about COVID-19 epidemic such as action guides, prevention and control manuals. which satisfy the public's access to authoritative protection knowledge in epidemic, and then meet the personalized needs of users.

On the one hand, a series of books about health, social science history, novels and essays are recommended to comfort readers who are on vacation or at home during the epidemic period, which can guide readers to adjust scientifically and respond positively, and enrich the reading experience of readers. On the other hand, journals pay more attention to humanistic care. They accurately grasp the emotional orientation and values of the audience in the Internet era. Some WeChat official accounts of journals have dug out stories of fighting the epidemic that show the brilliance of humanity at the micro level such as mutual aid and self-help in the face of disasters, making the audience feel the warmth of humanity, the value and dignity of persons from tweets. For example, Publishing Research vividly shows people and things in the process of anti-epidemic about Zhejiang Publishing United Group through short comments, pictures and other means.

3.4 | Increasing interaction

With the development of the epidemic, the work mode of academic journals has changed to online work, instead of face-to-face communication with readers, authors and experts as usual. Therefore, the official accounts of many journals place great emphasis on working mode innovation, including enhancing user interaction and user experience. In the special columns such as "Confessions of Authors" and "Me and Sports & Science", the official account of Sports & Science presents the mental course of scholars' academic research in a narrative way, so as to shorten the distance between authors and readers. At the same time, the column of "Short Video of Academic" allows the author to introduce his thesis. On the long view, these features that focus on user interaction and user experience are sure to attract more and more readers and authors.

As the central information exchange platform, everyone can acquire knowledge and share information through WeChat to promote awareness of epidemic, which can facilitate communication and dialogue between different groups. Therefore, WeChat official account of academic journals pays great attention to the collection of users' speeches on the media, and then communicating with users in a friendly and open way. By focusing on the public spotlight and tracking public comments, all kinds of problems and suspicion can be solved in a timely manner. For example, the WeChat official account of Exploration and Free Views invited experts and developed columns to answers relevant social science questions about the epidemic, and actively provides professional knowledge services based on its own advantages in content and resources.

At the same time, some academic journals also establish groups of readers, authors and reviewers through WeChat, hold online academic forums or participate in relevant online academic conferences, maintaining and deepening the communication and contact between journals and readers, authors and experts.

3.5 | Ensuring content reliability

On February 13, 2020, the World Health Organization (WHO) set priorities for research on the COVID-19 epidemic, and a new word – "infodemic", or information epidemic – was introduced in its priority list. It meant that mixed information made it difficult for people to find information sources of trustworthy and reliable guidance, then may even cause harm to people's health ^[13]. Research conducted during the outbreak of norovirus has shown that the spread of rumors can lead to panic, making the outbreak of the disease faster ^[14]. During the epidemic period, the information increased and gathered explosively. all kinds of news were mixed, it's like a chaotic and noisy information environment. But most of the rational and serious information was based on the data and opinions of academic papers. Academic journals provide an authoritative, reliable and scientific information source channel for the public.

The instant communication of social media ensures that it can effectively fill the information gap after the occurrence of public health emergency, and then can quickly convey the official warning notice of emergency ^[15]. More and more public administration departments in Europe and the United States use social media such as Facebook, Twitter or YouTube to interact with the public, and social networks have become the main channel for communication about the epidemic. Academic journals, as the most reliable source of information in epidemic, Moreover, it should be a competent gatekeeper of academic information ^[16], and make use of the WeChat official account to undertake the social responsibility of identifying information with professional knowledge, further measure is being considered that handle the academic discipline strictly.

What's more, the WeChat account of Information Science has carried out extensive research on public opinion guidance, crisis decision making and collaborative management, focusing on the issues that need to be solved and discussed in the current environment, such as the evolution of public opinion, rumor spreading and information governance.

4 | Discussion

In the face of the diverse needs of the audience, many academic journal official accounts quickly integrate the existing resources of journals in the epidemic. They give full play to the power of new media, and achieve great breakthroughs. As COVID-19 is a public health emergency, the WeChat account of academic journal is actively responding to the epidemic. However, there is still a large space for operation because the mechanism of emergency communication service, which is scientifically perfect, is not yet formed.

4.1 | Why using WeChat

Until now, H&SS journals publishing and dissemination fall behind competitors a little. Firstly, in terms of content presentation, based on the protection of the hardcopy, most of the databases in China (like

CNKI and journals official websites) mainly present the articles of previous magazines, and some even only present the contents and covers. Secondly, it's lack of timeliness. Due to the restriction of the manuscript appointment cycle and publication cycle, the hardcopy has at least one month cycle from manuscript appointment to publication and printing. By the time some time-effective observation and summary articles reach readers, they have become obsolete. Many of the things that need attention in a news report can unfortunately only be corrected later. Thirdly, the advantages of interaction are difficult to give full play to, the official website article generally does not set a message function, and some WeChat accounts are negligent in updating, falling into a vicious circle, many become "zombie" accounts.

This is obviously not in line with the development trend of journals. In the existing conditions, only WeChat is the best choice.

First of all, the large size of WeChat users. With the rapid development of information network technology and the widespread popularity of mobile intelligent terminals, the mobile Internet, with its outstanding advantages of ubiquity, connectivity, intelligence and inclusiveness, has effectively promoted the deep integration of the Internet and the real economy, and has become a new field of innovation and development, a new platform for public services and a new channel for information sharing. In the process of accelerating the penetration of the mobile Internet, China's mobile social users have also experienced large-scale growth. According to the "2019 WeChat Data Report" released by WeChat official, as of September 2019, the number of monthly active accounts on WeChat reached 1.151 billion. WeChat has become the main channel for Chinese netizens to have strong social needs and obtain information. The emergence of WeChat public accounts has brought innovative changes to the process of news production.

Second, the diversity of communication means. WeChat has a variety of communication means such as text, picture, video, audio, GIFs, H5, etc., while the paper version of news professional journals is just a simple "text+pictures" presentation. Previously, most of the public accounts of news professional journals only directly copied the articles to the WeChat public platform, without secondary editing of the articles. In terms of content length, it is necessary to take into account the characteristics of users' reading on the Internet for re-processing, timely insertion of relevant videos, audio and pictures, and the communication effect will be doubled. In addition, but also in the title design, layout processing, color use efforts.

Third, the fragmentation of reading. The current fast-paced life makes it difficult for people to concentrate their attention for a long time. The communication of WeChat public platform is characterized by fragmentation and decentralization, immediacy and interaction, cohesion and strong communication power, which is more suitable for the current "short and fast" fragmented reading time. According to the data, the peak period of WeChat activity is mainly concentrated in two periods, one is before lunch, and the other is after work. In these fragments of time, the news professional journal public number with eye-catching headlines with representative pictures to push, users can choose to read. Although the content pushed by the public platform presents the characteristics of fragmentation, it is in line with people's use of fragmented time to

read anytime and anywhere. This form of micro communication constantly caters to the audience's reading habits, which can expand the influence and spread of professional news journals.

Finally, the effectiveness of communication. According to the "two-way communication theory" proposed by Osgood and Schramm, a "feedback system" should be established in the process of communication. It is not only necessary to transmit information one-way to the receiver, but also to receive the response of the receiver back through various channels. Only by fully recognizing the importance of information feedback and understanding the information needs of target users can the communication efficiency be effectively improved. WeChat account is as a circle, users have roughly the same hobbies and pursuits, and can maintain long-term stickiness. This emotional identification will directly narrow the psychological distance with users. Users can communicate effectively with journals in real time through background private messages and article comments. The article forwarded through WeChat circle also successfully realizes the online communication of content. This new type of academic communication has formed a divergent academic field in cyberspace, in which the retweeters express their opinions, evaluate articles, talk about ideas, and spread their own reasonable and novel ideas. Compared with the offline communication methods of traditional professional journals, this undoubtedly has great advantages, and may become a new form of academic micro-communication in the future.

4.2 | Problem of current WeChat operation

First, the development WeChat is relatively slow. At present, the most used new media platforms for academic journals of humanities and social sciences in China are websites. In other new media fields other than websites, such as WeChat, journals APPs, cloud platforms, etc., journals have made fewer achievements. Wechat public platform is an important form of integration and development of traditional media and new media.

Second, there is only single form of the WeChat content. No matter in the construction of websites or WeChat accounts, the content of some H&SS journals is relatively simple, text-based, mostly limited to the content of paper journals, rarely combined with rich expression forms such as voice and video, not fresh, beautiful and vivid, and some periodicals do not even interpret the original text and other secondary creations in the new media. It can be seen that some periodicals position their websites and WeChat public accounts as digital extensions of paper journals, ignore the higher value of new media, fail to highlight the advantages of the website platform and WeChat public account platform, and are not conducive to readers to use fragmented time for reading. It has not achieved the best effect of the integration of paper and new media.

Third, there is no service and insufficient interaction with readers. The purpose of the construction and operation of the journal's WeChat account is to expand the influence of the periodical through various forms of information services, improve the brand effect of the periodical, and broaden the mode of operation and improve the influence. Therefore, while satisfying users' information reading, periodical WeChat accounts also need to pay close attention to users'

feedback, actively respond to users' concerns, and form a positive interaction with users. However, the function settings of some journals' WeChat accounts websites are lack, without feedback channels and lack of interaction.

Finally, it's lack of professional staffs. At present, the operation of the WeChat accounts of most periodicals is not mature and perfect. The editing and operation work of the account is mostly completed by the copy editors as a part-time job, and they often lack creativity in content planning, material collection, and making beautiful tweets. At the same time, non-professional media staff also lack professional and forward-looking vision and insight on the operation and promotion of account, and lack the process of adjusting the corresponding settings of account after using big data statistics.

4.3 | Where is the development space for academic journals to use WeChat account

Firstly, journals WeChat account should take social responsibilities consciously. As an important part of publishing landscape, academic journals should give priority to social benefits and shoulder their own social responsibilities at any time. In the face of the sudden COVID-19 epidemic, academic journals should also play an important role in publicizing information, disseminating scientific knowledge, exchanging technology and inheriting civilization through WeChat official accounts. Not only should they provide academic communication services for the anti-epidemic personnel at the front line, but also provide professional and reliable information sources to the ordinary people. In particular, the rapid development of epidemic, combined with the holiday, has increased the difficulty of public accounts of journals in responding to public emergencies. During the outbreak, most of the WeChat official accounts continued to push a large of relevant research results, while some show that there is a lack of sensitivity in dealing with the outbreak of public emergencies. It indicates that some of the academic journal WeChat official account still has a weak sense of social responsibility.

Secondly, journal WeChat account should improve the ability of information integration. The explosive growth of epidemic related research results, which is a challenge for the general audience. When we reflect on the problems caused by users' selective access to information, as professional academic information communicators, we also need to think about academic journals whether have done enough in the processing of content. By the way, in the era of more and more fragmented information that people are exposed to, the information integration should be a necessary skill for professional content producers^[17]. It includes both the discovery of key fragments and the selection and implementation of ways to integrate information. During the epidemic period, the official accounts of many journals also opened special columns for epidemic prevention and control, and then set up special topics under this column. Although the topics around the epidemic are getting richer and richer. In summary, they can only be regarded as simply gathering together of general academic information, rather than the combing and integration. Therefore, it is necessary to re-excavate and process the topic of epidemic deeply. Of course, some cutting-edge and influential research results were launched to disseminate valuable academic information based on the subject area of the journal.

Thirdly, journal WeChat account should train the gatekeeper of digital publishing. The epidemic has greatly increased the consumer demand for digital content, and the rise of cloud reading has accelerated the pace of media convergence of academic journals. A new generation of digital technology has been gradually applied to the content production of academic journals. In the official account of cloud publishing, editors play an important role. It can be considered that editors are gatekeepers, and editors are the key to measure the quality of academic content. With the development of Internet technology, the works of network editor is much different from that of traditional publishing. When using WeChat to carry out cloud publishing, editors need to check the content arrangement, layout beautification, creativity and suitable promotion. In the epidemic of prevention and control, the demands are diverse, personalized and specialized for people, then it needs a very high speed of information dissemination. According to the different stages of the epidemic, users focus on different points constantly. Which requires the editors of WeChat official account to make full use of journals itself resource at the same time, and reference to artificial intelligence technology, big data technology and other new technologies of relevant disciplines, so as to promote the ability of data collection, analysis and processing. For example, it is a great achievement to be able to make good use of user portraits for content planning, intelligent editing, effect evaluation and other aspects of the work. Moreover, pay attention to the behavior and psychology of users under the epidemic, incidentally, do a good job in the perfect integration of form and content in internet editing.

5 | Discussion

In the face of COVID-19, many WeChat official accounts of Chinese academic journals took multiple measures, give full play to the advantages of academic journals, and quickly publish papers on epidemic topics online. Furthermore, the WeChat accounts through professional knowledge to publicize the scientific research results actively, help the public timely access to authoritative epidemic information about prevention and control, and provide intellectual support for epidemic. All in all, it become a powerful tool to enhance the influence of journals under the epidemic. The WeChat official account has a strong advantage as a communication platform, if the academic journals can better integrate the demands of epidemic requirements in the network transmission service, make full use of new technology to increase the intensity of information integration, pay attention to cultivate the gatekeepers of digital publishing, and further enhance the scientific communication ability. It's believed that the official account of academic journals can play a greater role in the process of fighting the epidemic. Meanwhile, it's also hoped that the operating experience of the WeChat official account of Chinese academic journals under the background of the epidemic, it will be beneficial to the scholarly communication services of social media in other countries around the world.

6 | Limitations of this study

This study still faces the following shortcomings: 1) The number of China's biomedical journals included in DOAJ and PMC is

definitely small, larger sample analysis is needed in the future. 2) China's biomedical journals are divided into two categories based on copyright ownership: journals sponsored by China's authorities and journals published in collaboration with foreign publishers, some data might be ignored.

7 | Conclusion

In recent years, the quantity of China's biomedical OA journals has been booming, but we should also be aware of the existence of bronze OA journals, which are characterized by unclear copyright details and a shortage of OA statements. OA journals, especially gold OA and diamond OA indexed by PMC and DOAJ, are still unsatisfied. Therefore, studying the OA characteristics and including policy from PMC and DOAJ would be helpful to the bronze OA journals to clarify the copyright and CC licenses in China. To publish under the Gold, Diamond, or hybrid OA model and clarify the copyright and transparency of the journal's information would be beneficial for China's biomedical journals.

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