Did anthropause generate a research pause during the pandemic? The experiences of a non-medical journal

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Key points

- Contradicting expectations, a non-medical journal received increasing submissions during the pandemic, even though laboratories remained closed.
- Peer reviewers and handling editors were both more responsive and provided faster turnaround times during 2020.
- The reasons for increased submission to the journal may have been due to reanalysis of older data or extracting more findings from research done pre-pandemic.

Keywords: Covid-19, submission, peer review, processing time

INTRODUCTION

The Coronavirus Disease 2019 (Covid-19) pandemic in 2020 caused a temporary anthropause, which significantly influenced the economic and political development of nations (Song & Zhou, 2020), the physical and psychological conditions of people (Szczesniak et al., 2021) and the environment (Stokstad, 2020). The scientific journal publishing industry was also affected, with medical journals challenged to release reliable results quickly to enable information exchange (Bauchner et al., 2020). Non-medical scientific journals were also affected but often more by the epidemic prevention measures. Schools and laboratories were closed, with researchers and students asked to stay at home. They could not do experiments but had more time to study in private. The term anthropause was first used in the summer of 2020 to describe 'a drastic global reduction in modern human activity (Rutz et al., 2020), but in addition to the effect on wildlife, did the pandemic also generate research pause? As a managing editor of a Science Citation Index (SCI)-indexed non-medical journal, I personally assumed at the very beginning of the pandemic that my journal was going to have: (1) a reduction in total submissions, (2) an increased proportion of review articles, (3) more active reviewers and (4) reduced manuscript processing times, that is, the pandemic might cause a lab-related research pause, but researchers would continue their career by writing reviews and providing journal services. Were these assumptions consistent with the reality? After 10 months since the first report of the novel coronavirus, I conducted an analysis on the performances of my journal’s authors, reviewers, and editors to reflect the journal participants’ responsiveness and to record this unique historical period.

MATERIALS AND METHOD

The journal involved in this study is an SCI-indexed journal in the category of environmental science. The manuscripts submitted to the journal were processed through ScholarOne where the managing data in this study were collected. I looked at submitted manuscript information, status, reviewer invitation and feedback and the processing time. The journal workflow involves the managing editor conducting a technical evaluation of submitted manuscripts before assigning them to the handling editor. These checks ensure that the submissions comply with formatting and other requirements. If they do not, the manuscripts are returned to the authors for revision. I collected data on submissions and present them below.

The journal’s submissions are largely from Chinese authors. Since China introduced its national-level response to the coronavirus, this study compared submissions from January 2020 against those received in 2019. Since many of the submissions

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received from September 2020 were still at peer review status when this paper was revised, detailed data were collected from January to August both in 2019 and 2020 in order to keep the statistics rational and comparable.

**RESULTS**

**Increased submission**

Submission to the journal increased from January to March 2020 and stayed at the same level afterwards: 1.5-fold of the historical level (Fig. 1). In the parallel periods from January to August, 420 manuscripts were submitted in 2020, while 314 were submitted in 2019 (Table 1). The number of submitted review articles in 2020 (23 manuscripts) was close to that in 2019 (21 manuscripts), that is, growth was evident in research articles and not in review articles. Authors from more than 30 nations submitted their manuscripts both in 2019 (35 countries) and 2020 (38 countries), but the proportion of Chinese authors’ submission was significantly increased from 57% in 2019 to 70% in 2020 (Table 1).

The journal’s publication plan was rearranged during the pandemic. In response to the significantly increased submissions, more manuscripts were rejected without peer review so that the desk rejection rate could be maintained at around 50% (Table 1) to keep the peer reviewed manuscripts at a controllable level. However, as the number of accepted manuscripts also increased, the publication volume was enlarged by 10% to accommodate more articles. In addition, the journal topics and publication mode were also altered. To incorporate the hot topic of coronavirus, a special issue about the bio-aerosol and health has been announced, which is to be published in 2021. In recognition of the need for timely release and widespread access to articles on coronavirus using both open access and allowing preprints (Kleinert & Horton, 2020), we planned to increase the number of open access articles to 10% of total in 2020, whereas in 2019, it was only 2% (Table 1).

**SPED-UP PROCESSING**

**Technical check and return**

During the technical check process before peer review, manuscripts are returned to authors for revision if they have identifiable problems such as inconsistency with the journal’s requirements. Some manuscripts do not need to be returned to the author (so the return time = 0), while some manuscripts were returned to the authors many times (Zhang et al., 2020). The number of times an article needs to be returned to the authors and the delay between submission and sending to the handling editor (delay time) could reflect the authors’ responsiveness. My research revealed that submissions were returned to authors 0.9 times on average in 2019 and 0.7 times in 2020 (both with median value of 1) (Fig. 2, note that boxes represent lower and upper quartiles with averages, the squares represent arithmetic means, the whiskers represent 5th–95th percentiles). The delay time for a single return was slightly shortened in 2020 to an average at 7.1 days (median at 3.7 days) from that in 2019 (average at 7.3 days and median at 4.0 days).

**Peer-review process**

The average number of invited reviewers for each manuscript during 2019 and 2020 was very similar, but the proportion who accepted the invitation to review was higher in 2020 (Fig. 3, note that boxes represent lower and upper quartiles with averages, the squares represent arithmetic means, the whiskers represent 5th–95th percentiles). The delay time for a single return was slightly shortened in 2020 to an average at 7.1 days (median at 3.7 days) from that in 2019 (average at 7.3 days and median at 4.0 days).

**TABLE 1** Characteristics of submissions from January to August in 2019 and 2020.

| Item                          | 2019 | 2020 |
|-------------------------------|------|------|
| Total number of submissions   | 314  | 420  |
| Number of review articlesa    | 21   | 23   |
| Number of nations submitting | 35   | 38   |
| Chinese submission           | 57%  | 70%  |
| Desk rejection                | 53%  | 49%  |
| Open accessb                  | 2/88 | 12/125 |

a Invited reviews were not included.

b The numerator is the number of open access manuscripts; the denominator is the number of total accepted manuscripts. The manuscript numbers were regarding the submission from January to August.

c As of 15 December 2020.

![FIGURE 1](image) Monthly submission to the studied journal ($N_{\text{realtime}}$ represents the number of received manuscripts in the corresponding month, $N_{\text{historical}}$ represents the average number of received manuscripts per month from 2017 to 2019, i.e., the historical level).
Of these, over 90% (median 100%) submitted their review. This resulted in an average of 2.5 reviewer comments per paper in 2020 compared to 2.0 in 2019.

In addition, reviewers returned their reports more quickly in 2020. The average turnaround time was 10.4 days (median 11.0 days) in 2020, which was 1.1 days faster than 2019 (median 1.0 days).

Overall processing time

Both the time from submission to first decision and that from submission to final decision were shortened in 2020 (Fig. 4, note that boxes represent lower and upper quartiles with averages, the squares represent arithmetic means, the whiskers represent 5–95th percentiles). The time from submission to first decision averaged 22.5 days (median 15.0 days) in 2020, while it was 26.1 days (median 9.0 days) in 2019. That from submission to final decision in 2020 averaged 40.7 days (median 15.5 days) in 2020, 1 week shorter than that in 2019 (averaged 47.9 days, median 10.5 days).

DISCUSSION

Chinese research centres were locked down in January as one of the national-level responses to the novel coronavirus in China; thus, Chinese researchers have been affected by this pandemic since January, earlier than researchers in other countries. However, the proportion of submissions from Chinese authors in this journal was significantly increased during the pandemic, indicating that Chinese scholars remained actively working on research articles. This supports the findings of Chung et al. (2020), which also reported an increase in submissions to Asian (mostly Korean) journals, although that study did not include Chinese journals (Kim, 2020). The fields with increased submissions were reported mostly from arts, humanity and social sciences. Thus, the increment of journal submissions in this study was not a single case.

Universities and institutes were closed from January for almost half a year as a measure to contain the pandemic. Experiments dependent on the lab facilities were restricted. However, submission of research articles increased (Fig. 1, Table 1). This phenomenon might have four possible reasons: (1) there were data from experiments undertaken prior to the laboratory closures, which were not yet analysed; (2) old data regarded out of topic of a previous publication were reviewed to generate novel findings; (3) some research could be carried out using personal
computer at home as reported by Pennisi (2020), for example, systematic analysis, programming simulation, and so forth; and
(4) researchers became more interested in submitting and publishing in this journal. Looking at the submissions, it seems that papers created solely from home-working (reason 3) represented only a small proportion of submission. Regarding reason 4, the journal’s impact factor increased in late June, which may have had some effect, but submissions had begun to increase before this time (in March)—and these articles still required research data. Thus, it appears that reasons 1 and 2 are the more likely explanation for increasing research article submissions, that is, accumulated unanalysed data and re-evaluation of old data being the source of the increased submissions.

Authors, reviewers and editors were more responsive and provided a faster turnaround of articles during the pandemic. Besides submitting more manuscripts, authors’ performance in the pre-submission period (i.e., the technical check process) was steady at both return times and delay time (Fig. 2), and the increased acceptance and faster turnaround by reviewers (Fig. 3) indicated that potential reviewers had more free time and were willing to contribute to peer review for scientific journals. The shortening of the overall time from submission to first and final decision (Fig. 4) indicated that the handling editors were also more responsive during the pandemic. These faster times were also reported by Hellwell et al. (2020) regarding Covid-19-related publications, but since these only represented 1.9% of all articles considered in this study, it may be assumed that the faster times were a more general phenomenon.

CONCLUSIONS

From the findings of this study, the anthropause might not generate an obvious research pause during the first year of the pandemic. However, as the pandemic continues or the world moves to post-pandemic time, the long-term impact on research activities (e.g., the generation of new experimental data and whether a data gap appears in the future) is worth investigating. We will continue to pay attention to this matter.

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REFERENCES

Bauchner, H., Fontanarosa, P. B., & Golub, R. M. (2020). Editorial evaluation and peer review during a pandemic: How journals maintain standards. Journal of the American Medical Association, 324(5), 453–454. https://doi.org/10.1001/jama.2020.11764
Chung, Y., Kim, S., & Huh, S. (2020). Influence of the COVID-19 pandemic on Asian scholarly journal editors’ daily life, work, and opinions on future journal development. Science Editing, 7(2), 111–117. https://doi.org/10.6087/kcse.204
Hellwell, J. A., Bolton, W. S., Burke, J. R., Tiernan, J. P., Jayne, D. G., Chapman, S. J. (2020). Global academic response to COVID-19: Cross-sectional study. Learned Publishing, 33(4), 385–393. https://doi.org/10.1002/leap.1317
Kim, K. (2020). COVID-19 and publishing. Science Editing, 7(2), 109–110. https://doi.org/10.6087/kcse.203
Kleinert, S., & Horton, R. (2020). Preprints with the lancet are here to stay. Lancet, 396(10254), 805–805. https://doi.org/10.1016/S0140-6736(20)31950-4
Pennisi, E. (2020). During the pandemic, students do field and lab work without leaving home. Science. https://doi.org/10.1126/science.abc8385
Rutz, C., Loretto, M. C., Bates, A. E., Davidson, S. C., Duarte, C. M., Jetz, W., Johnson, M., Kato, A., Kays, R., Mueller, T., Primack, R. B., Ropert-Coudert, Y., Tucker, M. A., Wikelski, M., & Cagnacci, F. (2020). COVID-19 lockdown allows researchers to quantify the effects of human activity on wildlife. Nature Ecology & Evolution, 4, 1156–1159. https://doi.org/10.1038/s41559-020-1237-z
Song, L., & Zhou, Y. (2020). The COVID-19 pandemic and its impact on the global economy: What does it take to turn crisis into opportunity? China & World Economy, 28(4), 1–25. https://doi.org/10.1111/cwe.12349
Stokstad, E. (2020). The pandemic stilled human activity. What did this ‘anthropause’ mean for wildlife? Science. https://doi.org/10.1126/science.abe3232
Szczesiak, D., Gladka, A., Miśia, B., Cyran, A., & Rymaszewska, J. (2021). The SARS-CoV-2 and mental health: From biological mechanisms to social consequences. Progress in Neuropsychopharmacology and Biological Psychiatry, 104, 110046. https://doi.org/10.1016/j.pnpbp.2020.110046
Zhang, J., Huang, X., Hao, J., & Crittenden, J. C. (2020). A guide to shortening the time from submission to publication in Frontiers of environmental science & engineering. Frontiers of Environmental Science & Engineering, 14(2), 35. https://doi.org/10.1007/s11783-020-1231-3