PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (http://bmjopen.bmj.com/site/about/resources/checklist.pdf) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

This paper was submitted to another journal from BMJ but declined for publication following peer review. The authors addressed the reviewers’ comments and submitted the revised paper to BMJ Open. The paper was subsequently accepted for publication at BMJ Open.

(This paper received two reviews from its previous journal but only one reviewers agreed to published their review.)

ARTICLE DETAILS

| TITLE (PROVISIONAL) | Publishing at any cost: a cross-sectional study of the amount that medical researchers spend on open-access publishing each year |
|---------------------|-------------------------------------------------------------------------------------------------------------------------|
| AUTHORS             | Ellingson, Mallory; Shi, Xiaoting; Skydel, Joshua; Nyhan, Kate; Lehman, Richard; Ross, Joseph; Wallach, Joshua            |

VERSION 1 – REVIEW

| REVIEWER          | Wendy Lipworth |
|-------------------|----------------|
| University of Sydney |                |
| REVIEW RETURNED   | 06-Aug-2020    |

| GENERAL COMMENTS  | Thank you for the opportunity to review this manuscript. I enjoyed reading it and like the way it presents a serious issue in an empirically robust and also entertaining way. The topic is important as it impacts upon both scientific quality and equity in publishing. I would have liked to see a more detailed account of the scientific, moral and socio-political strengths and weaknesses of open access vs. subscription models. At the moment the impression is that the only problem with open access is that some people can't afford it. This is a major issue but there are other issues too. For example, open access journals might be of high quality but there is also a perverse incentive for these journals to accept more articles more quickly (indeed, an entirely industry of predatory publishing has already developed to exploit this model). This is relevant to the current analysis because some people might choose to (and be able to afford to publish) open access because they believe (rightly or wrongly) that they are more likely to be successful. This is not only an equity issue, but also a threat to the quality of the scientific record as a whole. As a qualitative researcher, I cannot comment on the methodology but it apperaed sound as far as I can tell. |

VERSION 1 – AUTHOR RESPONSE

Reviewer 2: Thank you for the opportunity to review this manuscript. I enjoyed reading it and like the way it presents
a serious issue in an empirically robust and also entertaining way. The topic is important as it impacts upon both scientific quality and equity in publishing. I would have liked to see a more detailed account of the scientific, moral and socio-political strengths and weaknesses of open access vs. subscription models.

At the moment the impression is that the only problem with open access is that some people can’t afford it. This is a major issue but there are other issues too. For example, open access journals might be of high quality but there is also a perverse incentive for these journals to accept more articles more quickly (indeed, an entirely industry of predatory publishing has already developed to exploit this model). This is relevant to the current analysis because some people might choose to (and be able to afford to publish) open access because they believe (rightly or wrongly) that they are more likely to be successful. This is not only an equity issue, but also a threat to the quality of the scientific record as a whole. As a qualitative researcher, I cannot comment on the methodology but it appeared sound as far as I can tell.

Response: Thank you for these comments. We agree that there is a larger conversation to be had about the scientific, moral, and socio-political ramifications of open access publishing, but defer a more detailed discussion of these issues as it is beyond the scope of this manuscript. However, the current manuscript does touch upon perceived differences between open access and subscription-based journals (e.g. "While there does not appear to be a quality difference between subscription-based and open access journals, there is some evidence that journals with higher APCs are perceived to be higher impact.").

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**GENERAL COMMENTS**

Thank you for the opportunity to review this revised manuscript. I am happy to recommend publication with a few minor revisions:

* Title: Suggest shortening the second part of the title to e.g. Publishing at any cost: a cross-sectional study of expenditure by researchers on open access publishing
* p7: Add "For the most part" at the beginning of the sentence "These journals have operated using a subscription model…"
* p7: I don’t think it is correct to align OAP so directly with the move towards digital publishing. The two obviously coincided and digital publishing facilitates OAP, but they are two separate distinctions
* Top of p8: Need to be careful not to make it sound like OAPs are, by definition, advertisement free. Again, they might be, but this is not intrinsic to the model.
* p8: I think it is important to note that subscription based publishing can also create inequities because less resourced institutions cannot pay. The issue is not that OAP introduces inequities (which is how it currently reads) but rather that it does not solve the problem of
inequities.

* I would rearrange the discussion a bit so that the strengths of OAP (that are introduced on p21) come before the problems. "It is important to note that limiting the amount of science…"
(Note: I am a qualitative researcher so I have not closely assessed the methodology)

**VERSION 2 – AUTHOR RESPONSE**

Reviewer 1:
1. Thank you for the opportunity to review this revised manuscript. I am happy to recommend publication with a few minor revisions:
   Response: Thank you for your helpful comments and support.
2. Title: Suggest shortening the second part of the title to e.g. Publishing at any cost: a crosssectional study of expenditure by researchers on open access publishing
   Response: We defer to the editors regarding the length of the title.
3. p7: Add “For the most part” at the beginning of the sentence "These journals have operated using a subscription model…"
   Response: We have updated the language to address this suggestion.
Page 6, Lines 113:
For the most part, these journals have operated using a subscription model, generally owned and managed by a professional society or a medical publisher.

4. 7: I don't think it is correct to align OAP so directly with the move towards digital publishing. The two obviously coincided and digital publishing facilitates OAP, but they are two separate distinctions
   Response: Thank you for this comment. We have updated the language in this section to reflect that this was a parallel changed, but not necessarily a dependent relationship.
Page 6, Line 119:
However, over the past 20 years, a new model of scientific publishing emerged in parallel with a rise in digital “publication” rather than print distribution – open access publishing.

5. Top of p8: Need to be caref
   Response: We have updated the language describing the role of advertisements vs. APCs in the funding of open access journals.
Page 6, Line 122:
With no revenue from subscriptions (or from prescription drug advertisements), some open access journals established a new business model built primarily around article processing charges (APCs).

6. I think it is important to note that subscription based publishing can also create inequities because less resourced institutions cannot pay. The issue is not that OAP introduces inequities (which is how it currently reads) but rather that it does not solve the problem of inequities.
   Response: In our discussion of the benefits of open access, we address the concern that inequities arise from subscription-based publishing as well due to the inability of less-resourced institutions to afford the subscription fees (e.g., Page 17, Line 383-385: “Open access publishing can enhance equity by improving the ability of researchers, either working in low-resource settings or at institutions that cannot support the hefty cost of journal subscriptions, to access publications”). In response to Comment #7 from Reviewer #1, we have moved the discussion of the benefits of open access publication before the discussion of the limitations. We believe this better illustrates both the strengths and limitations of open access publishing.
7. I would rearrange the discussion a bit so that the strengths of OAP (that are introduced on p21) come before the problems. "It is important to note that limiting the amount of science…"
Response: Thank you for this suggestion. Please see our response to Comment # 6.

VERSION 3 – REVIEW

| REVIEWER       | Wendy Lipworth  |
|----------------|-----------------|
|                | University of Sydney, Australia |

| REVIEW RETURNED | 15-Dec-2020 |
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| GENERAL COMMENTS | Thank you for responding to my comments. I am happy to recommend acceptance of the manuscript. |