

## PEER REVIEW HISTORY

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### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	Tweeting links to Cochrane Schizophrenia Group reviews: a randomised controlled trial
<b>AUTHORS</b>	Adams, Clive; Jayaram, Mahesh; Bodart, Angelique; Sampson, Stephanie; Zhao, Sai; Montgomery, Alan

### VERSION 1 - REVIEW

<b>REVIEWER</b>	Andrew Shepherd University of Manchester, UK
<b>REVIEW RETURNED</b>	03-Dec-2015

<b>GENERAL COMMENTS</b>	<p>Many thanks for the opportunity to read your interesting paper on the impact of dissemination of information through Twitter and Weibo and the impact of this on access to target articles. I generally found this paper clear and easy to read, with clear methodology. I have listed specific points and questions in relation to different manuscript sections below.</p> <p>Abstract: - In the results section of your abstract you list the geometric mean time of access to articles as 76 and 31 minutes. In Table 5 of the main manuscript however you list the measured time in seconds - which is correct?</p> <p>Introduction: - On the 4th line of the second paragraph, p3; there is no space between the superscript reference 4 and the next word 'Most',.</p> <p>Methods:</p> <p>Participants: - In the final paragraph of this section you state that no ethical approval was required - which I agree with. However you reference this claim with a link to an Australian website; would it be more appropriate to link to guidance from the UK where you say your study was primarily conducted (Nottingham)?</p> <p>Randomisation: - You define your level of baseline activity and state that the 23 week period of interest is 'defined above'; however by my reading this 23 week period is only described later in your manuscript. Could you rephrase this section for clarity?</p> <p>At the end of your paragraph on 'Randomisation' you mention the on-line platform Hootsuite - could you add the reference to this resource at this point of first mention as opposed to later in the manuscript?</p> <p>Procedures: - You describe your Tweets coming from the Cochrane Schizophrenia Group account, and presumably a similar Weibo account - could you define the number of followers at the time of the intervention to give some indication of the reach that your Tweets</p>
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	<p>may have had? This would seem of interest to contextualise the impact of your dissemination?</p> <p>Outcomes: - You list your secondary outcomes in Table 2 - is a table necessary here, or could a simple list have been used in line with the text?</p> <p>Statistical analysis: - In your representation of the time spent on each page view you compare geometric means between intervention and control. I couldn't see an explanation for this choice in the Statistical analysis section of your manuscript. Why have you selected a geometric mean for this comparison, I felt this could be explained for clarity?</p> <p>Discussion: - You make reference to your 'relatively small following' - again I felt that a rough count of followers could be useful for context?</p>
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<b>REVIEWER</b>	Vinay Prabhu New York University School of Medicine
<b>REVIEW RETURNED</b>	13-Dec-2015

<b>GENERAL COMMENTS</b>	<p>Overall, the topic is an extremely interesting one- the authors used Twitter and Weibo, highly utilized social networks with easily accessible data and understudied impact in medicine. They are the first to prospectively perturb the system and analyze the impact of this on journal article readership, an extremely common tweet in the field of medicine with unknown effect (until this paper). I would accept this article with several revisions, as discussed below.</p> <p>Introduction -Good summary for the layperson. -I would include some information on how strong the Cochrane Schizophrenia group is, if that information is available and easily presentable (maybe who writes for it, if it has a high impact factor or is held in high regards amongst psychiatrists, who usually reads it, etc). Otherwise, this study seems quite random, especially for someone not in the field of interest like myself. Overall, I want to know if this group is important and if people in the field actually care about it. -"plan language summary"- I believe the authors mean "plain." Also it is capitalized once and not the second time; unsure why.</p> <p>Methods -The methods are robust, in terms of randomization, sister programs used (Hootsuite, Google Analytics, etc) and also the planned out tweeting scheme based on literature in the area (time of day, day of week, etc). This is a very big strength to this article. -I also liked the thought-provoking tweets used. Often big corporations/organizations looking to spread news to users will use automatic news feeders to tweet out their articles (much like the first tweet example provided in Table 1), which only tweet the article title and a link, not such a clever statement. It would be nice to see the individual impact of "bland" versus "clever" tweets, but I understand this would be hard. Combining these tweets as a "package" may reduce the generalizability of the results, but will also suggest to many users that using thought-provoking statement could help recruit viewers. The aforementioned study of bland vs. clever could</p>
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	<p>be a topic for future study.</p> <p>-In order for this study to be considered applicable to any other forum, it is essential that the specifics of the Twitter and Weibo usernames used to send these messages be provided (preferably at the time the messaging was performed, but not absolutely necessary if it hasn't changed much and/or the data is not retrievable). This includes the username, the number of followers, following, and tweets. One of the major questions I would have as a reader is "Does this study apply to my Twitter account?" and if this Twitter account has massively higher numbers of followers than the average user, it may not apply to the reader, or suggest that the reader be more active and recruit a follower base.</p> <p>-I am not as familiar with Weibo, but if something is tweeted in English in China, does this technically have the same impact as something tweeted in Mandarin or Cantonese?</p> <p>-between "AB" and "she" on line 54/55, there should probably be a semicolon</p> <p><b>Results</b></p> <p>-I am very impressed by the results of this research, given that the trial was performed on something (schizophrenia review articles) that may only be of interest to a small subgroup of people. I can only imagine what impact it would have on something of bigger scale.</p> <p>-In Table 4, if the authors can provide p-values to prove there was no baseline difference in review content, this would be effective in further convincing the reviewer that it wasn't just more interesting articles (i.e. those on purely schizophrenia) in the intervention group. Visually the percentages look similar enough, though.</p> <p><b>Discussion/Conclusion</b></p> <p>-The authors seem to understate the impacts of their findings, which are particularly interesting and groundbreaking. I think the discussion should first state the strengths (i.e. the second to last paragraph of the Discussion should be moved up) and then the limitations (earlier paragraphs moved down), unless specifically directed by the journal format to do otherwise.</p> <p>-I think mentioning specific numbers or odds ratios in the discussion could really emphasize the impact that tweeting had on readership, which is what readers of this article are most interested in.</p>
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### VERSION 1 – AUTHOR RESPONSE

Reviewer: 1 comments

1. Abstract: - In the results section of your abstract you list the geometric mean time of access to articles as 76 and 31 minutes. In Table 5 of the main manuscript however you list the measured time in seconds - which is correct? - the unit of measurement is in seconds. Corrected in the abstract
  
2. Introduction: - On the 4th line of the second paragraph, p3; there is no space between the superscript reference 4 and the next word 'Most'. - Corrected - in track changes
  
3. Participants: - In the final paragraph of this section you state that no ethical approval was required - which I agree with. However you reference this claim with a link to an Australian website; would it be more appropriate to link to guidance from the UK where you say your study was primarily conducted (Nottingham)? - This was an online study. Some of the authors were based in the UK and one was based in Australia. We have amended the reference links to include one reference for this from Australia and one from the UK - references 14 and 15.

4. Randomisation: - You define your level of baseline activity and state that the 23 week period of interest is 'defined above'; however by my reading this 23 week period is only described later in your manuscript. Could you rephrase this section for clarity? - This has been 'described above' in the Sample size section, however added another line to clarify it.

5. At the end of your paragraph on 'Randomisation' you mention the on-line platform Hootsuite - could you add the reference to this resource at this point of first mention as opposed to later in the manuscript? - Amended reference - now is reference 17.

6. Procedures: - You describe your Tweets coming from the Cochrane Schizophrenia Group account, and presumably a similar Weibo account - could you define the number of followers at the time of the intervention to give some indication of the reach that your Tweets may have had? This would seem of interest to contextualise the impact of your dissemination? - A new sentence added under results section to explain this.

7. Outcomes: - You list your secondary outcomes in Table 2 - is a table necessary here, or could a simple list have been used in line with the text? - We debated about this. In the end we left it as a table as it would then be made available as a 'downloadable resource' for others. If we are advised to change this to text, happy to do so.

8. Statistical analysis: - In your representation of the time spent on each page view you compare geometric means between intervention and control. I couldn't see an explanation for this choice in the Statistical analysis section of your manuscript. Why have you selected a geometric mean for this comparison, I felt this could be explained for clarity? - Time spent on each page was positively skewed, therefore we transformed this variable prior to comparing groups by taking logarithms. When comparing values on the log scale using linear regression, the between-group difference in means when exponentiated represents the ratio of geometric means. We have added some further explanatory text to the final sentence of the second paragraph under 'statistical analysis' (p9) to make this clearer.

9. Discussion: - You make reference to your 'relatively small following' - again I felt that a rough count of followers could be useful for context? - This has now been addressed in the results section

Reviewer 2 comments:

1. I would include some information on how strong the Cochrane Schizophrenia group is, if that information is available and easily presentable (maybe who writes for it, if it has a high impact factor or is held in high regards amongst psychiatrists, who usually reads it, etc). Otherwise, this study seems quite random, especially for someone not in the field of interest like myself. Overall, I want to know if this group is important and if people in the field actually care about it - added a new piece of text at the very beginning of the introduction.

2. -"plan language summary"- I believe the authors mean "plain." Also it is capitalized once and not the second time; unsure why - yes, typo, edited, thanks for pointing it out.

3. -In order for this study to be considered applicable to any other forum, it is essential that the specifics of the Twitter and Weibo usernames used to send these messages be provided (preferably at the time the messaging was performed, but not absolutely necessary if it hasn't changed much and/or the data is not retrievable). This includes the username, the number of followers, following, and tweets. One of the major questions I would have as a reader is "Does this study apply to my Twitter account?" and if this Twitter account has massively higher numbers of followers than the average

user, it may not apply to the reader, or suggest that the reader be more active and recruit a follower base - this has been addressed by adding details of the number of followers for both Twitter and Weibo accounts - this would hopefully help readers extrapolate whether this study would be applicable their own personal Twitter accounts.

4. I am not as familiar with Weibo, but if something is tweeted in English in China, does this technically have the same impact as something tweeted in Mandarin or Cantonese? The interventions in Weibo were sent out in Mandarin.

5. -between "AB" and "she" on line 54/55, there should probably be a semicolon - thanks, amended

6. In Table 4, if the authors can provide p-values to prove there was no baseline difference in review content, this would be effective in further convincing the reviewer that it wasn't just more interesting articles (i.e. those on purely schizophrenia) in the intervention group. Visually the percentages look similar enough, though - We calculated p value from z scores and none of them were statistically significant as outlined below. Rather than entering the non-significant values, we have amended the text - last sentence on page 9 to reflect this.

Non-tweet	Tweet	p value
20 (24%)	13 (15%)	0.18
65 (76%)	72 (85%)	0.18
59 (69%)	54 (64%)	0.42
26 (31%)	31 (36%)	0.42

7. The authors seem to understate the impacts of their findings, which are particularly interesting and groundbreaking. I think the discussion should first state the strengths (i.e. the second to last paragraph of the Discussion should be moved up) and then the limitations (earlier paragraphs moved down), unless specifically directed by the journal format to do otherwise - amended accordingly, thank you.

8. I think mentioning specific numbers or odds ratios in the discussion could really emphasise the impact that tweeting had on readership, which is what readers of this article are most interested in - We have described the numbers in both the results section and abstract, hence did not feel it should be repeated in the discussion as well. Happy to amend it if required.

### VERSION 2 – REVIEW

<b>REVIEWER</b>	Andrew Shepherd GMW Mental Health, NHS Foundation Trust, UK
<b>REVIEW RETURNED</b>	20-Jan-2016

<b>GENERAL COMMENTS</b>	Many thanks for the opportunity to re-review the new draft of this paper. I continue to believe that this paper represents an interesting exploration of the impact of 'tweeting' in relation to research evidence. I have reviewed the new manuscript and feel that the authors have addressed all my original points of question from the previous review. I have no additional points to raise.
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