



Learn how to Peer Review with the Publons Academy

University of Warwick summer school

12/09/2018



Julia Vilstrup Mouatt
Head of the Publons Academy
julia@publons.com

First, a little more about all of you!

- How many of you have authored a peer review manuscript? (hands up)
- How many have published as a first or corresponding author?
- How many have peer reviewed a manuscript for a journal or conference?
- How many have co- or shadow reviewed with your supervisor or PI?
 - How many also had their name on the review report? Or officially co-reviewed for the journal?
- How many have reviewed without the help of anyone?

What will be covered in this workshop

1. Intro: Why do we have peer review?
2. How peer reviewing makes you a better researcher
3. Publons and other peer review platforms
4. Peer Review Week and the Global State of Peer Review Report
5. Academic publishing and peer review
6. How to review (exercise!)
7. How to get involved with peer review

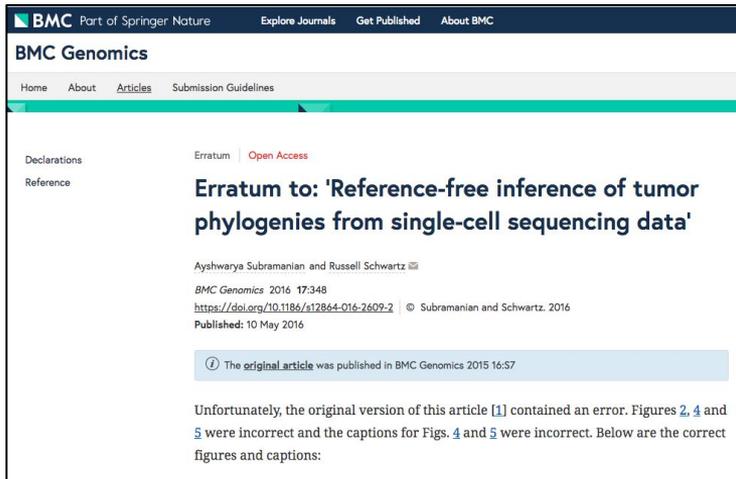
1. Why do we have Peer Review?

- Upholds the integrity and quality of research
- Bring trust to research
 - Pseudoscience
 - Fake news
 - Questionable publishers
- Also used to assess grants/funding
- The best we've got!



2. How peer review makes you a better researcher

- Reading critically is an important skill
- Understanding that even published and peer reviewed research is not perfect!
 - Corrections (erratum)
 - Retractions



BMC Part of Springer Nature Explore Journals Get Published About BMC

BMC Genomics

Home About Articles Submission Guidelines

Declarations Reference

Erratum | Open Access

Erratum to: 'Reference-free inference of tumor phylogenies from single-cell sequencing data'

Ayshwarya Subramanian and Russell Schwartz

BMC Genomics 2016 17:348
<https://doi.org/10.1186/s12864-016-2609-2> | © Subramanian and Schwartz. 2016
Published: 10 May 2016

The original article was published in BMC Genomics 2015 16:57

Unfortunately, the original version of this article [1] contained an error. Figures 2, 4 and 5 were incorrect and the captions for Figs. 4 and 5 were incorrect. Below are the correct figures and captions:



EDITORIAL RETRACTION

Retraction: Ahimastos AA, Dart AM, Kingwell BA. Angiotensin II blockade in Marfan's syndrome. N Engl J Med 2008;359:1732

Jeffrey M. Drazen, M.D., Stephen Morrissey, Ph.D., and Edward W. Campion, M.D.

Article Metrics

December 3, 2015
N Engl J Med 2015; 373:2280
DOI: 10.1056/NEJMe1514259

1 Reference

Related Articles

CORRESPONDENCE OCT 16, 2008
Angiotensin II Blockade in Marfan's Syndrome

ADVERTISEMENT

RONWYN A. KINGWELL, PH.D., AND ANTHONY M. DART, D.PHIL., HAVE REQUESTED retraction of their letter to the editor¹ owing to "inadequate validation of primary data sources and data misrepresentation" uncovered by an institutional investigation into the research of Anna A. Ahimastos, Ph.D., by the Designated Person for Research Conduct at Baker IDI Heart and Diabetes Institute, Melbourne, Australia. The investigation did not find Drs. Kingwell and Dart to have been involved in any misconduct.

2. How peer review makes you a better researcher

- Helps you select published research and references to build your own research on
- Review your own work before submitting to a journal
- Stay up to date on the latest research in your field
- Another way to be active in your research community
- Connecting with editors and journals not just as an author
 - Get on editorial boards (great for your cv)
- Review others' grant applications to make your own more successful!

3. Publons and other peer review platforms

- Peer review is a *service to your field*
- Lack of recognition and lack of transparency has led to peer review platforms
 - Registration of peer reviews
 - Open and post-publication review and commenting
 - Online journal clubs



What is Publons?

- The largest peer review platform in the world
 - 450k+ reviewers have added 2.5M+ reviews from 25k+ journals
 - Record all your peer review activity
 - Stats and verified summaries to add to your cv
- Annual peer review awards
- Peer review training (The Publons Academy)



A screenshot of a researcher's profile on the Publons website. The profile is for Julia T. Vilstrup. At the top, there is a search bar and navigation links for HOME, BROWSE, COMMUNITY, and FAQ. The profile includes a profile picture of Julia T. Vilstrup, a 'PROFILE' tab, and a 'STATISTICS' tab. The profile text lists her affiliations: Publons Academy (2016 to Present), PostDoc at Fisheries and Wildlife, Oregon State University (2014 to 2016), PostDoc at Rangeland Ecosystem Science Center, U.S. Geological Survey (2014 to 2016), PhD student at Natural History Museum of Denmark, Copenhagen University (2007 to 2013), and Undergraduate student at Science Massey University (2004 to 2006). It also lists her affiliations on Publons, ResearchGate, and LinkedIn. A 'BIO' section describes her as an Evolutionary Biologist with a PhD in ancient DNA and phylogenetics of rodents and equids from the Centre for GeoGenetics, Natural History Museum of Denmark, University of Copenhagen. Her research fields include Biogeography and Phylogeography, Conservation, Genomics, Palaeoecology, Phylogeny and Comparative Analysis, and Population, Ecological and Evolutionary Genetics. The profile also shows editorial board memberships, editor records, and journals she has reviewed for, such as the Journal of Biogeography and The Auk: Ornithological Advances.

What is Publons?

- Publons' mission is to “speed up science”
 - Lack of recognition results in less review invitations being accepted
 - Difficulty finding qualified reviewers results in slow turn around times
- Publons partners with more than 60 publishers to help:
 - Acknowledge reviewers for their service to their journals
 - Screen and find motivated and qualified reviewers

SPRINGER NATURE

WILEY

 Taylor & Francis Group
an informa business


CAMBRIDGE
UNIVERSITY PRESS

 Wolters Kluwer

THE
ROYAL
SOCIETY

 SAGE

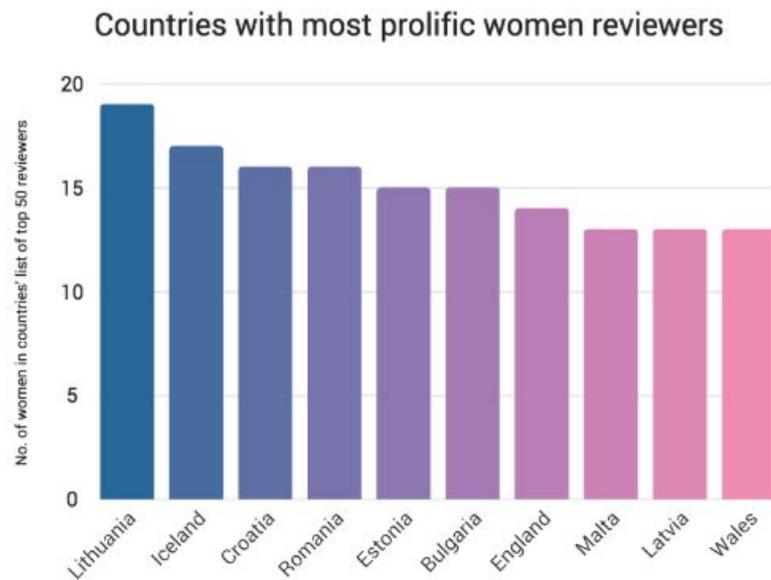
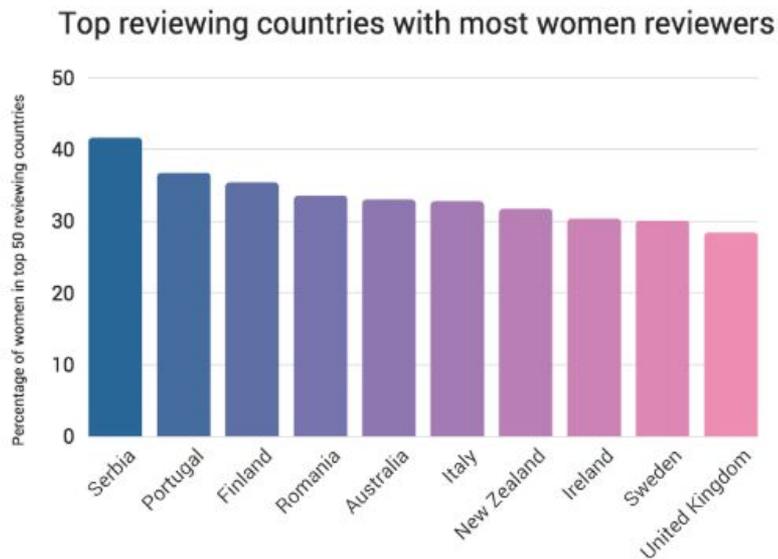
OXFORD
UNIVERSITY PRESS

4. Peer Review Week and the Global State of Peer Review

This year's Peer Review Week theme: [Diversity \(and inclusion\) in peer review](#)

- What biases are there in peer review?
 - Gender
 - Career stage/seniority
 - Geographical
 - Method/school of thought

Women reviewers are underrepresented, but where are the top women reviewers?

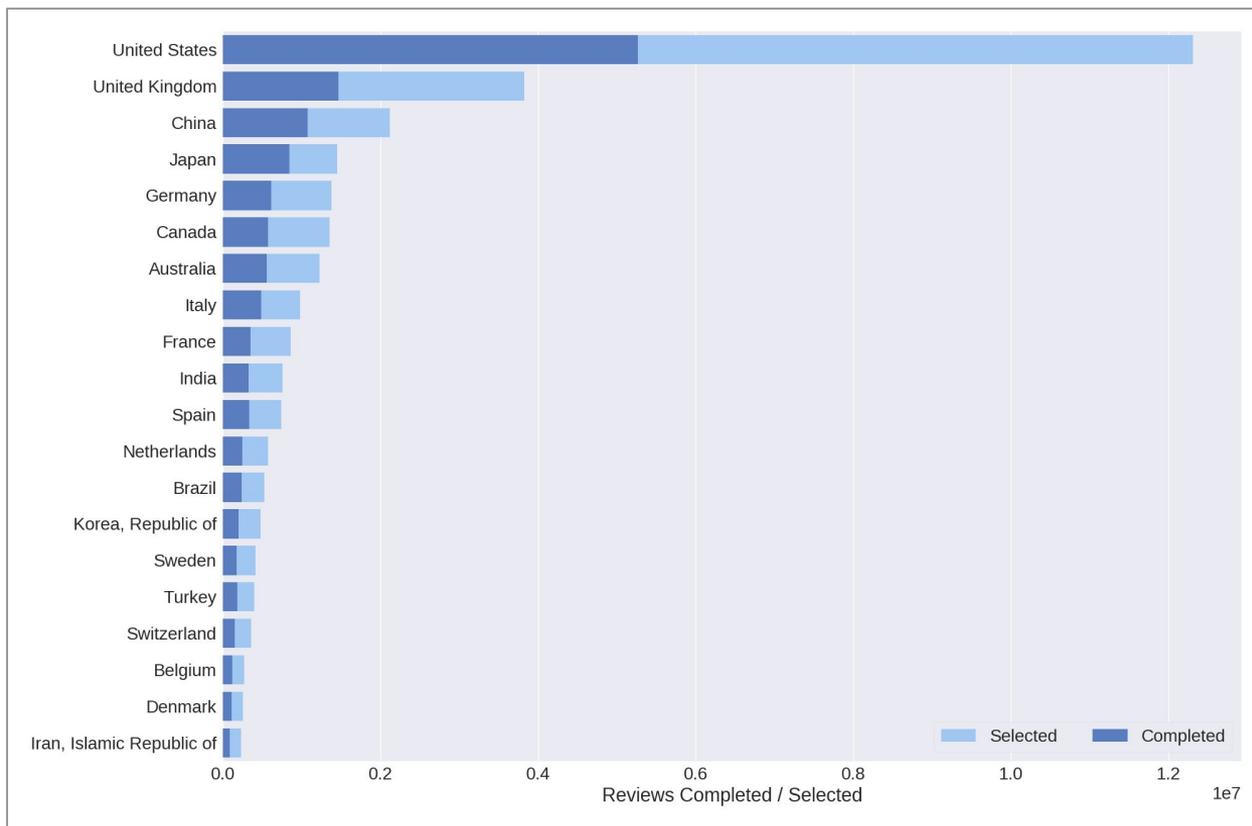


Early Career Researchers (ECRs)

- ECRs = grad students, PhD students, post-docs
- Don't get invited
 - Qualified but not on editor's radar as not published enough yet
- Co-review/shadow review with PI
 - Don't get recognition or connect with editors
- Getting ECRs to review
 - PROS:
 - Tend to produce critical and long reviews
 - Often submit on time
 - Up to date on the latest methods
 - CONS:
 - Might lack more extensive knowledge
 - Sometimes are overly critical



Top 20 countries, whose researchers get invited to review the most (data from Publons, 2013-2017 (data science report leading up to GSPR))



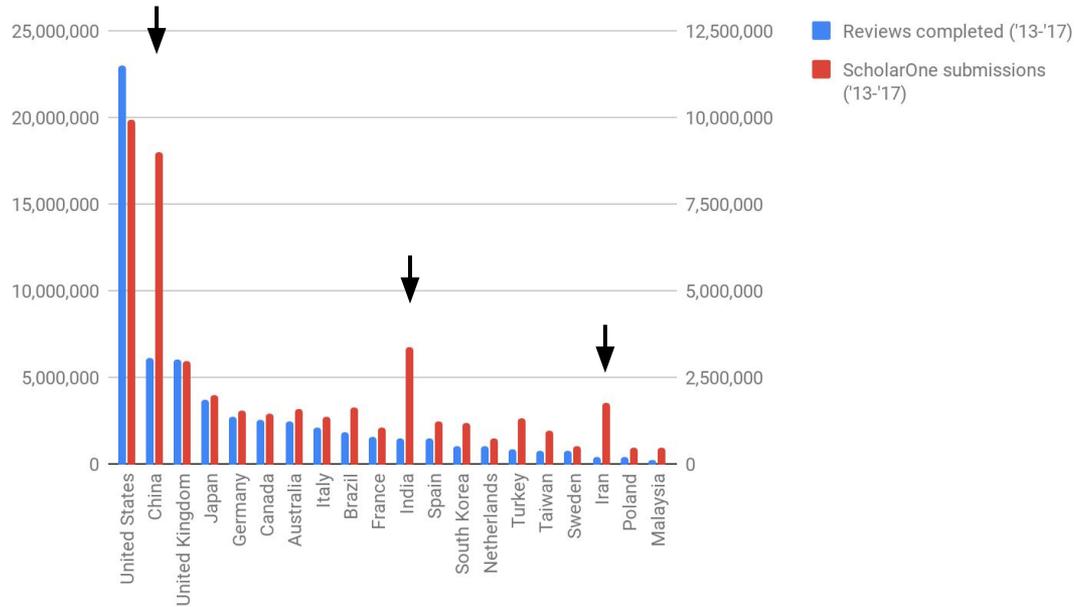
GSPR report key summary (14,361 responses)

- USA dominates absolute contributions to peer review; contributing 32.9% of all reviews compared to 25.4% of published article output.
- China reviews substantially less (8.8%) than its article output (13.8%) would predict.
- In aggregate *established regions* review more than *emerging regions* relative to their respective article outputs.
- Editors are disproportionately selected from *established regions*.
- Editors disproportionately select reviewers from their own region.
- Absolute review contributions are growing in all regions, but more rapidly in *emerging regions*. China, in particular, is rapidly increasing review output.
- There are few studies of gender in peer review, but early indications are that male participation is higher than female.

<https://publons.com/community/awards/peer-review-awards-2018#peer-review-report>

Geographical imbalance

Supply and demand by country



China, India and Iran submit a lot more papers for publication than they review (data from 2013-2017)

Gender imbalance

Neither Publons nor ScholarOne store gender data. Using an algorithmic approach, which predicts gender based on name and region, the following gender distribution is estimated: for researchers on Publons:

- 22% female
- 45% male
- 33% unknown

Figure 18: Predicted gender distribution of reviewers on Publons

Data source: Publons

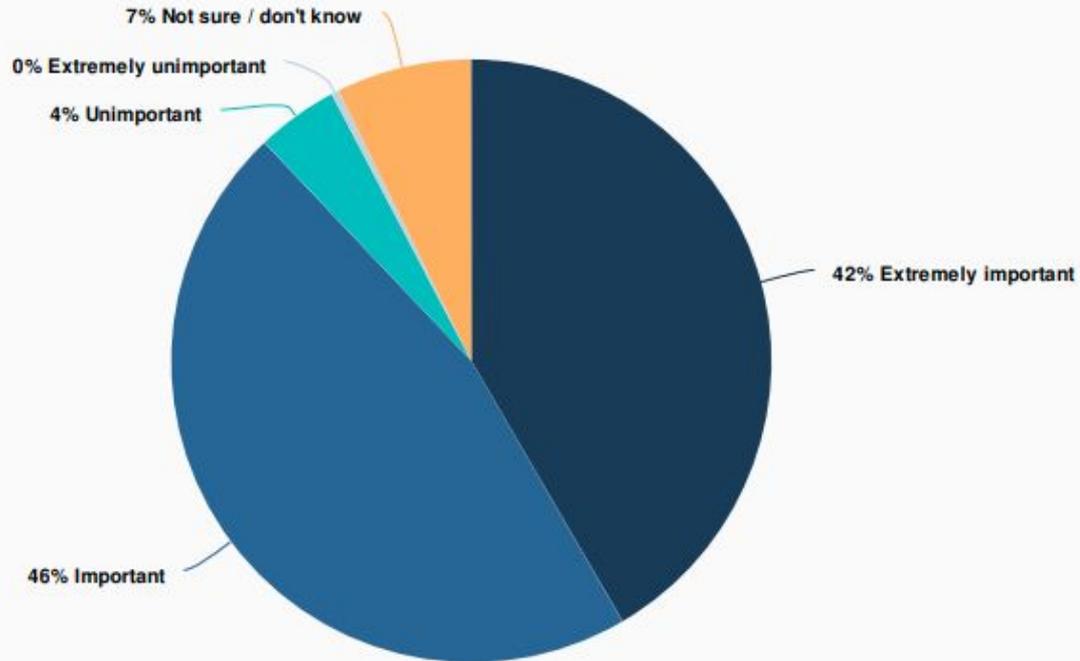
Aside: A study by American Geophysical Union (AGU) found that while the proportion of female reviewers increased from 2012 to 2016, women of all ages had fewer opportunities to take part in peer review*

— <https://www.nature.com/news/journals-invite-too-few-women-to-referee-1.21337>

The AGU's analysis, released in full at the Peer Review Congress in September 2017, indicated that this bias is a result of (mostly male) authors and editors suggesting women as reviewers less often than they do men. They found male authors suggested 16% of female reviewers whereas female authors suggested 22%. Male editors subsequently invited only 18% female reviewers, while female editors went on to invite 22%

While much more data are needed to draw firm conclusions, it seems that women are underrepresented in peer review, or possibly in research as a whole.

12. How important is peer review training for ensuring high-quality peer review?



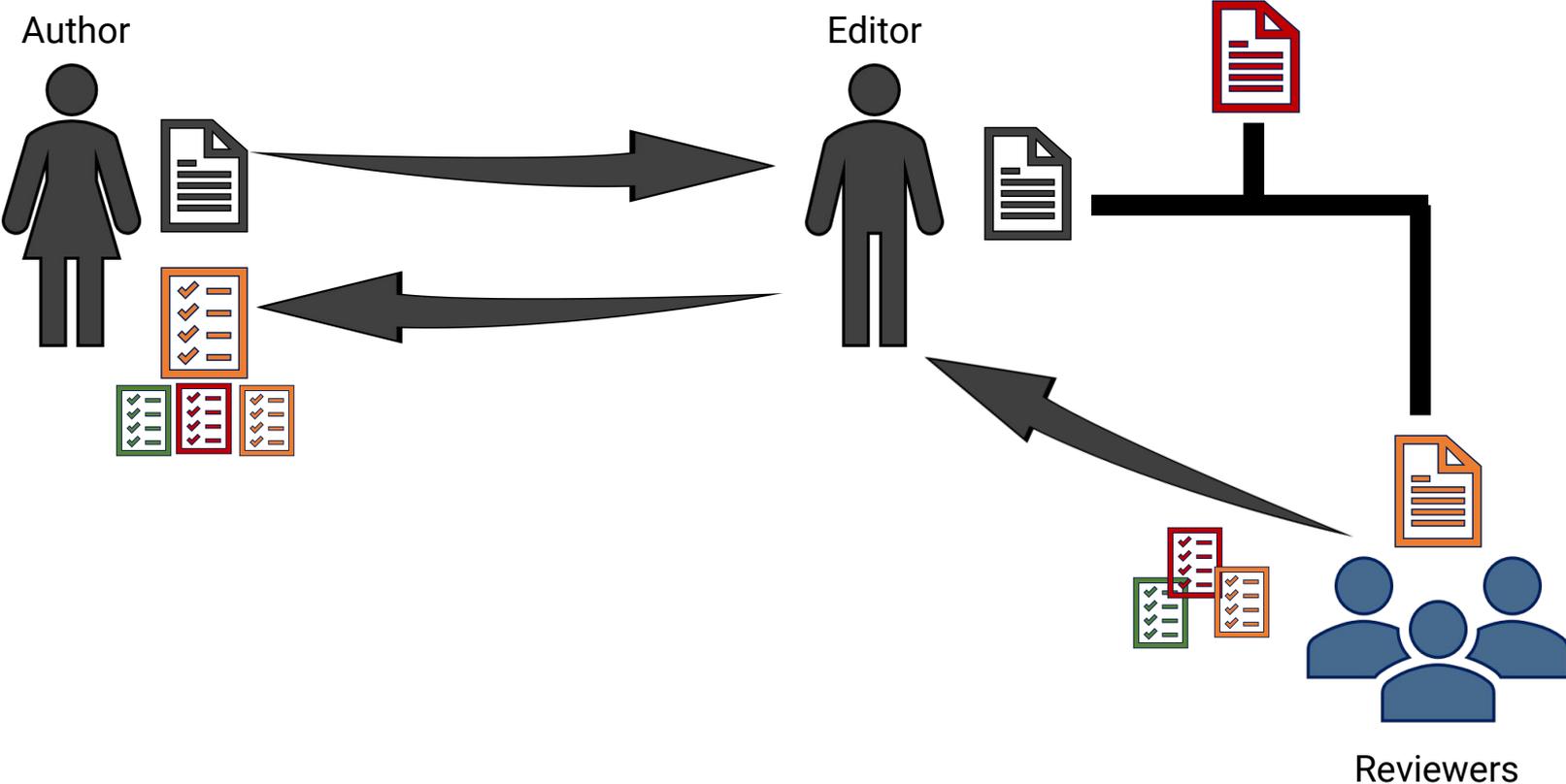
88% of respondents said peer review training was Important or Extremely Important

5. Publishing and Peer Review

- The Peer Review process
- Different forms of peer review
- The role of reviewers v.s editors
- Ethics in peer review



5.1 The peer review process



5.2 Different forms of peer review

- Single blind
 - Reviewers know who the authors are, but the authors do not know who the reviewers are
 - Most common form
 - PROS:
 - Article reviewed in context
 - CONS:
 - Personal vendettas and biases
- Double blind
 - Neither authors nor reviewers know the names of each other
 - More common in SSAH
 - PROS:
 - Reduced bias, focus is on the research
 - CONS:
 - Hard to manage, often unsuccessful in masking identities

5.2 Different forms of peer review

- Open peer review
 - Many different forms
 - Most open is review reports and names of reviewers published alongside article
 - PROS:
 - More transparent
 - Greater accountability
 - More constructive feedback
 - Reviewers get open recognition for their contribution
 - CONS:
 - Prone to positive bias
 - More declines

5.3 The role of reviewers v.s editors

Editors

- Determine if paper is within scope of journal
- Whether of enough interest and quality to go out for peer review
- Plagiarism checks
- Misconduct investigations
- Make decision based on own and reviewer's comments
- Formatting and style to fit journal
- Grammar, typos, inconsistencies

Reviewers

- Overall quality of paper
- Sound methodology
- Subject specific expertise
- Impact to field
- Also help with grammar, typos, inconsistencies (but not main role) and ethical concerns

5.4 Ethics in peer review

Reviewers

- Biases
- Conflicts of interest

Authors

- Data sharing
- Funding transparency
- Subject treatment
- Research or publication misconduct



Reviewer biases and conflicts of interest

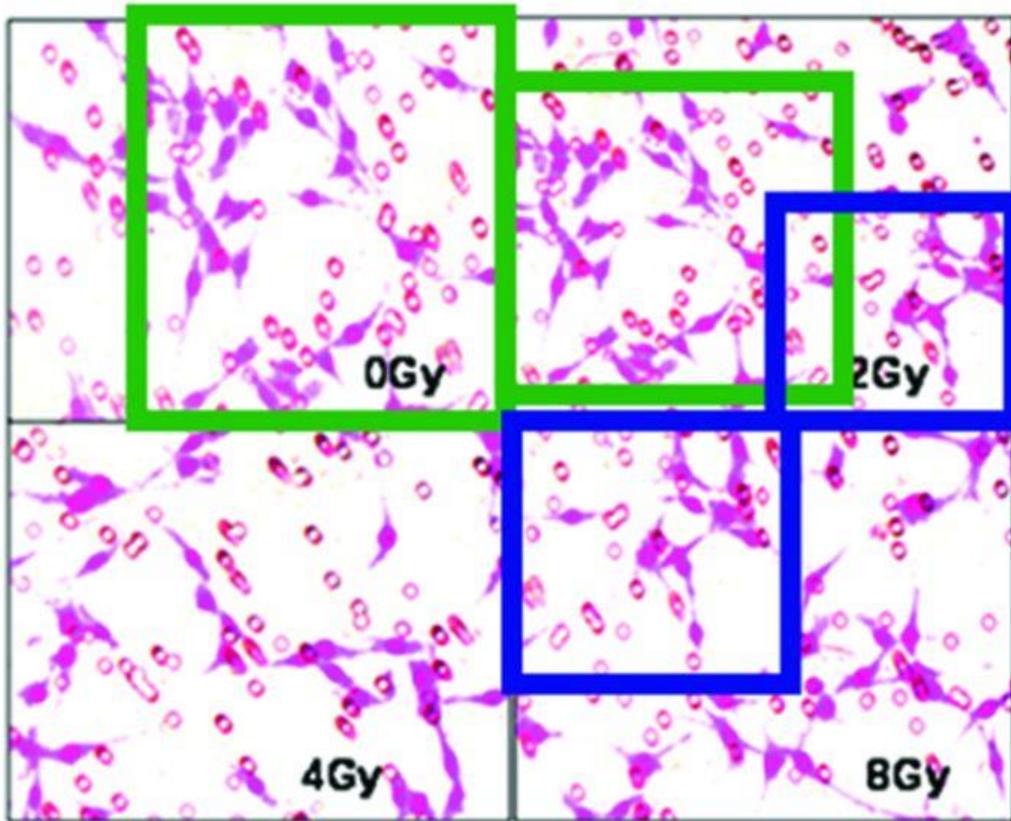
- **Unintentional biases**
 - Favouritism/prejudice based on gender, institution, geography, career stage, methods/school of thought
 - Address this by following the same structured process
- **Conflicts of interest**
 - Avoid reviewing papers of current colleagues/collaborators and friends
 - Avoid reviewing papers in direct competition to your own work
 - If in doubt declare a COI

Reviewer biases and conflicts of interest

- **Unintentional biases**
 - Favouritism or prejudice based on gender, institution/geography, career stage, methods
 - Address this by following the same structured process
- **Conflicts of interest**
 - Avoid reviewing papers of current colleagues/collaborators and friends
 - Avoid reviewing papers in direct competition to your own work
 - If in doubt declare a COI
- Be honest about your expertise and knowledge
- Uphold the confidentiality of peer review
 - Do consult colleagues for specific advice and ask for permission to co-review
- Be honest, polite and constructive in your review comments
- Stick to timelines - ask for an extension if needed
 - Help speed up science!

Research and publication ethics

- **Data sharing**
 - Does the journal require open data? If yes, is it provided? (Figshare, Data Dryad, Genbank)
- **Funding transparency**
 - Is there a funding or conflict of interest statement?
 - Could they have influenced the paper's results?
- **Subject treatment**
 - Were the necessary permits obtained?
 - Did participants provide consent?
 - Are live animal experiments necessary?
- **Research or publication misconduct**
 - Plagiarism
 - Data manipulation
 - Fabrication - invention of data
 - Falsification - alteration of real data
 - Image manipulation



Bik EM, Casadevall A, Fang FC. (2016)

The prevalence of inappropriate image duplication in biomedical research publications.

mBio 7(3):e00809-16.

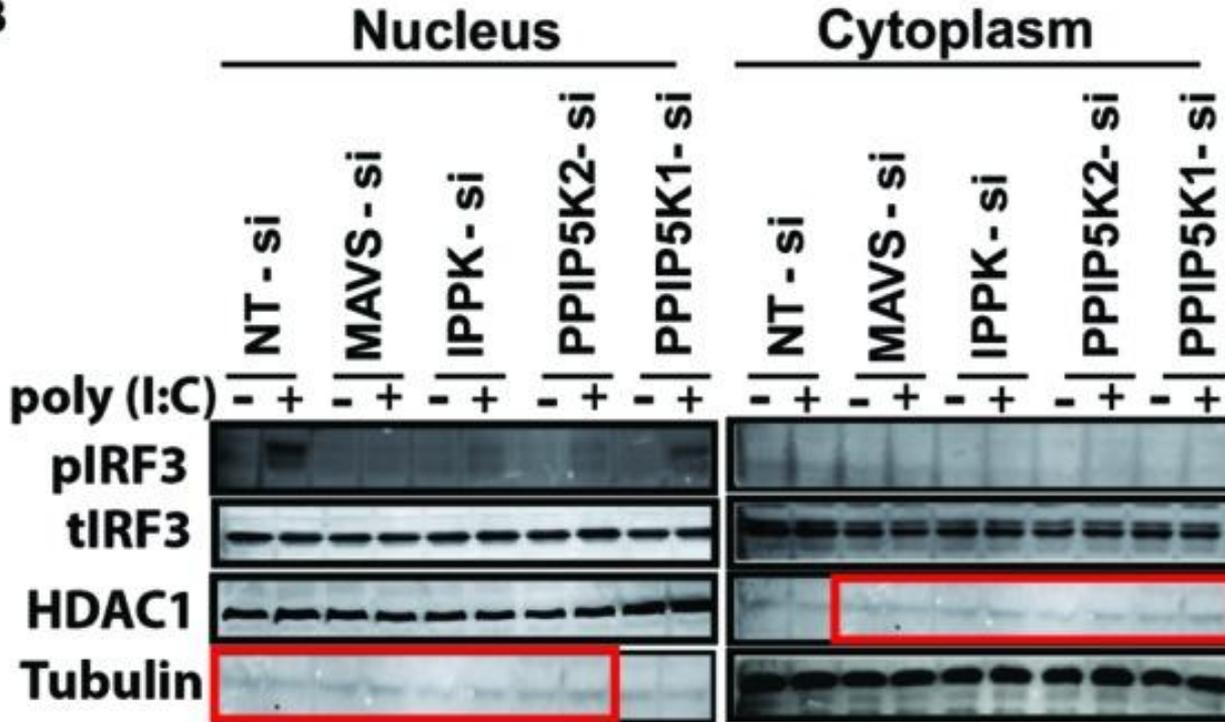
<http://mbio.asm.org/content/7/3/e00809-16>

adapted from
Liu Y et.al. (2014)

Carbon Ion Radiation Inhibits Glioma and Endothelial Cell Migration Induced by Secreted VEGF

PLoS ONE 9(6): e98448

<https://doi.org/10.1371/journal.pone.0098448>

B

Bik EM, Casadevall A, Fang FC. (2016)

The prevalence of inappropriate image duplication in biomedical research publications. *mBio* 7(3):e00809-16.

<http://mbio.asm.org/content/7/3/e00809-16>

adapted from Pullor NK et.al. (2014).

Human genome-wide RNAi screen identifies an essential role for inositol pyrophosphates in type-I interferon response.

PLoS Pathogens 10(2): e1003981.

<https://doi.org/10.1371/journal.ppat.1003981>

6. How to Peer Review

- Common mistakes
- Peer review template
- Exercise
 - Open access paper with open review comments
 - Being right or being happy

Common mistakes

- Just commenting on grammar, typos, references not referenced/cited correctly

The authors proposed and investigated the novel technique that will be the candidate for future wireless communication systems.

Minor revisions:

1- page 3, paragraph 2, line 4: the name of the figure is 3.

2- References [9]-[15], must rearrange in references section as first appear in the body of paper.

3- In reference [6], the publication's year must mention after the numbers of pages.

Common mistakes

- No structure or numbered bullets, just one big block of text

1. The main question is that how did the authors understand that the thermo-mechanically control processes steel is form X70 type? The authors have not talked about the mechanical properties of produced steel. It is probable that the produced steel may not meet the required standards of X70 steel. This issue should be discussed in the paper.

2. The authors did not compare the HIC susceptibility in both steels. So, How does the TMCP process affect?

3. How did the authors understand that the microstructures of steels have been composed of polygonal ferrites, acicular ferrites for WE and acicular ferrites and bainitic ferrites for WD? It is not clear from Fig. 1 to distinguish these phases and microstructures.

The main question is that how did the authors understand that the thermo-mechanically control processes steel is form X70 type? The authors have not talked about the mechanical properties of produced steel. It is probable that the produced steel may not meet the required standards of X70 steel. This issue should be discussed in the paper. The authors did not compare the HIC susceptibility in both steels. So, How does the TMCP process affect. How did the authors understand that the microstructures of steels have been composed of polygonal ferrites, acicular ferrites for WE and acicular ferrites and bainitic ferrites for WD? It is not clear from Fig. 1 to distinguish these phases and microstructures.

Common mistakes

- Not referring to the journal's site and following their reviewer guidelines
- Recommendation included in the report sent to authors

The screenshot shows a web-based form for a referee report. At the top, there are navigation links for HTML, PDF, Abstract, and External Searches. The main title is "Food Additives and Contaminants Referee Report". Below this is a table with five rows of questions, each with "Yes" and "No" columns. The questions are:

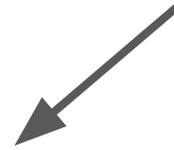
	Yes	No
Req 1) Does the subject of the paper fall within the scope of the journal?	<input type="radio"/>	<input type="radio"/>
Req 2) Is the content of sufficient interest to justify the length of the paper?	<input type="radio"/>	<input type="radio"/>
Req 3) Are the title and abstract adequate?	<input type="radio"/>	<input type="radio"/>
Req 4) Are all the diagrams, photographs and tables essential?	<input type="radio"/>	<input type="radio"/>
Req 5) Are the text and mathematical arguments, if any, as brief as is consistent with clarity? (If you recommend that the paper be shortened, please indicate briefly which parts of the text can be reduced or which tables or illustrations can be omitted.)	<input type="radio"/>	<input type="radio"/>

Below the table is a "Recommendation" section with four radio button options: Accept, Minor Revision, Major Revision, and Reject. Underneath is a "Comments" section with two text areas: "Comments to the Editor" (marked as CONFIDENTIAL) and "Comments to the Author". At the bottom, there is an "Attach a File" section with a "Browse..." button and an "Attach" button, and a "Files attached" section showing "No files have been uploaded.". At the very bottom, there are three checkboxes: "Save as Draft", "Submit", and "Print Saved Version".

Common mistakes

- Just criticisms
- No constructive comments
- Not detailed enough that authors can address each point

This paper is so poor it should not be published anywhere. The introduction is poor, the methods are very poor, the discussion is severely lacking



1. There is not enough background information in the introduction to place this piece of research into context. Please elaborate how this study builds upon current research and what is novel about this study.

2. In the methods section, you do not mention what type of buffer was used in the PCR, please add this in so it's possible for others to replicate your methods.

Peer Review template

- First draft
comments

Publons Academy Powering Peer Review			publons.com/academy
Paper title:		Aim(s):	
DOI:		Review due date: / /	
Section	Points to Ponder	Review comments and notes	
Abstract, title and references	<ul style="list-style-type: none"> ● Is the aim clear? ● Is it clear what the study found and how they did it? ● Is the title informative and relevant? ● Are the references: <ul style="list-style-type: none"> ● Relevant? ● Recent? ● Referenced correctly? ● Are appropriate key studies included? 		
Introduction/ background	<ul style="list-style-type: none"> ● Is it clear what is already known about this topic? ● Is the research question clearly outlined? ● Is the research question justified given what is already known about the topic? 		
Methods	<ul style="list-style-type: none"> ● Is the process of subject selection clear? ● Are the variables defined and measured appropriately? ● Are the study methods valid and reliable? ● Is there enough detail in order to replicate the study? 		
Results	<ul style="list-style-type: none"> ● Is the data presented in an appropriate way? <ul style="list-style-type: none"> ● Tables and figures relevant and clearly presented? ● Appropriate units, rounding, and number of decimals? ● Titles, columns, and rows labelled correctly and clearly? ● Categories grouped appropriately? ● Does the text in the results add to the data or is it repetitive? ● Are you clear about what is a statistically significant result? ● Are you clear about what is a practically meaningful result? 		
Discussion and Conclusions	<ul style="list-style-type: none"> ● Are the results discussed from multiple angles and placed into context without being overinterpreted? ● Do the conclusions answer the aims of the study? ● Are the conclusions supported by references or results? ● Are the limitations of the study fatal or are they opportunities to inform future research? 		
Overall	<ul style="list-style-type: none"> ● Was the study design appropriate to answer the aim? ● What did this study add to what was already known on this topic? ● What were the major flaws of this article? ● Is the article consistent within itself? 		

Peer Review template

- Revised full report
- SEE
 - Statement
 - Explain
 - Example

 Publons Academy Powering Peer Review		publons.com/academy	
Structure your comments into a full review:			
Overall statement or summary of the article and its findings in your own words			
Overall strengths of the article and what impact it might have in your field			
Specific comments on weaknesses of the article and what could be done to improve it		Major points in the article which needs clarification, refinement, reanalysis, rewrites and/or additional information and suggestions for what could be done to improve the article. 1. 2. 3. Minor points like figures/tables not being mentioned in the text, a missing reference, typos, and other inconsistencies. 1. 2. 3. 4.	

Exercise!

Short BMJ Christmas edition study (for fun!)

- Read paper (2 pages)
- Write review notes as if it's not already been published
- We'll go over it together after ~30min

RESEARCH

CHRISTMAS 2013: RESEARCH

Being right or being happy: pilot study

 OPEN ACCESS

Bruce Arroll *professor*, Felicity Goodyear-Smith *professor*, Simon Moyes *statistician*, Timothy Kenealy *associate professor*

Department of General Practice and Primary Health Care, University of Auckland, Private Bag 92019, Auckland, New Zealand

Introduction

Three of the authors are general practitioners who see many patients and couples who lead unnecessarily stressful lives by wanting to be right rather than happy. Mathieu encourages her psychotherapy clients “to try to live in the gray. There are a million shades of gray” (although a recent erotic novel suggests there are only 50) “on the spectrum of white to black, and each provides a much richer telling of a story that is hardly ever as clear as *this* or *that*. So, when we looked a bit more closely, we saw that ‘right versus happy’ was not so much about getting crowned the winner or loser, a genius or fool; it was more about flawed thinking and a desire to want to feel being in control.”¹ This might be the first study to systematically assess whether it is better to be right than happy; a Medline search in May 2013 found no similar articles. Our null hypothesis was that it is better to be right than happy.

Participants, setting, and design

To be eligible participants had to be part of a couple and willing to take part in the study. We carried out a parallel trial with one man and one woman in their own home. It was decided without consultation that the female participant would prefer to be right and the male, being somewhat passive, would prefer to be happy.

The male was informed of the intervention while the female participant was not (this form of pre-randomisation is known as the Zelen method²). The female participant was blind to the hypothesis being tested, other than being asked to record her quality of life.

Intervention

The intervention was for the male to agree with his wife’s every opinion and request without complaint. Even if he believed the female participant was wrong, the male was to bow and scrape.

Main outcome measure

We measured quality of life with a Likert score of 1 to 10 (10 being the best possible quality of life). Although our tool was unvalidated, it was thought to have face validity. It was justified on the grounds that brevity was essential, given that the intervention was administered in a potentially complex domestic environment.

Results

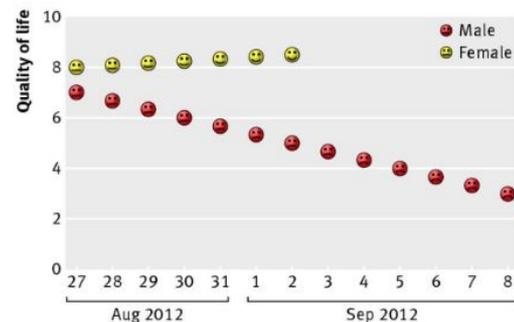
Two participants were eligible and both (100%) were randomised. All participants received the treatment and were analysed for the primary outcome with an intention to treat analysis. Several baseline characteristics differed between the subjects (see appendix).

The data safety monitoring committee stopped the study because of severe adverse outcomes after 12 days. By then the male participant found the female participant to be increasingly critical of everything he did. The situation had become intolerable by day 12. He sat on the end of their bed, made her a cup of tea, and said as much; explained the trial and then contacted the Data Safety Monitoring committee who terminated the trial immediately.

There were three data points in the intervention group and two in the control group (the control participant had become hostile to recording her quality of life).

The man’s quality of life score had fallen from 7 out of 10 at baseline to 3 at 12 days; the women’s had increased slightly from 8 to 8.5 at six days (figure 1). The difference between the two participants’ QOL scores over time is significantly different ($P=0.004$, calculated with a repeated measures generalised linear model). We should treat the results cautiously because we cannot discount causes other than treatment reducing the male participant’s score. It seems that being right, however, is a cause

Figure



Quality of life by duration of intervention

of happiness, and agreeing with what one disagrees with is a cause of unhappiness. We cannot discount that the difference in results might be caused by differences between the two treatment groups, which unfortunately we were unable to match by possible confounders such as sex.

The harms were estimated as 100% as all participants who received the intervention reported a serious adverse event.

Discussion

The results of this trial show that the availability of unbridled power adversely affects the quality of life of those on the receiving end.

Strengths and weaknesses

The study has some limitations. There was no trial registration, no ethics committee approval, no informed consent, no proper randomisation, no validated test instrument, and questionable statistical assessment. We used the eyeball technique for single patient trials which, as Sackett says, “more closely matches the way we think as clinicians.”³

Generalisability

Many people in the world live as couples, and we believe that it could be harmful for one partner to always have to agree with the other. However, more research is needed to see whether our results hold if it is the male who is always right.

Contributors: All authors read drafts of the document and the final version. FGS came up with the title and overall concept, SM did the statistical analysis, and BA saw the need for a clinical trial and conducted the trial, wrote the first draft and organised the team. TK was on the data safety monitoring committee.

Competing interest: None declared.

- 1 Mathieu I. Emotional sobriety. *Psychology Today* 2011.
- 2 Friedman ML, Fruberg CD, DeMets DL. Fundamentals of clinical trials. Springer-Science, 1996.
- 3 Sackett DL. Clinical trialist round 4. Why not do an N-of-1 RCT. *Clin Trials* 2011;8:350-2.

Accepted: 27 November 2013

Cite this as: *BMJ* 2013;347:f7398

This is an Open Access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 3.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/3.0/>.

What did you find?

- There's no right or wrong answers!

7. How to get involved with Peer Review

- Publish in your field
 - Some journals have a 15 publication minimum limit
 - First or corresponding author
- Volunteer to review for journals in your field
 - Email editors your CV
 - Express interest to be a reviewer on their site
- Connect with editors at conferences or online
- Join societies and be an active member
- Co-review with you supervisor/PI
 - You can both get credit for the review on Publons
- Publons Academy and other online resources

7. How to get involved with Peer Review

- Practise reviewing by reviewing preprints in your field
 - Find preprints on the Open Science Framework <https://osf.io/preprints/> e.g:
 - arXiv
 - bioRxiv
 - PsyArXiv
 - SocArXiv
- Attend a Peer Review webinar
 - I'm co-hosting 2 Publons Academy Peer Review webinars tomorrow 10AM and 5PM UK time <https://publons.com/community/academy-webinar-registration/>
 - Covers first 4 modules of the online course and attendees will get sent a special code to enrol in the course which has pre-completed the first 4 modules

Questions?