

Dear EarthArXiv Review Committee,

I am writing to submit my manuscript for consideration in your publication.

Title: " Who are the hyper prolific authors in environmental sciences? ,"

Author: Akira Abduh.

This paper is a non-peer reviewed preprint submitted to EarthArXiv.

I am confident that this research will be of great interest to the EarthArXiv community, as it addresses the important and controversial issue of how much is too much and hyper prolific authors. In this study, I used a database of recent publication in environmental sciences to identify hyper prolific authors.

This study's results provide new insights into what considers too much publications. I also conduct a new citation network analysis and discover pattern of cocitation.

I believe that this research is a valuable contribution to the scientific literature on scientific publication, and I am excited to share it with the EarthArXiv community. I hope that you will consider our manuscript for publication in your journal.

Thank you for considering my submission.

Sincerely,

Akira Abduh

Who are the hyper prolific authors in environmental sciences?

Akira J Abduh

Abstract

Hyper prolific scientists are individuals who produce an exceptionally large number of scientific papers, often at a rate that is much higher than their peers. While productivity is generally a positive attribute in the scientific community, hyper prolific scientists may raise concerns about the quality and impact of their research. It is important to carefully evaluate the work of hyper prolific scientists to be mindful of the potential risks and negative consequences of producing an excessively large number of papers. Therefore this paper investigates hyper prolific authors in environmental sciences using bibliometric data from 2013-2021 to identify and characterize their patterns. The results reveal some hyper prolific authors that publish, on average, 50-100 papers per year. A network analysis further uncovers a close-connected network of scientists who gain an incredible number of highly cited papers. It is concluded that the scientific community has the need to establish ethical guidelines and practices on the number of publications to ensure that publishing a paper is conducted with integrity and that personal interests do not compromise the pursuit of knowledge.

Introduction

Several measures can be used to evaluate a scientist's productivity, including the number and impact of their publications, the number of grants and funding they have received, the number of patents they have obtained, and their influence within their field of research [1].

Easy and common measures of productivity that are used include the number of publications, the number of conference presentations, and the number of invited talks or lectures given by the scientist. Ultimately, the most appropriate measure of productivity will depend on the specific goals and context of the research being conducted [1,2].

The number of scientific publications can be an important measure of a scientist's productivity, as it reflects the amount of research they have conducted and their results. This information can be useful for evaluating a scientist's research output and contributions to their field of study. A number of factors can contribute to an individual's level of productivity, such as the availability of funding, the size of their research team, and their level of motivation and dedication.

The number of publications can also be used as a measure of a scientist's visibility and impact within their field. Researchers who have published more papers are likely to be more well-known and respected within their community, and their research is more likely

to be widely read and cited by other scientists. As a result, the number of publications is often used as one factor in decisions about hiring, promotions, and funding.

Additionally, the number of publications can be used to track the progress and impact of a particular research project or group. For example, a funding agency may use the number of publications produced by a research team as one metric for evaluating the success of a funded project.

The obligation and pressure to publish for the purpose of evaluating a scientist or institutional impact and scientific repute have become a new facet of publishing over the years. Recent years see the rise of hyper prolific scientists, researchers who produce an exceptionally large volume of scientific publications. This may be due to a variety of factors, such as a high level of productivity, a large research group or team, or a focus on topics that lend themselves to a high volume of publications.

There is no specific definition of a “hyper prolific” scientist, and the term is often used informally to refer to researchers who have published significantly more papers than their peers. For example, some researchers may be considered hyper prolific if they have published hundreds a year or thousands of papers over the course of their career [1].

While it is certainly possible for a scientist to be both highly productive and ethical, the high volume of publications produced by a hyper prolific scientist may raise questions about the quality and rigor of their work. There is no inherent link between extreme scientific productivity and fraud. Some scientists may be able to produce a large number of high-quality publications due to their hard work, dedication, and innovative ideas. However, it is also possible for scientists to engage in fraudulent behavior, such as fabricating or falsifying data, to produce more publications or to achieve other goals [3,4,5].

It is important for researchers to prioritize the quality and integrity of their work, rather than simply trying to maximize the number of publications they produce. In order to ensure the integrity of research and prevent scientific fraud, it is important for researchers to follow ethical guidelines and for scientific institutions to have robust systems in place for detecting and addressing misconduct.

There have been instances of scientific fraud where researchers have produced a large number of papers that were later found to be fraudulent. In some cases, this may be due to the pressure to produce more papers or to achieve other measures of success, such as grant funding or promotion. However, it is important to note that the majority of scientists are honest and ethical, and that scientific fraud is relatively rare.

Depending on the scientific and research fields, publication productivity may vary significantly. The traits and metrics of hyper prolific authors are rarely discussed. Hence, this study made the first attempt to identify hyper prolific authors in environmental sciences in the past decade. Furthermore this study inspects their traits and publication trend.

Environmental science is a multidisciplinary field that studies the interactions between the natural environment and human societies. It encompasses a wide range of topics, including

air and water pollution, climate change, environmental health, ecosystem management, and sustainable development. Environmental scientists use a variety of tools and techniques to study the environment, including fieldwork, laboratory analysis, and computer modeling. Their research study how human activities impact the environment and develop solutions to environmental problems.

Methods

This study analyzed publications and authors in journals within the field of environmental sciences in the past decade between the 1st January 2013 and the 1st December 2022 using the Web of Science (WoS) database using the 'Environmental Sciences' WoS category. WoS is an extensive multidisciplinary bibliometric database which contains a huge list of published works along with authors and citations.

Bibliometric networks were analyzed and visualized using the VOS viewer 1.6.9 in particular creating a network analysis for co-authorship and citation network. The overall strength of the co-authorship links with other terms was computed using the association strength approach, which normalizes the strength of the ties between items and for each of them.

Results and Discussion

Hyper prolific authors

Taking into account the publications from environmental science journals between 2013 and 2022, the WoS found 931,027 articles published by around 100,000 authors. In addition there were 10,153 papers that were classified as highly cited papers.

Among these authors, top 10 most hyper prolific authors were found to have published more than 300 papers in the previous decade (Table 1). Four were from China, two were Europeans, and one from Korea, US, and Canada and Australia.

Table 1. The top hyper prolific authors in Environmental Sciences 2013-2022 according to WoS.

Author	No. papers 2013-2022	Average no. papers per year 2017-2020	Affiliation	H index	Total no. papers
Zeng, Guang	506	70.5	Hunan University	171	1830
Ok, Yong Sik	409	106	Korea University	113	663
Giesy, John P.	409	46.7	University of Saskatchewan	107	1162
Jiang, Guibin	406	68.2	Research Center for Eco-Environmental Sciences	95	1048
Junji, Cao	396	74.5	Institute of Atmospheric Physics, Chinese Academy of Sciences	95	736
Naidu, Ravi	360	48.7	University of Newcastle	67	627
Kannan, Kurunthachalam	360	52	Wadsworth Center	117	801
Barcelo, DAMIA	347	45.7	Institut Catala de Recerca de l'Aigua	133	1556
Tsang, Dan	346	90	Hong Kong Polytechnic University	94	531
Rinklebe, Joerg	309	46	University of Wuppertal	71	429

It is important to note that there is a tight relationship between the number of publications and h index in these authors. These authors in the past ten years, on average has milled 31 to 51 papers per year, or one paper every 1 to 2 weeks. However, there is quite a variation between years, a close inspection on the average number of papers over a shorter period in 2017-2020 reveals that these authors exhume 46-105 papers per year. The highest record is by Yong Sik Ok who produces on average 105 papers per year or publishes one paper every 3.5 days, followed tightly by Dan Tsang who publishes 90 papers per year or publishes one paper every 4 days.

This study was able to determine the citation network for individual researchers using special software VOS viewer 1.6.9, and provide some characteristics of these hyper prolific authorship. The graphs connect authors with lines representing co-authorships. Each

author is represented by a node in the graph, and the lines connecting the nodes represent the strength of the co-authorship. This citation network can understand the relationships between authors in the field, and explore patterns in the citation data. The publication co-network patterns of these most prolific authors were exposed through in-depth analysis. Most authors in Table 1 have little co-authorship network, but the software identified three authors form a close co-authorship network and depicted in Figure 1. The software, which was initially created to analyze the network patterns, was successful in identifying the co-authorship and citation network centered around three most prolific authors: Yong Sik Ok, Daniel CW(Dan) Tsang and Joerg Rinklebe. Coming from 3 different institutes in Korea, Germany and China, these three authors have tight connections. Yong Sik Ok shared 151 co-authored papers with Dan Tsang and 85 papers with Joerg Rinklebe.

The software can further uncover the citation network by analyzing the pattern of references cited by the three authors. The results displayed in Figure 2 further confirm the tight citation network.

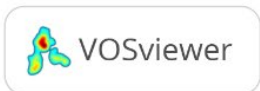
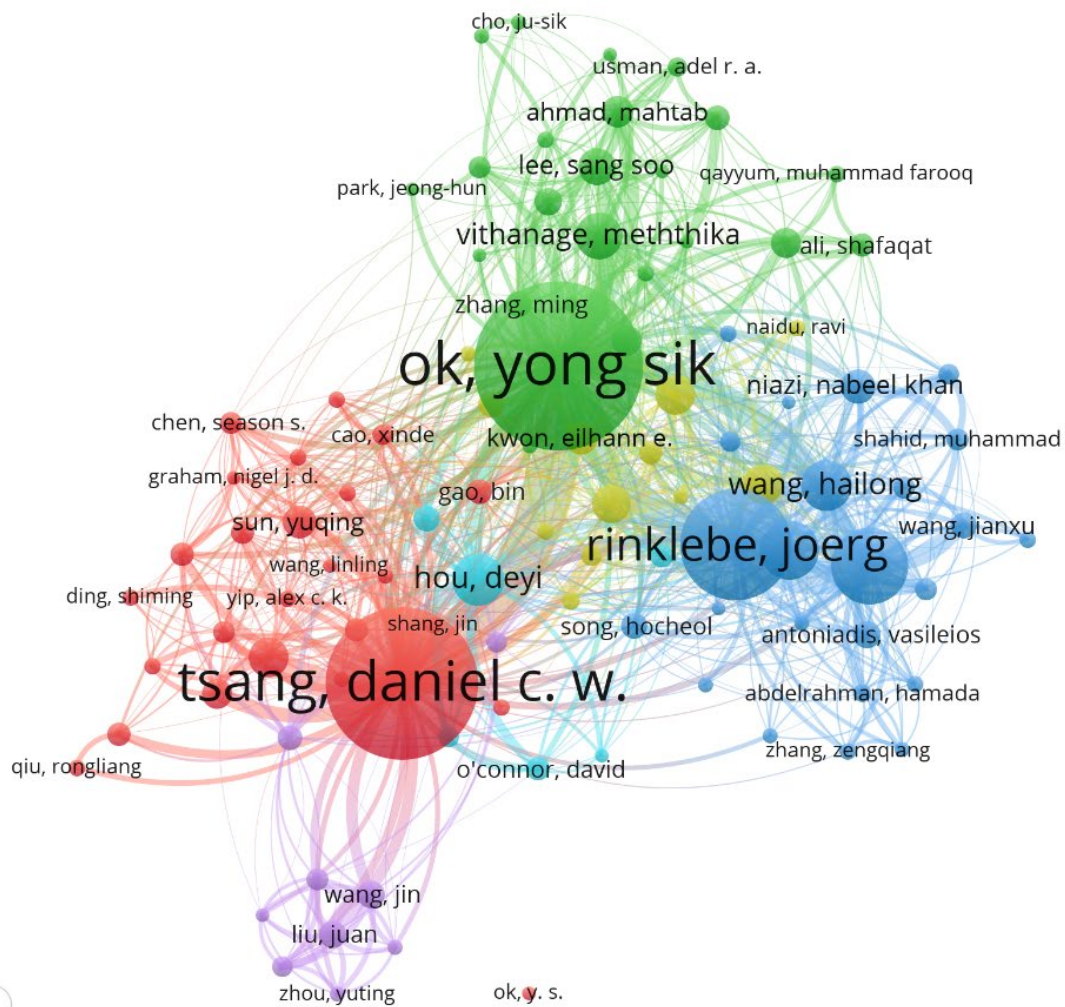


Figure 1. Co-author network analysis of hyper prolific authors in Environmental Sciences.

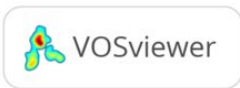
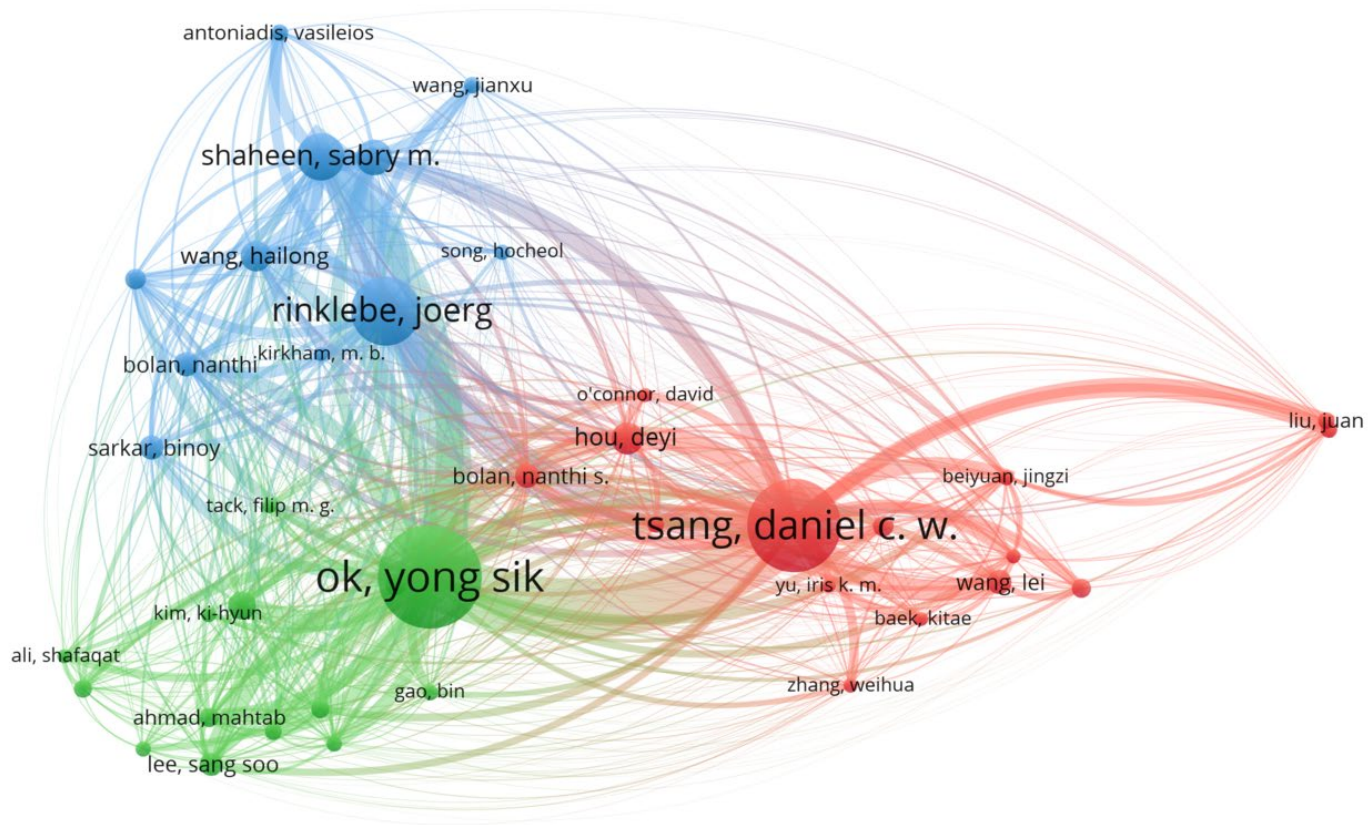


Figure 2. Citation network from hyper prolific authors.

Hyper Highly cited authors

The WoS database identified there were 10,153 papers that were classified as highly cited papers. The top hyper prolific authors of highly cited papers are duly listed in Table 2. In contrast to table 1, only 4 hyper prolific authors listed in table 1 appears in table 2. They are Guang Zeng, Yong Sik Ok, Dan Tsang, and Jorg Rinklebe. These authors have 64-22 high cited papers (hcp). As a result, 12 of these guys were awarded highly cited researcher (HCR) by Clarivate in multiple fields in 2022.

It is important to note that as the citation network reveals, three of the closely tied authors Yong Sik Ok, Dan Tsang, and Joerg Rinklebe appear closely in the list with a very high number of highly cited papers ranging from 40 to 59 papers over 10 years. Further analysis of the people appeared in Table 2 (and Figure 1) show that 7 of these people are close network of the Yong Sik Ok group. There is another group belongs to Guang Zeng and Min Cheng. This analysis exposes the tight citation network that produced extreme number of publications and caused a boost in number of citations and highly cited papers.

Yong Sik Ok, Dan Tsang and Joerg Rinklebe maintain a worldwide network through editorial work on high impact factor journals such as Environmental Pollution, Journal of Hazardous Materials, Chemosphere, and several other high impact journals. One interesting fact from WoS is that Dan Tsang was listed of completed 1054 verified peer reviews, with over 30 reviews completed per month in 2021. In addition, he was listed with 1360 verified editor records. This record indicates Tsang review 1 paper per day in addition to publishing 1 paper every 4 days. It is a common knowledge that Yong Sik Ok's papers in Journal of Hazardous Materials were frequently edited by Jorg Rinklebe.

- <https://www.sciencedirect.com/science/article/abs/pii/S0304389421004271>
- <https://www.sciencedirect.com/science/article/abs/pii/S0304389421023785>
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- <https://www.sciencedirect.com/science/article/abs/pii/S0304389421018896>
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A research paper concludes: such “nepotistic journals,” suspected of biased editorial decision-making, could be deployed to game productivity-based metrics, which could have a serious knock-on effect on decisions about promotion, tenure and research funding [5]. Given this situation, it is clear that a hyper prolific scientist poses a greater chance of citations because they produce more articles that are promoted for citation. It's apparent that the collaboration research approach can present a favourable impact on publishing productivity, visibility, and citation. However such a publication strategy needs exceptional talent, and trustworthy collaborators [6].

Table 2. Top hyper prolific authors of highly cited papers (HCP) and highly cited researcher (HCR) award in 2022.

Authors name	no. HCP (2013- 2022)	Affiliation	HCR in 2022	Network
Zeng, Guang	64	Hunan University	HCR	Zeng
Ok, Yong Sik	59	Korea University	HCR	Ok
Tsang, Dan	57	Hongkong Polytechnic	HCR	Ok
Rinklebe, Joerg	40	University Wuppertal	HCR	Ok
Bolan, Nanthi Sirangie	27	University of Western Australia	HCR	Ok
Cheng, Min	26	Hunan		Zeng
Wang, Shaobin	25	University of Adelaide	HCR	-
Gao, Bin	24	University of Florida	HCR	Ok
Nazeeruddin, Mohammad K (Graetzel, Michael)	24	Swiss Federal Institute of Technology, Lausanne	HCR	-
Guyatt, Gordon H.	23	McMaster University	HCR	-
Zhang, Qiang	22	Tsinghua University	HCR	-
Wang, Jianlong	22	Tsinghua University	HCR	-
Rizwan, Muhammad	22	Government College University Faisalabad		Ok
Shaheen, Sabry M.	22	University of Wuppertal	HCR	Ok

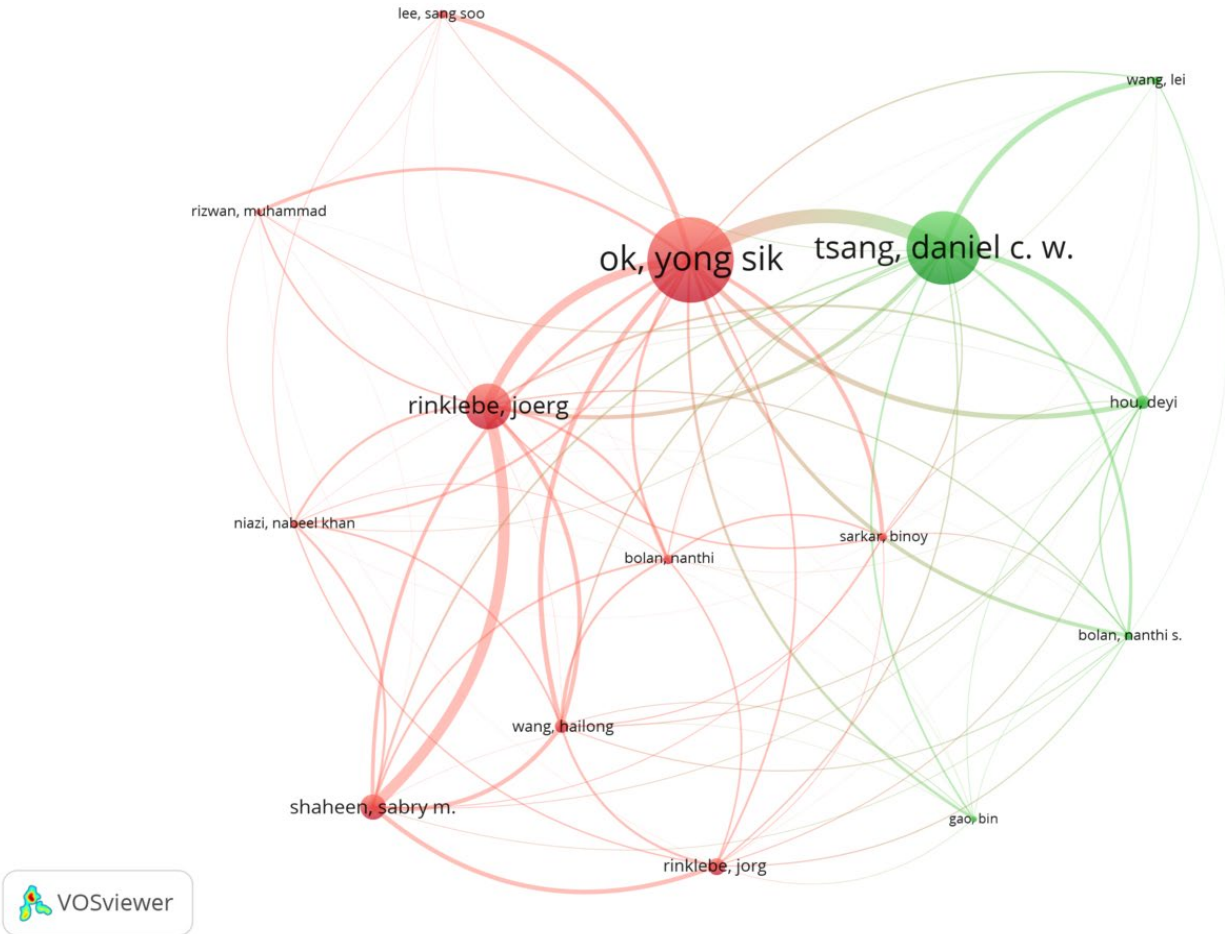


Figure 3. Network analysis of authors with hyper highly cited papers.

Although some would argue that productivity does not equal usefulness [3]. It is a point of contention, there are ways to overcome this. This research reveals that the most effective method for scientists to increase the output of their research is collaboration with other scientists, which can help to broaden their knowledge and expertise as well as hasten the research process. It is generally not appropriate to judge the productivity of a scientist based solely on the number of papers they produce. But this research on hyper prolific authors reveals the truth, forming a network of scientists across continents is powerful [6].

Citation boosting can take many forms, such as self-citation, reciprocal citation, or the creation of a network of researchers. It is important for researchers to accurately and honestly represent the sources and influences on their work and to avoid manipulating citations in any way. Doing improper way undermines the integrity of the scientific process and can lead to the dissemination of incorrect or biased information. A researcher who wants to increase the number of citations should focus on conducting high-quality research

that makes a significant contribution to the field and to effectively communicate the findings through publication and dissemination via social media [7].

Conclusions

This study outlines the key traits of extremely prolific authors in environmental sciences and their output. The quantity of publications is one indicator of scientific productivity, and the productivity of the hyper prolific authors in environmental science is high, with one to two papers published each week. The hyper prolific authors appear to be forming a network that produces co-authorships that help boost citations, highly cited papers.

The quality and real-world impact of a researcher's publications should be evaluated by appointment and tenure committees rather than just their quantity. Authorship rules and guidelines should emphasize the value of adhering to authorship standards. Authorship implies responsibility for the research that is being reported, and policies and training should take this into account. Universities must think about how to lessen the culture of "publish or perish," or pursue highly cited title which is frequently blamed for misbehaviour and dubious research methods. They should have procedures in place to deal with abuses and foster a climate that values honesty and integrity in authors.

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