

# The Red Badge of Research (And the Yellow, Blue, and Green Badges, Too)

Steven V. Rouse  
Pepperdine University

**ABSTRACT.** Following guidelines created by members of the Open Science Collaboration, *Psi Chi Journal of Psychological Research* will begin awarding badges to journal articles that meet criteria for openness and transparency in the research process. The Open Data badge will be awarded to articles that post their research data in a public-access online repository. The Open Materials badge will be awarded to articles that post their surveys, tests, and other research materials. The Preregistration badge will be awarded to articles that publicly specify in advance their methodology and intended statistical analyses. In addition to the badges created by members of the Open Science Collaboration, *Psi Chi Journal* will also award a Replications badge, unique to this journal, to reward studies that replicate past research. With the Center for Open Science's Open Science Framework as a free resource for researchers seeking any of these badges, these represent new best practices in contemporary psychological research.

Sometimes, when you are in the middle of a crisis, it is impossible to fully know whether the critical situation will lead to disaster or provide an opportunity for positive growth. The field of psychology is currently experiencing a crisis, and it is a very public one. Popular press outlets as varied as *Discover* (Yong, 2014), *Slate* (Baker, 2016), *The Atlantic* (Bloom, 2016; Yong, 2015), the *Washington Post* (Nutt, 2016), National Public Radio's *Morning Edition* (Vedantum, 2015), and even the *Chronicle of Higher Education* (Bartlett, 2016) have all brought the "replication crisis" out of the world of academic conventions and organizational newsletters, and into the light of public attention.

Each of those popular press articles described the origin and current status of the "replication crisis" in fairly similar ways. In the last few years, questions were raised about whether a specific well-respected researcher had falsified data for dozens of his articles<sup>1</sup>. These questions sparked an effort to determine whether other research could be replicated. The results of these replication efforts were

dismaying because many studies (even some quite famous ones) failed to replicate. In one massive replication effort (Open Science Collaboration, 2015), 100 articles from three well-regarded journals<sup>2</sup> were replicated, but only 36% of the replications were statistically significant, and (on average) the effect sizes of the replications were only half as strong as the effect sizes of the original articles. Several different explanations could be put forward to explain this surprising lack of replication.

First, and I suspect that this is the most frequent cause of nonreplication, seemingly minor methodological differences between the original study and the intended replication (which the replicating researcher may consider negligible or not even be aware of) might introduce factors that systematically change the results; in this case, the second study is not technically a replication but is instead a variant of the first study. For example, in a gender-priming study, the gender of the research assistant performing the priming procedure might influence the

<sup>1</sup>The details of the fraud case are described in depth by Bhattacharjee (2013).

<sup>2</sup>The three journals studied were *Psychological Science*, *Journal of Personality and Social Psychology*, and *Journal of Experimental Psychology: Learning, Memory, and Cognition*.

SPRING 2017

PSI CHI  
JOURNAL OF  
PSYCHOLOGICAL  
RESEARCH

effect of the manipulation. The differences in the results between the original study and the subsequent one do not need to undermine the results of the first (or call into question the ethicality of the first researchers). Rather, these differences might bring attention to the need for additional research to systematically explore the factors that moderate the previously observed relationship.

Second, perhaps journal policies increase the likelihood of Type I error being published. For example, if a journal only publishes articles with statistically significant findings, the journal might publish one article that obtained statistical significance and reject 19 articles that failed to do so; this would lead to the belief that an effect exists, even if this was just a statistical anomaly.

Third, perhaps researchers engage in “*p*-hacking,” or seemingly innocuous post hoc adjustments to the data or the analyses in order to obtain a statistically significant *p* value. For example, a researcher whose hypothesis failed to find statistical support might decide to simply change from a two-tailed test to a one-tailed test, or might collect responses from a few additional respondents to increase the statistical power, or might decide to eliminate outliers who are skewing the results. Any of these decisions might be very appropriate to make when initially planning the study, but if introduced post hoc to get one’s results just under a *p* value of .05, they increase the likelihood that the results would not replicate.

Fourth, perhaps falsification of data occurs more frequently than assumed. Despite the central position of integrity in psychological ethics, perhaps the pressure to publish leads some researchers to adjust their data in order to be able to publish their work. Regardless of the reason, we are experiencing a crisis in psychological science; if we cannot replicate some of the basic findings of our science, will the information we present be credible to the public (or to ourselves, for that matter)?

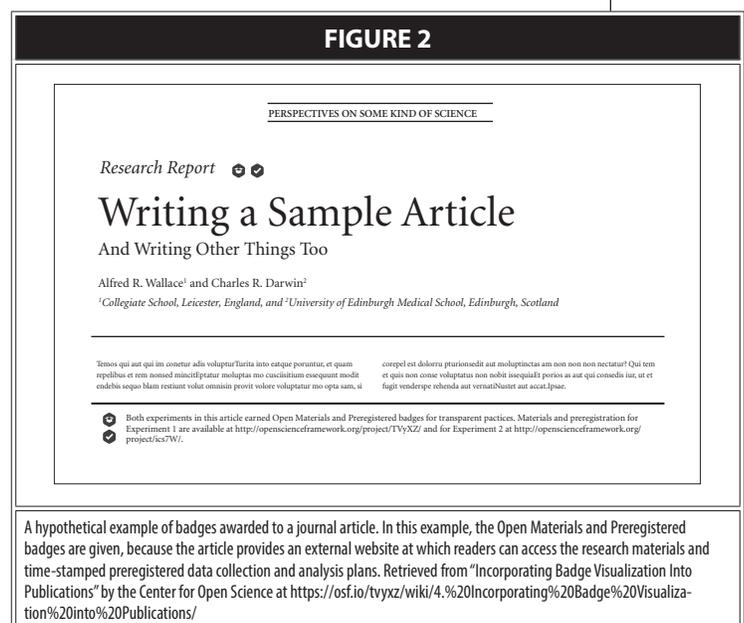
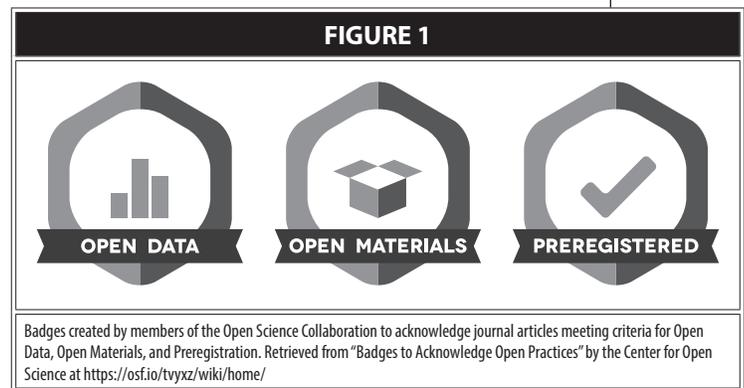
To use a crisis as an opportunity for positive growth, steps need to be taken to minimize the behaviors that led to the crisis and encourage alternative behaviors. This was the rationale for the development of the Center for Open Science (COS); if openness and transparency are encouraged in the research process, not only will the quality of the data improve, but the public confidence in the findings will be restored. One of the COS’s first accomplishments was the development of three “badges,” seen in Figure 1. These badges were developed to provide a way for research journals

to designate articles that meet criteria for high standards of research openness, as described in depth at <https://osf.io/tvyxz/wiki/1.%20View%20the%20Badges>. As seen in Figure 2, the badges can be published on the journal article itself, commending the authors for their open research practices. Several prestigious psychological research journals including *Psychological Science*, *Clinical Psychological Science*, *Journal of Research in Personality*, *Social Psychology*, *Journal of Social Psychology*, and *European Journal of Personality* have begun awarding badges. Now, *Psi Chi Journal of Psychological Research* has endorsed the COS’s recommendations and now awards the following badges.

## Open Data

### What Is It?

The Open Data badge will be given to journal articles for which the data are stored in an open-access online site. Basically, this means that the



authors agree to post their data in such a way that others could download the data and reanalyze it on their own. For example, Dietze and Knowles (2016) earned this badge for an article that explored the relationship between social class and motivational relevance. Using three separate experiments, Dietze and Knowles showed that higher class participants looked at other people less often than those from lower classes; for example, eye-tracking software was used to show that higher income participants spent less time looking at people in scenes of city streets than did lower income respondents, which suggested that social status was negatively related to the likelihood of attending to other people. All of the data for this manuscript have been permanently archived at <https://osf.io/zgq7m/>, with time-stamps that show that the data were made publicly accessible on August 11, 2016, approximately two months before the online publication of the article. Because the data are available for anyone to download and reanalyze, the article was awarded the Open Data badge.

The COS specifies three criteria for awarding this badge. First, all of the data must be permanently stored at an open-access, time-stamped website, from which anyone could download the data. Any variables that identify the respondents should be deleted because publicly available data must still protect the confidentiality or anonymity of the research subjects, but all other variables collected must be provided. If the data have already been processed (for example, if a scale score has been created based on several individual items in the data set), the raw data that were used to calculate the scale must also be provided. Second, a data codebook needs to be available. Providing open data would be meaningless unless other users could tell what each variable represented. For this reason, the authors need to provide a data dictionary or explanation of what each variable (and each score on each variable) represents. Third, the researcher must provide authorization to allow others to use, copy, and distribute the data. Although the researcher may retain credit and copyright (when applicable), the data are publicly available to be used by anyone else.

#### **What Potential Concerns Should Be Considered First?**

Before uploading one's data to a public website, several issues must be considered. First, if any identifying data are included in the data set, these variables should be deleted prior to being uploaded. The

participants' rights to confidentiality should never be sacrificed for the sake of openness. Second, though, and closely related, is the concern that participants might consider it intrusive to post the data even when their identifying information has been removed. For that reason, I have started to include a statement on consent forms that reads "As part of the Open Science movement, the data collected from this project will be publicly archived in perpetuity at <https://osf.io> but my identifying information will be eliminated from the data set prior to uploading." Third, if researchers state that they have met the criteria for Open Data, it is assumed that the entire data sets (except for any identifying information) have been uploaded. In some cases, though, a data set might include variables that are not reported in the research report; for example, a researcher planning a series of studies that would utilize the same data set might not want others to analyze other variables that are intended for future research reports. If the publicly uploaded data only represents a subset of the data collected, the researcher must clearly state that other variables from the project were deleted prior to archiving. However, all nonidentifying variables used for the statistical analyses must be available.

### **Open Materials**

#### **What Is It?**

The Open Materials badge indicates that the researcher has uploaded all of the surveys, tests, stimuli, and other materials that were used in the collection of the data. This allows other researchers to have access to procedures and items that would be needed to replicate one's study. For example, Eom, Kim, Sherman, and Ishii (2016) earned this badge for an article that explored cultural variables that predict proenvironmentalism action. As part of this project, responses from a sample of European-American college students were compared with the responses given by Japanese college students to a survey about consumer behavior. The survey, permanently archived at <https://osf.io/fb3kq/>, asked respondents to indicate which of two products they would purchase; in some cases, one product had environmentally friendly elements (such as Chinet True Green Paper Cups) and the other one did not (such as Chinet Comfort Cups). Eom and colleagues demonstrated that, for the European-American respondents, the choice of environmentally friendly options was correlated with self-rated environmental concern, but for the Japanese students, the choice was correlated with

SPRING 2017

PSI CHI  
JOURNAL OF  
PSYCHOLOGICAL  
RESEARCH

the degree to which the respondents perceived those choices as being normative. Because the survey is permanently archived at <https://osf.io/fb3kq/>, any other researchers could replicate the research. Therefore, this article was awarded the Open Materials badge.

The COS specifies three criteria for awarding this badge. First, all of the research measures, stimuli, and surveys must be archived in a permanent, publicly available, open-access repository in a digitally sharable format. Second, any research components (such as a biological material, equipment, or stimuli that are not in a digital format) that cannot be uploaded have to be described in enough detail to allow for a full replication. Third, information has to be provided to explain the use of the materials, so that other researchers could fully replicate the procedure that generated the data.

### What Potential Concerns Should Be Considered First?

Although many research measures can be uploaded for public access, some research measures should not. For example, if a researcher purchased copies of a proprietary personality test for use in a study, uploading a copy of the test would violate the test's copyright. In addition, public release of test items themselves might violate the American Psychological Association's *Ethical Principles of Psychologists and Code of Conduct*, because section 9.11 directs psychologists to protect the security of test questions in order to maintain the integrity of the assessment process. In these circumstances, the test materials should not be uploaded. Rather, the researcher should clearly indicate which tests were used, providing enough information to allow other researchers to purchase or access the tests (assuming they meet qualifications for test use), thereby replicating the procedure.

## Preregistered

### What Is It?

The Preregistered badge indicates that the researchers clearly articulated important aspects of their research methodology prior to collecting data, saving these research plans in a time-stamped website. After answering questions such as those listed in Table 1, the researcher saved the responses in a website that "froze" the research plans prior to data collection. For example, Lau, Morewedge, and Cikara (2016) earned the Preregistration badge for an article that explored the extent to which

respondents expected stronger emotional reactions for in-group members or out-group members, relative to unspecified people. One of their analyses asked Republicans and Democrats to imagine someone from their own party, the opposing party, and an unspecified person losing a competition, and the respondents were asked to estimate how unhappy the person would be. Respondents expected the opposing party members to be most upset, relative to members of their own party and the unspecified individuals. Moreover, all three hypothetical people were expected to be more upset at the situation than a hypothetical Buddhist would be. This suggested that expectations of emotional responses are affected by in-group biases, out-group biases, and even stereotypes of Buddhist nonreactivity. Prior to data collection,

**TABLE 1**

### Typical Questions Asked in the Preregistration Process (Paraphrased From the Center for Open Science's "Prereg Challenge")

#### Questions related to the study information

01. What is the project's working title?
02. Who are the authors?
03. What research questions will be answered by this project?
04. What hypotheses will be tested for statistical significance?

#### Questions related to the sampling plan

05. Do the data already exist? If yes, what steps have you taken to ensure that you are not aware of the results of any planned analyses?
06. What plans have you made to recruit participants and collect data?
07. How large do you intend for your sample to be, and how did you arrive at this number?
08. If you might terminate data collection before reaching the intended sample size, what systematic "stopping rule" will you use?

#### Questions related to the variables

09. What manipulated variables or treatment conditions are planned (if any)?
10. What measured variables or outcome measures are planned?
11. What indices (such as total scores from a series of research measure questions) will be calculated (if any)?

#### Questions related to the research design

12. Would you describe the study as an experiment, observational study, meta-analysis, or "other"?
13. How would you describe the study design (such as between-subject, within-subject, or mixed design)?
14. Will there be randomization, and if so how will this be performed?

#### Questions related to the data analysis

15. Do you plan to transform, recenter, or recode the data?
16. How will you decide whether or not to exclude data from the analyses?
17. How will you handle missing or incomplete data?
18. What statistical tests will be used for each hypothesis?
19. Do you have any planned follow-up analyses such as pairwise comparisons?
20. What criteria (such as  $p$ -values) will you use to determine whether the results are statistically significant, and will these tests be one-tailed or two-tailed?
21. Do you have any planned exploratory analyses that are not related to the hypotheses listed above?

#### Other questions

22. Although optional and relatively uncommon, do you have any analysis scripts (such as SPSS syntax files that were created with pilot data) that you would like to preregister?
23. Is there any additional information that you believe should be preregistered in order to be transparent about the research plans?

*Note.* Retrieved from "Preregistration Challenge: Plan, Test, Discover" by the Center for Open Science at <https://osf.io/jea94/>

Lau and her colleagues preregistered their study at <https://osf.io/x8etz/>; in a two-page document, these researchers specified their hypotheses, independent variables and dependent variables, sample size and means of recruitment, data collection procedure, and planned statistical analyses. Because these essential research details were registered in a time-stamped format, the article was granted the Preregistration badge.

Four criteria have been specified by the COS in order for a study to receive this badge. First, the registration has to be saved on a public website created for preregistration purposes, time-stamping and rendering the preregistration plans noneditable. In other words, simply saving a pdf file on one's own privately created website would not be sufficient. Second, the preregistration must be saved and frozen prior to collecting data or initiating an intervention. In other words, the prefix "pre" is important; the registration must occur before a researcher could be influenced by the data. Third, the eventual design and analysis must follow the preregistered plans. Finally, the results of all preregistered analyses must be disclosed in the journal manuscript; additional analyses may also be reported, but the results of the preregistered ones must be provided.

However, the COS guidelines allow two exceptions to the requirements described above. First, a "DE" (i.e., Data Exists) notation can be given to a Preregistration badge if the data had already been collected prior to the registration but the researcher had not yet performed any analyses. Imagine, for example, a researcher who gains access to a large pre-existing data set, and wishes to run novel analyses. In general, this would appear to violate the second requirement listed above. However, the researcher could still preregister the analyses by transparently indicating that the existing data had not yet been examined. Second, a "TC" (i.e., Transparent Changes) notation can be given to a preregistration badge if unexpected changes required a shift in the research design or analyses. Imagine, for example, a researcher who plans to use specific statistical analyses, but when the article is submitted to a journal, a reviewer recommends a more appropriate statistical procedure. In general, a different statistical analysis would appear to violate the third requirement listed above. However, a footnote could be included to explain why the change occurred, transparently explaining the rationale for the changes.

### What Potential Concerns Should Be Considered First?

In most cases, Preregistration would not require a dramatic change to one's research practices because a conscientious researcher will already have considered the questions listed in Table 1 prior to collecting data. In fact, in many cases, these questions had to be answered as part of the Institutional Review Board approval process. The primary difference is that a preregistered study simply makes these answers public, and the researcher commits to take reasonable steps to follow those plans. In many ways, the most revolutionary aspect of the Preregistration badge is that it honors transparency in the planning phase of research.

Nevertheless, some have expressed concern about this practice. In a pair of editorials written in her role as President of the Association for Psychological Science, Goldin-Meadow raised two concerns that she hoped psychological research journals will consider as they are implementing Preregistration badges. First, will the initiation of Preregistration badges cause a bias against exploratory research (Goldin-Meadow, 2016a)? After all, scientists must first discover phenomena before they begin to examine causal factors, and psychological science would be weaker if the value of such exploratory research were minimized. Second, will the use of Preregistration badges (which are more relevant to some types of studies than others) cause a marginalization of studies that do not fit the Preregistration model (Goldin-Meadow, 2016b)? After all, Goldin-Meadow argued, Preregistration seems very well-suited for specific laboratory studies in which a single independent variable is manipulated, but may be less appropriate for large, "messy," nonexperimental studies. Although she concluded that neither of these concerns should prevent journals from awarding Preregistration badges, she concluded that it will be important to avoid elevating the status of some studies and procedures while devaluing others. In response to Goldin-Meadow's concerns, three advocates of Preregistration badges (two of whom serve as editors for journals that have implemented these badges) explained that Preregistration does not prevent exploratory research (Lindsay, Simons, & Lilienfeld, 2016). Rather, this process simply asks researchers to differentiate between planned, hypothesis-driven analyses and those that are more exploratory in nature. Registration serves as a useful adjunct to flawed human memory; as research projects progress, it is not uncommon for

one's memories to shift and fluctuate—which can increase the probability of Type I errors. Preregistration allows the reader to know which results were confirmatory (with specific methods and hypotheses specified before seeing the data) and which were exploratory (which can be an exciting and important part of the research process). Moreover, they noted that Preregistration need not stifle a researcher; as described above, as long as changes are transparent and accompanied by a compelling rationale, additional analyses and even revised analyses are perfectly within the framework of a Preregistration. But preregistration, they argued, is not limited to lab-based experimental studies; any quantitative research with inferential statistical tests can be preregistered—even archival research. This simply requires specifying one's predictions before running the analyses.

Because of the value of Preregistration, the COS has created a \$1,000,000 Preregistration Challenge, which is described at <https://cos.io/prereg/>. As part of this challenge, one thousand researchers will win prizes of \$1,000 each. To be eligible for this award, the researcher must preregister the study and then have it published in a journal that awards Preregistration badges following the COS's guidelines; now that *Psi Chi Journal of Psychological Research* has initiated these badges, publication in this journal qualifies for the award.

## Replication

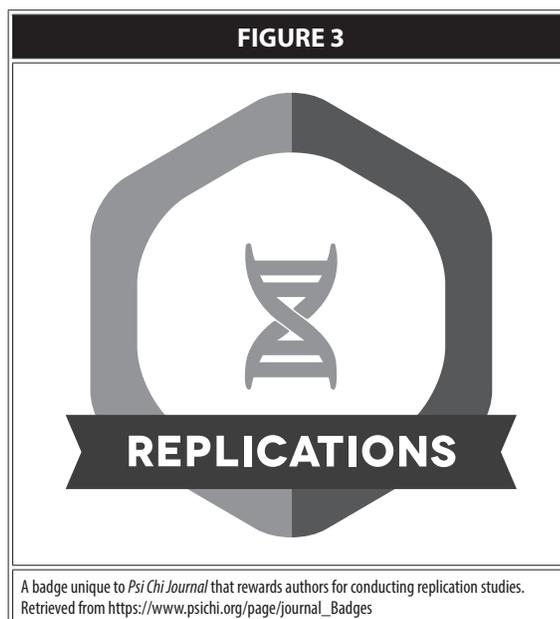
### What Is It?

In addition to the three badges that were introduced by the COS, *Psi Chi Journal of Psychological Research* has taken a trailblazing step by introducing a fourth badge to denote replication studies (see Figure 3). As noted by Edlund (2016), replications are an important part of the scientific process, yet some journals are hesitant to publish replications because of an incorrect belief that replications add little to the body of scientific literature. For this reason, the Psi Chi Research Advisory Committee and the *Psi Chi Journal of Psychological Research* recently launched a replication initiative, encouraging Psi Chi members to conduct replication studies. The creation of a Replication badge demonstrates that the journal's leadership not only considers replications acceptable but also highly values the contribution that they make. For example, Keeren and Burmeister (2016) conducted a replication of the Knobe effect. Previous research had suggested that the positive or negative unintended effects of an action affect the degree to which people

assign credit or blame to the person performing the action; although the previous researchers showed that respondents blame another person when the unintended consequences are negative, respondents are unlikely to praise another person when the unintended consequences are positive. However, that previous research had been called into question by other researchers. Keeren and Burmeister (2016) directly replicated the original study and obtained results that were consistent with the initial study. This study was published before the Replication badges were introduced, but the same level of conscientious replication would earn authors badges in future issues of this journal.

### What Potential Concerns Should Be Considered First?

As noted above, seemingly minor differences between the original study and the replication might introduce factors that moderate the previously observed finding. For this reason, replicating researchers must take care to consider whether their study is a true replication or an intentional variant. However, because of word-count limitations in most research journals, some of the minor methodological decisions made by the original researcher might not have been published in the original article. To truly replicate the study, then, replicating researchers should attempt to contact the original researcher and request the original materials used in the study or inquire about their willingness to review the planned methodology of the replication. For example, Jonas et al. (2017)



SPRING 2017

PSI CHI  
JOURNAL OF  
PSYCHOLOGICAL  
RESEARCH

demonstrated that the input of the original researcher might improve the quality of the planned replications. When a special journal series was announced in which one specific publication would be replicated several times, the authors of the planned replications submitted their proposals to the author of the original publication who worked with the replicating researchers to precisely replicate some aspects of the original article while also systematically manipulating other factors. Together, seven replications of the same article led to a more nuanced understanding of when the previously observed effect would and would not replicate. Therefore, rather than just relying on the information provided in the original article and making assumptions about the similarity of the research methodologies, researchers conducting a replication are urged to make attempts to contact the original authors.

### Getting Started

Each of the badge-earning journal articles described as examples above posted their data, materials, or preregistration at the same general website, with an <https://osf.io/> web address; this refers to the Open Science Framework (OSF), which was created by the COS to provide a free and versatile resource for researchers. Once you create an account on this website, you will be able to create a separate “project page” for each study you are conducting. With unlimited free storage, you can designate each of your coauthors as a “contributor,” giving you a shared space for storing all research-related electronic files. Initially coded as “Private,” you can change the status to “Public” when you reach a point at which you wish to seek a badge for your research manuscript. In addition, built-in Preregistration services guide you through the types of questions listed in Table 1, freezing your responses when you wish to have them preregistered. Therefore, the OSF provides a single resource that allows researchers to easily begin adapting their research processes to seek COS badges for their research articles. Visit <https://osf.io/support/> for tutorials and answers to frequently asked questions.

### Conclusion

As noted by Lindsay et al. (2016), times are changing, but the changes are positive. Although the replication crisis was triggered by a verified case of fraud, and then initiated a troubling concern about the inability to replicate a large number of

studies published in highly respected journals, these badges provided psychological researchers with an opportunity to consider how to best conduct research in such a manner as to lead to replicable research. According to the Center for Open Science, the answer is found in transparency: open access of research materials, open access of research data, and open access of preplanned research methods and analyses. Because Psi Chi’s mission is “recognizing and promoting excellence in the science and application of psychology,” it is appropriate that *Psi Chi Journal of Psychological Research* is among the first peer-review psychological journals to recognize best practices of research transparency by awarding badges for Open Materials, Open Data, Preregistration, and Replication.

### References

- Baker, M. (2016, April 15). The reproducibility crisis is good for science. *Slate*. Retrieved from <http://www.slate.com>
- Bartlett, T. (2016, December 4). Power poser: When big ideas go bad. *The Chronicle of Higher Education*. Retrieved from [www.chronicle.com](http://www.chronicle.com)
- Bhattacharjee, Y. (2013, April 26). The mind of a con man. *New York Times Magazine*. Retrieved from [www.nytimes.com](http://www.nytimes.com)
- Bloom, P. (2016, February 19). Psychology’s replication crisis has a silver lining. *The Atlantic*. Retrieved from [www.theatlantic.com](http://www.theatlantic.com)
- Dietze, P., & Knowles, E. D. (2016). Social class and the motivational relevance of other human beings: Evidence from visual attention. *Psychological Science, 27*, 1517–1527. <https://doi.org/10.1177/0956797616667721>
- Eldund, J. E. (2016). Let’s do it again: A call for replications in Psi Chi Journal of Psychological Research. *Psi Chi Journal of Psychological Research, 21*, 59–61. Retrieved from <https://www.psichi.org/page/211JNSpring2016>
- Eom, K., Kim, H. S., Sherman, D. K., & Ishii, K. (2016). Cultural variability in the link between environmental concern and support for environmental action. *Psychological Science, 27*, 1331–1339. <https://doi.org/10.1177/0956797616660078>
- Goldin-Meadow, S. (2016a, September). Why preregistration makes me nervous. *Observer, 29*(7). Retrieved from <http://www.psychologicalscience.org/observer>
- Goldin-Meadow, S. (2016b, October). Preregistration, replication, and nonexperimental studies. *Observer, 29*(8). Retrieved from <http://www.psychologicalscience.org/observer>
- Jonas, K., Cesario, J., Bailey, A., Nault, K., Keller, V., Latu, I., . . . Carney, D. (2017, January). *Special issue of CRSP on power poses: What was learned?* Symposium presented at the meeting of the Society for Personality and Social Psychology, San Antonio, TX.
- Keeran, D. C., & Burmeister, J. (2016). Side effect effect take 2. *Psi Chi Journal of Psychological Research, 21*, 2–5. Retrieved from <https://www.psichi.org/page/211JNSpring2016>
- Lau, T., Morewedge, C. K., & Cikara, M. (2016). Overcorrection for social-categorization information moderates impact bias in affective forecasting. *Psychological Science, 27*, 1340–1351. <https://doi.org/10.1177/0956797616660292>
- Lindsay, D. S., Simons, D. J., & Lilienfeld, S. O. (2016, December). Research preregistration 101. *Observer, 29*(10). Retrieved from <https://www.psychologicalscience.org/observer>
- Nutt, A. E. (2016, March 3). Errors riddled study showing replication crisis in psychology research, scientists say. *Washington Post*. Retrieved from <http://www.washingtonpost.com>
- Open Science Collaboration. (2015). Estimating the reproducibility of psychological science. *Science, 349*, 943–951. <https://doi.org/10.1126/science.aac4716>

SPRING 2017

PSI CHI  
JOURNAL OF  
PSYCHOLOGICAL  
RESEARCH

Vedantum, S. (2015, August 18). Scientific findings often fail to be replicated, researchers say. *NPR Morning Edition*. Retrieved from <http://www.npr.org>

Yong, E. (2014, January 20). Psychology's credibility crisis. *Discover*. Retrieved from [www.discover.com](http://www.discover.com)

Yong, E. (2015, August 27). How reliable are psychological studies? *The Atlantic*. Retrieved from [www.theatlantic.com](http://www.theatlantic.com)

---

*Author Note.* Steven V. Rouse, Pepperdine University.

Steven V. Rouse is also Associate Editor of *Psi Chi Journal of Psychological Research*

Correspondence concerning this article should be addressed to Steven V. Rouse, Social Sciences Division, Pepperdine University, 24255 Pacific Coast Highway, Malibu, CA 90263. E-mail: [Steve.Rouse@pepperdine.edu](mailto:Steve.Rouse@pepperdine.edu)

SPRING 2017

PSI CHI  
JOURNAL OF  
PSYCHOLOGICAL  
RESEARCH

## Publish Your Research in *Psi Chi Journal*

Undergraduate, graduate, and faculty submissions are welcome year round. Only the first author is required to be a Psi Chi member. All submissions are free. Reasons to submit include

- a unique, doctoral-level, peer-review process
- indexing in PsycINFO and EBSCO databases
- free access of all articles at [psichi.org](http://psichi.org)
- our efficient online submissions portal

View Submission Guidelines and submit your research at [www.psichi.org/?page=JN\\_Submissions](http://www.psichi.org/?page=JN_Submissions)

---

## Become a Journal Reviewer

Doctoral-level faculty in psychology and related fields who are passionate about educating others on conducting and reporting quality empirical research are invited become reviewers for *Psi Chi Journal*. Our editorial team is uniquely dedicated to mentorship and promoting professional development of our authors—Please join us!

To become a reviewer, visit [www.psichi.org/?page=journal\\_main](http://www.psichi.org/?page=journal_main)

---

## Resources for Student Research

Looking for solid examples of student manuscripts and educational editorials about conducting psychological research? Download as many free articles to share in your classrooms as you would like.

Search past issues, or articles by subject area or author at [www.psichi.org/?page=journal\\_main](http://www.psichi.org/?page=journal_main)

---

## Add Our Journal to Your Library

Ask your librarian to store *Psi Chi Journal* issues in a database at your local institution. Librarians may also e-mail to request notifications when new issues are released.

Contact [PsiChiJournal@psichi.org](mailto:PsiChiJournal@psichi.org) for more information.



Register an account:  
<http://pcj.msubmit.net/cgi-bin/main.plex>

