

# Some Evidence for a Gender Gap in Personality and Social Psychology

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## Abstract

This research examined a possible gender gap in personality and social psychology. According to membership demographics from the Society for Personality and Social Psychology (SPSP), women and men are represented near parity in the field. Yet despite this equal representation, the field may still suffer from a different type of gender gap. We examined the gender of first authors in two major journals, citations to these articles, and gender of award recipients. In random samples of five issues per year across 10 years (2004–2013;  $N = 1,094$ ), 34% of first authors in *Journal of Personality and Social Psychology* were women and 44% of first authors in *Personality and Social Psychology Bulletin* were women. Articles authored by men were cited more than those authored by women. In examining the gender of award recipients given by SPSP (2000–2016), on average, 25% of the recipients were women.

## Keywords

social psychology, personality, gender gap, bibliometric

It is no longer newsworthy that women enter psychology at a higher rate than men do. In 2013, women represented 72.2% of all doctorates in psychology (National Science Foundation [NSF], 2015a). This is remarkable considering that in 1958 (the earliest data available), women only represented 18.0% of all doctorates in psychology. This impressive growth in representation is pervasive across most subfields of psychology, including social psychology, with 67.3% of doctorates being awarded to women in 2013.<sup>1</sup> Membership in the Society for Personality and Social Psychology (SPSP), the field's largest professional society, likewise reflects this distribution: 51% of the SPSP members are female, 38% are male, and 11% did not report their gender in the most recent membership survey. Of the 89% of all members who specified their gender, 57% are female and 43% are male. While these numbers are not definitive, they do provide a good snapshot of the field's gender composition, and this distribution is a cause for celebration. After all, it stands in marked contrast to other fields such as science, technology, engineering, and mathematics (STEM), where women are severely underrepresented (NSF, 2015b). Yet despite this progress for equal representation, there is reason to believe that social and personality psychology may still suffer from a gender gap. The current article presents evidence that even though women and men are represented equally in social psychology and personality in terms of participation, they are nevertheless underrepresented as authors and underrecognized as award recipients. The remainder of this article assumes that at least half of the individuals participating in social and personality psychology are women, but based on the SPSP demographic statistics, this estimate may be conservative.

The attrition of women in STEM fields is a highly contentious and debated issue as evidenced by a literature revealing mixed findings. While some research has demonstrated that the gender gap in STEM can be attributed to social and environmental factors such as gender bias, other work reveals no advantage for either gender and even occasional advantages for women in STEM. For example, in a field experiment, STEM faculty members were either given a résumé for a lab manager position with a male name or a female name. Both male and female STEM professors were more likely to hire the male candidate over the female candidate for the lab manager position even though the candidates had identical credentials (Moss-Racusin, Dovidio, Brescoll, Graham, & Handelsman, 2012). On the other hand, Williams and Ceci (2015) found that female applicants for tenure-track positions in biology, engineering, and psychology were preferred over male applicants despite identical credentials.

In another study, faculty members received an e-mail from a prospective doctoral student to schedule a meeting on the same day or a week later. The student's race and gender were manipulated by using names that are stereotypically associated with a specific race or gender, but the content of the message remained identical across names. When the prospective

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students asked to meet in 1 week, faculty members were faster and more likely to respond to, as well as more likely to agree to meet with, Caucasian males relative to racial minorities and women. However, in the same-day condition, faculty members were equally likely to reject meeting Caucasian male students and other students (Milkman, Akinola, & Chugh, 2012). A follow-up study using the same data set found that the magnitude of the promale and pro-Caucasian biases for the appointment request 1 week later varied across disciplines, but nevertheless existed across many different fields of study, including a category labeled “social sciences,” which included behavioral, clinical, and education/school psychology (Milkman, Akinola, & Chugh, 2015). Additionally, having a greater proportion of a minority group, either at the faculty level or in the undergraduate population, did not weaken the pro-Caucasian male bias. Finally, and perhaps most critically, a shared racial or gender identity between the student and faculty member did not attenuate the bias against women and most minority groups. Together, these studies suggest that women and minorities, in comparison to Caucasian men, may face greater barriers to entry in academia. However, contradictory research has concluded that “although in the past, gender discrimination was an important cause of women’s underrepresentation in scientific academic careers, this claim has continued to be invoked after it has ceased being a valid cause of women’s underrepresentation in math-intensive fields” (Ceci, Ginther, Kahn, & Williams, 2014, p. 76).

### Insights From Other Fields

To measure the pervasiveness of the gender gap in various fields, researchers have conducted large-scale bibliometric analyses in which journal authors’ genders are coded. One of these efforts relied upon the entire JSTOR corpus (a digital archive of published scholarly research) from 1545 to 2011, encompassing approximately 1.5 million articles from a variety of disciplines in the sciences and humanities (West, Jacquet, King, Correll, & Bergstrom, 2013). Overall, women accounted for only 21.9% of first authors in this entire body of work, which is likely due to the centuries in which women were not permitted to practice science, among other factors. However, narrowing the scope of articles to 1990–2011 still reveals that women are underrepresented in the first author position, accounting for only 27.2% of first authorships. This work also demonstrated that this gap in publishing occurred both in fields that continue to be male dominated (e.g., mathematics) and in fields that approach parity in participation (e.g., education).

A second bibliometric analysis, using over 5 million articles published between 2008 and 2012 drawn from Thomson Reuters’ Web of Science database, found that men were more likely to be the first, last, or sole author on an article compared to women (Larivière, Ni, Gingras, Cronin, & Sugimoto, 2013). This research also found that articles with women in these

positions are cited less frequently than those that have males occupying them.

Both of these studies reinforce the notion that women are not equally represented in science in terms of publications and impact. In male-dominated fields such as mathematics and computer science, one should not be surprised by a gender gap in publication rates due to gender differences in participation. On the other hand, a gender gap in publications within personality and social psychology would be unexpected because the field supposedly has equal representation of men and women. It is for this reason that the current work adopts a bibliometric approach to assess publication in two of the top journals in social and personality psychology.

### Personality and Social Psychology

The current research is not the first to suggest that a gender gap exists in publication within social and personality psychology. Tesser and Bau (2002) identified the most frequently cited researchers using two handbooks of social psychology (both were published before the year 2000) and noted that only 18 of these 106 “most frequently mentioned contributors” were women. The study was conducted at the turn of the century and as the authors noted, there may have been a cohort effect stemming from when men outnumbered women in the field. Another study investigated the nature of the field by conducting a bibliometric analysis of the field’s flagship journal, *Journal of Personality and Social Psychology (JPSP)*, from 1965 to 2000 (Quinones-Vidal, Lopez-Garcia, Penaranda-Ortego, & Tortosa-Gil, 2004). Among the most productive authors in *JPSP*, there was no overlap in terms of number of articles published between male and female authors. Of the top 30 most productive male authors, each of these authors had published from 21 to 51 articles in *JPSP*. But of the top 23 most productive female authors, the number of published articles only ranged from 12 to 20.

Using the list of the 53 most productive researchers (as measured by *JPSP* output) identified by Quinones-Vidal, Lopez-Garcia, Penaranda-Ortego, and Tortosa-Gil (2004), Cikara, Rudman, and Fiske (2012) confirmed the gender gap in *JPSP* authorship from 1965 to 2004. Overall, the 23 most productive women previously identified still published less and at a slower annual rate at *JPSP* compared to their male counterparts. Further analyses by each decade also suggested that the gender gap in *JPSP* was not due to a cohort effect. Despite increasing participation of women in the field as members, reviewers, and editors, women still published in the flagship journal less and at a slower rate than men, leading the authors to conclude that the *JPSP* gender gap did not seem to be closing. Nevertheless, these findings are based solely on 53 researchers in the United States (roughly 1% of current SPSP members) and their *JPSP* output. It is unclear if the gender gap in authorship is pervasive throughout the field as well as its generalizability to other journals. As *JPSP* authorship is not the only indicator of success, other measures are also necessary.

## Current Research

The present article expanded on these findings in several ways. First, rather than examining a subset of the most prolific social and personality psychologists, random samples of five issues per year across 10 years (2004–2013) from two top journals, *JPSP* and *Personality and Social Psychology Bulletin (PSPB)*, were selected to examine a possible gender gap in authorship. Second, the citation counts for the selected papers were retrieved from Web of Science to assess a possible gender difference in scholarly impact postpublication. Finally, the gender of award recipients was coded to investigate a possible gender gap in recognition of scholarly achievements. The current research is exploratory.

## Method

### Coding of Authorships

For the years 2004–2013, we randomly selected five issues (via random number generator) within each year separately in *JPSP* and *PSPB*, thus yielding 100 issues and over 1,000 articles in the total sample. Review articles, corrections, theory articles, and other types of published contributions were not included. For each empirical article, we coded the gender of the first and last author.<sup>2</sup> Any sole authors were included as first authors. An author's gender was determined by inspecting the gender stereotypicality of the first name, visiting the researcher's departmental and personal webpage or performing Internet searches using Google.

The *JPSP* yielded 565 empirical articles, but two of these articles could not be coded due to gender ambiguous names and a lack of Internet record that would reveal gender (e.g., personal webpage, profile on lab/university webpage, etc.), leaving a sample of 563 articles to be coded. The corresponding 10-year period in *PSPB* yielded a sample of 531 articles.

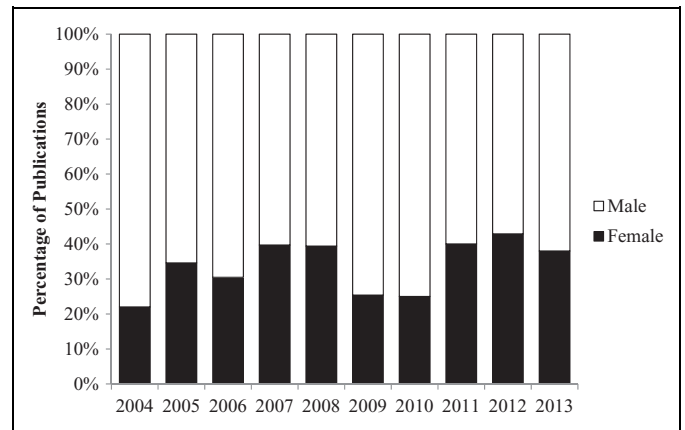
### Coding of Citations

Each article selected for authorship coding was submitted to Web of Science to obtain the number of times that each of these articles had been cited since publication. We also coded the first author's institution at the time of publication either as USA or international for exploratory purposes to examine if there is a tendency to cite researchers based in the United States.

### Coding of Award Recipients

SPSP recognizes the contributions and outstanding scholarly achievements made by social and personality psychologists on an annual basis. The recipients of these awards are nominated and selected by their peers. Therefore, award recipients recognized by SPSP are deemed elite researchers, and this provides us with opportunity to code for gender gap in recognition of achievement.

To avoid a small *N*, only awards that have had at least 10 recipients since 2000 were coded, which resulted in six



**Figure 1.** Gender of first authors in *Journal of Personality and Social Psychology* from 2004 to 2013.

available awards.<sup>3</sup> These awards were the Jack Block Award for distinguished research in personality (2000–2015), the Donald T. Campbell Award in social psychology (2000–2015), the Career Contribution Award (2011–2015), the Carol and Ed Diener Awards in social and personality (2007–2015), the SAGE Young Scholars Awards (2008–2016), and the Daniel M. Wegner Theoretical Innovation Prize (2002–2015). The Diener Awards for social and personality psychology were combined to yield a larger sample. Gender of recipients was determined using the same procedure outlined for authorship. All data were retrieved from the Foundation for Personality and Social Psychology and SPSP websites; full award descriptions and names of award recipients can be found on these websites as well.

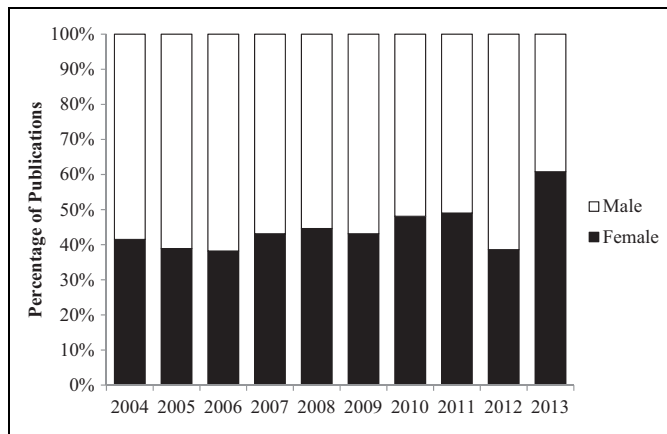
We report how we determined our sample size, all data exclusions, and all measures in this study. See <https://osf.io/5d7ra/> for all coded data on authorships, citations, and award recipients.

## Results

### Authorships

*JPSP.* Of the 563 *JPSP* articles coded for first author gender, women were first authors on 193 articles (34%) and this was significantly below the expected frequency of equal distribution (i.e., equal frequency of male and female authors),  $\chi^2(1, N = 563) = 55.65, p < .001$ . The smallest percentage was for 2004, when 22% of the coded articles had women as first authors. The highest percentage occurred in 2012, with 43% of the coded articles having a female author (see Figure 1). Additionally, there was a positive, albeit nonsignificant, relationship between the year and percentage of women first authors,  $r(8) = .47, p = .171$ , suggesting that the gender gap may be narrowing as the years progress.

*PSPB.* Of the 531 *PSPB* articles coded for first author gender, women were first authors on 236 articles (44%) and this was significantly below the expected frequency of equal



**Figure 2.** Gender of first authors in *Personality and Social Psychology Bulletin* from 2004 to 2013.

distribution,  $\chi^2(1, N = 531) = 6.56, p = .010$ . The lowest percentage was in 2006 when there were 38% female authors, a number that is still higher than *JSPSP*'s average percentage. The highest percentage was in 2013, when there were 61% female authors (Figure 2). The year of publication and the percentage of women first authors were positively related,  $r(8) = .64, p = .044$ , again showing that the gender gap is narrowing throughout the decade.

### Citations

**JSPSP.** In order to examine the effect of gender and research institution location on the number of times an article was cited, we conducted a 2 (first author gender: male vs. female)  $\times$  2 (institution location: USA vs. international) analysis of variance (ANOVA). In an attempt to attenuate the bias of including the occasional highly cited articles, 14 outliers that were greater than three standard deviations from the mean were excluded from this analysis.<sup>4</sup> The ANOVA yielded a significant main effect for gender,  $F(1, 545) = 4.03, p = .045, d = .18$ , such that articles with male first authors were cited more often ( $M = 36.49, SD = 34.91$ ) than those with female first authors ( $M = 30.57, SD = 29.78$ ). The main effect of institution location and the interaction term did not reach significance ( $ps > .67$ ).

**PSPB.** In examining the effect of first author gender and author's institution on the number of times cited, we excluded six outliers based on the criterion above.<sup>5</sup> A 2 (first author gender: male vs. female)  $\times$  2 (institution location: USA vs. international) ANOVA yielded a main effect of author gender,  $F(1, 521) = 6.32, p = .012, d = .20$ . Articles with male first authors ( $M = 20.49, SD = 20.32$ ) were cited more often than those by female first authors ( $M = 16.54, SD = 18.49$ ). The main effect of author's institution was also significant,  $F(1, 521) = 5.60, p = .018, d = .19$ , such that authors from U.S. institutions were cited more frequently ( $M = 20.35, SD = 21.23$ ) than authors from international institutions ( $M = 16.63, SD = 17.10$ ). The interaction of author gender and

**Table 1.** Descriptive and  $\chi^2$  Statistics of Award Recipients.

Award Category	N	Female (n)	Female (%)	$\chi^2$
Jack Block Award	16	2	12.50	9.00**
Donald T. Campbell Award	19	5	26.32	4.26*
Career Contribution Award	10	2	20.00	3.60†
Diener Awards	18	5	27.78	3.56†
SAGE Young Scholars Awards	47	17	36.17	3.60†
Daniel M. Wegner Theoretical Innovation Prize	21	6	28.57	3.86*
Average of six awards	21.83	6.17	25.22	4.13*

Note. The data for the Theoretical Innovation Prize did not include honorable mentions. All  $\chi^2$  analyses were based on 1 - df, comparing men and women. † $p < .10$ . \* $p < .05$ . \*\* $p < .01$ .

institution location did not reach significance,  $F(1, 521) = 1.22, p > .27$ .

### Award Recipients

As shown in Table 1, the gender gap in award recipients is evident for all six awards with the biggest gap in the Block Award (2 female recipients out of 16 total) and the smallest gap in the SAGE Young Scholars Awards (17 female recipients out of 47 total).  $\chi^2$  goodness-of-fit analyses were conducted for each award comparing the frequency of female and male award recipients to the expected frequency of equal distribution. Results were significant for three awards and marginally significant for the remaining three awards, all showing trends of female underrepresentation in award recipients. Averaging the percentage of female recipients across all six award categories yielded roughly 25%, which was significantly different from equal representation.

### Discussion

Psychology, as an entire discipline, is often lauded by researchers who study gender gaps due to the high rate of women participating in the field, from undergraduates to tenure-track professors (e.g., Ceci et al., 2014). Williams and Ceci (2015) also reported that female applicants for tenure-track positions in biology, engineering, and psychology were preferred over male applicants despite identical credentials, and their findings led them to conclude that this is "a propitious time for women launching careers in academic science" (p. 5360). While their data were surely encouraging and optimistic, the conclusion was possibly drawn prematurely. In analyzing the gender of authorship, times cited in the field's flagship journals, and award recipients, the current research found that women in personality and social psychology were consistently underrepresented. Even if women were entering the tenure-track at higher rates than men, the markers of scholarly success (i.e., first author publications in the two most prestigious personality and social psychology journals and awards) do not necessarily reflect gender parity or a bias favoring women. Nonetheless,

our results showed that the gap may indeed be narrowing, as there were positive correlations between the percentage of female first authors and year for both *JPSP* and *PSPB*.

### Possible Contributors to the Gender Gap

The observed gender gap is most likely the product of several factors working in conjunction. One possible contributor to this gender gap is a gender bias favoring men. For instance, research has found that participants were more likely to remember famous male names over female names (Banaji & Greenwald, 1995), and college students in biology courses were more likely to nominate male classmates over female classmates as more knowledgeable about the course content (Grunspan et al., 2016). These two findings are particularly pertinent to the current research considering that academics are often asked to nominate their colleagues and peers for leadership positions (e.g., presidents, editors, committee members) and as recipients of prestigious awards. The gender gap may have been due to people's ease of retrieval for men's accomplishment compared to that of women.

In fact, the possibility that gender biases could impact publishing practices has been suggested in the past (Petty, Fleming, & Fabrigar, 1999). Using data from his tenure as the editor of *PSPB* (1988–1991), Petty and his colleagues found that first author gender significantly predicted an editor's decision to accept a manuscript for publication, favoring male over female authors. This bias was attenuated when controlling for reviewers' perceptions of the manuscript, but remained marginally significant. Critically, this bias was not qualified by the editor's gender, similar to the field studies reporting the likelihood of potential advisors to reply to an e-mail (Milkman et al., 2015) or hiring decision (Moss-Racusin et al., 2012).

Other factors besides gatekeepers' biases may, of course, be at work. Women are less likely to take risks (e.g., Byrnes, Miller, & Schafer, 1999), which has been suggested to play a critical role in creating achievement gaps between men and women (Arch, 1993). In the context of the current research, women may be less likely to submit their work to the best journals or nominate themselves or lobby their colleagues to nominate them for awards. Cikara et al. (2012) reported that male authors submitted 751 articles while women submitted only 455 articles to *JPSP*. *JPSP* holds the reputation of being the best journal in the field and arguably better than *PSPB*, as *JPSP*'s current impact factor is 5.031 while *PSPB*'s current impact factor is 2.909. As a result, women may be less confident in sending their research to *JPSP* in the first place. For the current work, submission and rejection rates were requested from both of these journals in order to aid in drawing conclusions about what contributes to the gender gap, but these data were not available.

Additionally, women have been suggested to be less successful in negotiations for primary authorship (West et al., 2013). If this were true, women would be expected to appear on publications at a higher rate when considering all authorship positions. Using the *JPSP* data set, we found that, on average, women comprised 31% of authors on all of the articles coded,

slightly lower than the average of women who were first authors. While differences in negotiation skill may impact whether or not a woman is offered authorship, it does not appear to influence the position of that authorship. However, previous work has shown a positive relationship between editorial negotiation and productivity, but only for men, suggesting that gender differences in successful negotiation may impact publication in a number of points between writing up a manuscript and its eventual publication (Cikara, Rudman, & Fiske, 2012).

Another possible contributor to this gender gap is gender differences in the quality of research. Compared to men, women may be less likely to publish in top journals, less likely to be cited, and less likely to be nominated for prestigious awards due to the lower quality of their work. Alternatively, there could be differences in *perceived* ability, such that research conducted by men may be viewed as having greater scientific quality compared to women, as suggested by research on the Matilda effect (Knobloch-Westerwick, Glynn, & Huges, 2013). We are unaware of research that has directly examined gender differences in ability to excel in academia, as this is undoubtedly a combination of numerous factors. Additionally, it is difficult to objectively ascertain gender differences in the quality of research within personality and social psychology because objectivity is easily colored by biases as demonstrated by past research in STEM (Moss-Racusin et al., 2012), but evidence suggests that there may be preferences favoring women (Lloyd, 1990; Williams & Ceci, 2015).

Lastly, women may be publishing less and receiving fewer awards not because of ability but because of choice. Wang, Eccles, and Kenny (2013) proposed that women are less likely to enter STEM because their high verbal and high mathematical ability afforded them with more opportunities and career options. In a similar vein, women may possess equal research and teaching capability relative to their male counterparts, and women may choose to enter institutions that place less demand on publishing and more on teaching and mentoring (e.g., liberal arts colleges). The rigorous demands placed on teaching and mentoring in teaching-oriented colleges replace publications in top journals or receiving awards that focus on research contribution, and as a result, women may be underrepresented in the categories we coded (all of which were research-focused). This explanation, however, requires actual data regarding gender ratio of psychology faculty in teaching-oriented colleges.

### Future Directions

A crucial first step in understanding and combating the gender gap relies on collecting more demographic information and making the data publicly and freely available. This may require more transparent data within the publication process, from submission rates to editorial evaluations (i.e., Petty et al., 1999) and publication rates based on demographic information. Furthermore, nomination criteria and procedures for leadership positions and award recipients should be clearer. As the current research is limited to examining the gender gap, future research

should also take a more intersectional approach to better understand the diverse individuals who compose this flourishing field, but once again, better demographics are requisite. We therefore encourage SPSP to obtain more detailed demographic information of its members (e.g., career stage, type of institution, year in the field) and we encourage personality and social psychologists of all stages to provide the necessary information to make this field more equal and open.

Given the number of possible contributors to the gender gap (e.g., biases, personal attributes, ability, or choice), more research is also needed to determine which of these contributors is more influential in widening or closing the gender gap. As a discipline, social psychology often looks to solve the gender gaps of other fields, specifically those in STEM (Moss-Racusin et al., 2014), but the field should start studying itself more rigorously using the same method. For instance, disentangling biases from differences in ability will require careful experimental design such as sending manipulated articles, curriculum vitae, or applications to editors, job-search committee, award committee, or potential graduate advisors (e.g., Ceci & Williams, 2015; Lloyd, 1990; Milkman et al., 2012; Moss-Racusin et al., 2012; Williams & Ceci, 2015). In terms of “choice” as a possible contributor, future research could code student evaluations or mentorship-based awards (e.g., Nalini Ambady Award for mentoring excellence when it provides sufficient number of recipients for coding). However, these contributors are most likely working in conjunction to exacerbate the gender gap and it is unlikely that one single factor can solely account for the gap. An obvious solution for the moment is to adopt a double-blind review more widely as such procedure is not always an option.

## Conclusion

In 2009, for the first time in history, women earned more PhDs in the United States than men did (Jaschik, 2010), a much celebrated accomplishment when considering the different educational trajectories historically afforded to each gender. In marked contrast to this statistic, women have been earning the majority of PhDs in social psychology since the early 1980s (NSF, 2015a), suggesting that women have participated and attained the necessary training to be represented equally in this field for as long as 30 years. As the discipline that studies prejudice and stereotyping, it is tempting to believe that personality and social psychologists should be more aware, more motivated, and better at monitoring their own potential biases. Nonetheless, there is evidence of a gender gap in authorships, citations, and awards. Despite this gender gap in personality and social psychology, we remain optimistic that the gap will narrow with continued understanding of this issue and with more initiatives to create a more open and equal field for all.

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## Authors' Note

Adam J. Brown and Jin X. Goh contributed equally to this work.

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## Notes

1. Data for personality psychology doctorates were unavailable for the same time span. The latest available data indicated that in 2006, 70.0% of doctorates in personality were earned by women (National Science Foundation, 2015a).
2. In some sciences, last author is often reserved for the senior author on the publication. However, it is unclear how pervasive this tradition is in social and personality psychology, and it is for this reason that the current work and analyses solely focused on first author.
3. Two service awards (Service to the Field Award and Service to the Society for Personality and Social Psychology [SPSP] Award) were coded but were not included herein because not all recipients of these two awards were academics. As the focus of this research was on the gender gap of academics in the field, we ultimately excluded these two categories. For Service to the Field Award, 9 (33%) of the 27 recipients were women. For Service to SPSP Award, 6 (30%) of the 20 recipients were women.
4. Including the outliers did not change the general pattern of the results. However, the analysis of variance (ANOVA) including all articles yielded only a marginal significant gender main effect,  $F(1, 559) = 3.33, p = .068, d = .17$ . The other two effects did not approach significance ( $F_s < 1$ ).
5. Including all articles in the ANOVA yielded a marginally significant gender effect,  $F(1, 527) = 3.48, p = .063, d = .15$ . The other two effects did not approach significance ( $F_s < 1$ ).

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