Supplementary Materials for

The gendered nature of authorship

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Supplementary Materials

Supplemental materials and methods
We used an in-house version of the Web of Science database to construct the sampling frame representing the population of researchers who have published collaborative articles between 2011 and 2015. Authors and their papers were disambiguated using characteristics such as the institution of affiliation (using the link between authors and institutional addresses found in the Web of Science), as well as researchers’ email addresses. As the Web of Science typically indexes only one email address per paper (for corresponding author), our sampled authors have, at one point in their career, been corresponding authors on a manuscript. Once disambiguation was completed, we removed from our dataset non-collaborative authors—that is, authors those who have never contributed to papers that have more than one author. This led to a sampling frame of 3,487,882 possible researchers, from which a sample of 103,396 researchers was drawn. Researchers were assigned to a country as a function of the most frequent country appearing on their papers and assigned to a discipline as a function of the main discipline appearing on their papers. The survey was stratified by researchers’ levels of interdisciplinarity, based on their papers’ percentage of references made to other disciplines.

The survey was sent through email using the Qualtrics software on May 24th, 2016, with two reminders sent to authors who had not yet responded within the month following the original invitation. 14.1% of email invitations (N=14,526) never reached any respondents, due nonexistent addresses, full mailboxes, junk filters, etc. Responses were received from 8,364 respondents (for a response rate of 9.4% from the 88,771 that were marked as delivered); however, only 5,730 returned full surveys (for a response rate of 6.5%). 155 responses from Arts and Humanities were removed from analysis and 5,575 responses from remaining disciplines were kept. This forms the analytical sample for the present study. Survey respondents indicated their disciplines of research based on the National Science Foundation field and subfield classification, which were later re-categorized into larger disciplinary areas (see Table S1) due to two reasons: 1) The number of discipline categories is large and makes cross-disciplinary comparison difficult; and 2) the number of respondents in each discipline varies distinctively. Table S2 provides the number of researchers in the population, sample, respondents, and analytical sample. It shows that researchers from the social sciences slightly are overrepresented in the analytical sample, while researchers from medical sciences and natural sciences and engineering are underrepresented. Researchers from most Western countries are also overrepresented, mostly to the expense of Asian countries (Table S3). From a gender point of view, men and women has similar response rates (Table S4), and the algorithmically assigned gender used to assess genders’ response rate is a strong predictor of respondents’ declared gender (Table S5). Finally, respondents were divided fairly equally among early-, mid-, and late-career researchers (Table S6).
Table S1. Grouping of disciplines into 3 disciplinary areas

| Disciplinary Areas                  | Disciplines                  |
|------------------------------------|------------------------------|
| Social Sciences (SS)               | Professional Fields          |
|                                   | Social Sciences              |
|                                   | Psychology                   |
| Medical Sciences (MS)              | Biomedical Research          |
|                                   | Clinical Medicine            |
|                                   | Health                       |
| Natural Sciences & Engineering     | Chemistry                    |
| (NS&E)                             | Earth & Space                |
|                                   | Biology                      |
|                                   | Engineering & Technology     |
|                                   | Mathematics                  |
|                                   | Physics                      |

Table S2. Population, surveyed researchers, respondents, and analytical sample, by discipline

| Discipline | Population | Surveyed | Respondents | Analytical Sample |
|------------|------------|----------|-------------|-------------------|
|            | N          | %        | N           | %                | N       | %      |
| AH         | 24,029     | 0.7%     | 2,161       | 2.1%             | 251     | 3.0%   | 0       | 0%     |
| SS         | 334,595    | 9.6%     | 12,519      | 12.1%            | 1,471   | 17.6%  | 1,097   | 19.7%  |
| MS         | 1,313,324  | 37.7%    | 32,395      | 31.4%            | 2,488   | 29.8%  | 1,800   | 32.3%  |
| NS&E       | 1,815,934  | 52.1%    | 56,221      | 54.4%            | 4,139   | 49.6%  | 2,678   | 48.0%  |
| All Areas  | 3,487,882  | 100.0%   | 103,296     | 100.0%           | 8,349   | 100.0% | 5,575   | 100.0% |
Table S3. Population, surveyed researchers, respondents, and analytical sample by country

| Country                  | Population N | Sample N | Respondents N | Analytical sample N |
|--------------------------|--------------|----------|---------------|---------------------|
|                          | N            | %        | N             | %        |
| United States            | 698522       | 20.0%    | 19,932        | 19.3%    |
| China                    | 439104       | 12.6%    | 9,741         | 9.4%     |
| Germany                  | 176427       | 5.1%     | 5,130         | 5.0%     |
| United Kingdom           | 178109       | 5.1%     | 5,463         | 5.3%     |
| Japan                    | 139738       | 4.0%     | 3,574         | 3.5%     |
| France                   | 136990       | 3.9%     | 4,044         | 3.9%     |
| Brazil                   | 122465       | 3.5%     | 4,977         | 4.8%     |
| Italy                    | 113616       | 3.3%     | 2,767         | 2.7%     |
| India                    | 112578       | 3.2%     | 3,877         | 3.8%     |
| Spain                    | 108152       | 3.1%     | 3,287         | 3.2%     |
| Canada                   | 99978        | 2.9%     | 2,748         | 2.7%     |
| Australia                | 87825        | 2.5%     | 2,601         | 2.5%     |
| Republic of Korea        | 74411        | 2.1%     | 2,235         | 2.2%     |
| Netherlands              | 65085        | 1.9%     | 1,745         | 1.7%     |
| Iran                     | 58691        | 1.7%     | 1,615         | 1.6%     |
| Turkey                   | 58542        | 1.7%     | 1,690         | 1.6%     |
| Russia                   | 54157        | 1.6%     | 3,420         | 3.3%     |
| Taiwan                   | 51757        | 1.5%     | 1,197         | 1.2%     |
| Poland                   | 45870        | 1.3%     | 1,475         | 1.4%     |
| Sweden                   | 42426        | 1.2%     | 1,064         | 1.0%     |
| Switzerland              | 37790        | 1.1%     | 1,055         | 1.0%     |
| Belgium                  | 33453        | 1.0%     | 949           | 0.9%     |
| Mexico                   | 29251        | 0.8%     | 1,061         | 1.0%     |
| Denmark                  | 26535        | 0.8%     | 686           | 0.7%     |
| Portugal                 | 24765        | 0.7%     | 826           | 0.8%     |
| Malaysia                 | 21581        | 0.6%     | 659           | 0.6%     |
| Argentina                | 20293        | 0.6%     | 699           | 0.7%     |
| Czech Republic           | 20072        | 0.6%     | 691           | 0.7%     |
| South Africa             | 17740        | 0.5%     | 758           | 0.7%     |
| Romania                  | 16300        | 0.5%     | 833           | 0.8%     |
| Others (N=167)           | 375,659      | 10.8%    | 12,497        | 12.1%    |
| All                      | 3,487,882    | 100.0%   | 103,296       | 100.0%   |

All: Population = 3,487,882; Sample = 103,296; Respondents = 8,349; Analytical sample = 5,575; Percentage of respondents: 100.0%.
Table S4. Population, surveyed researchers, respondents, and analytical sample by gender (based on the gender algorithm described in (6))

| Gender   | Population | Sample | Respondents | Analytical sample |
|----------|------------|--------|-------------|-------------------|
|          | N          | %      | N           | %                | N     | %  | %*  |
| Men      | 1,620,843  | 46.5%  | 46,358      | 44.9%            | 3,532 | 42.3% | 2,389 | 42.9% | 62.5% |
| Women    | 819,202    | 23.5%  | 22,066      | 21.4%            | 1,996 | 23.9% | 1,432 | 25.7% | 37.5% |
| Unknown  | 1,047,837  | 30.0%  | 34,872      | 33.8%            | 2,821 | 33.8% | 1,754 | 31.5% | -    |
| All genders | 3,487,882 | 100.0% | 103,296     | 100.0%           | 8,349 | 100.0% | 5,575 | 100.0% | 100.0% |

* Percentage based on researchers for which a gender could be assigned.

Table S5. Distribution of survey respondents by declared gender (survey) and algorithmically assigned (based on the gender algorithm described in (6))

| Algorithm | Survey | Men | Women | ALL |
|-----------|--------|-----|-------|-----|
|           | N      | %   | N     | %   | N  | %  |
| Men       | 2,325  | 97.3% | 64  | 2.7% | 2,389 | 42.9% |
| Women     | 77     | 5.4%  | 1,355 | 94.6% | 1,432 | 25.7% |
| Unknown   | 1,164  | 66.4% | 590 | 33.6% | 1,754 | 31.5% |
| ALL       | 3,566  | 64.0% | 2,009 | 36.0% | 5,575 | 100.0% |

Table S6. Gender distribution of survey respondents by disciplinary area and career stage

| Career stage | SS (N=1,097) | MS (N=1,800) | NS&E (N=2,678) | ALL (N=5,575) |
|--------------|--------------|--------------|-----------------|---------------|
|              | Men | Women | Men | Women | Men | Women | Men | Women |
| Early Career (N=1,642) | 129 48.9% | 135 51.1% | 280 49.7% | 283 50.3% | 570 69.9% | 245 30.1% | 979 59.6% | 663 40.4% |
| Mid-Career (N=1,629) | 149 47.6% | 164 52.4% | 295 57.6% | 217 42.4% | 606 75.4% | 198 24.6% | 1050 64.5% | 579 35.5% |
| Late Career (N=1,239) | 228 69.5% | 100 30.5% | 244 65.8% | 127 34.2% | 456 84.4% | 84 15.6% | 928 74.9% | 311 25.1% |
| Other (N=1,065) | 79 41.1% | 113 58.9% | 169 47.7% | 185 52.3% | 361 69.6% | 158 30.4% | 609 57.2% | 456 42.8% |
| ALL (5,575) | 585 53.3% | 512 46.7% | 988 54.9% | 812 45.1% | 1993 74.4% | 685 25.6% | 3566 64.0% | 2009 36.0% |

Incomplete Responses
About 2,400 surveys were started but not completed. 849 participants with incomplete responses finished at least one question. Given that demographic questions were asked at the end of the survey, incomplete responses were often missing this information (e.g., gender, rank, discipline, etc.). We compared basic statistics on several questions between the incomplete and complete group. For instance, we compare the percentages of incomplete and complete group answering “yes” to certain questions. For most of the questions examined, there were no major distinctions observed.

Initial Exploratory Analysis
Data collected from the questionnaire were categorical or ordinal in nature. Therefore, we employed several categorical data analysis techniques as the first step of exploratory analyses. For most variables that are examined in this paper, univariate analysis Pearson’s chi-square test was conducted to compare the distribution of categorical variables between
different gender groups. For variables with small sample sizes (usually $n \leq 10$), Fisher’s exact test was utilized to compare the difference between gender groups. The statistical significance level was set at the level of 0.05. This provided an overview of how men and women responded differently to certain variables.

Confounding Variables
Academic career status and disciplinary area of scientists are two confounding variables, as both are likely related to each gender’s responses to questions. To better explore gender difference, logistic regressions was performed with the two variables (academic rank/role and disciplinary area) being controlled in the overall model. With this method, we were able to rule out the possible effects of these two variables.

Regression Analysis
The regression procedures include ordinal logistic regression, multinomial logistic regression, and multiple logistic regression. Regression analysis is usually used to explore relationships between dependent and independent variables. The most common is linear regression, in which:

$$Y_i = \beta_0 + \beta_1 x_i + \beta_1 z_i + \ldots + e_i$$

where with one unit change in $X$ there is $\beta_1$ differences in $Y$ after $Z$ and other variables are controlled. However, this approach assumes that all dependent variables are normally distributed. Furthermore, it often assumes that dependent variable $Y$ is continuous. Our dataset, like many social science surveys, is replete with categorical variables. We want to understand whether there is a gendered difference when selecting one category over another. Therefore, we turn to logistic regression. Specific procedures and analysis methods vary by the scale of dependent variables, as well as the number of variable categories.

For questions with answers measured in ordinal scales (e.g., Likert Scaling), ordinal logistic regression analysis was employed. For instance, we employed ordinal logistic regression to compare the difference between responses from women and men to the value of study design in research. In this question, respondents evaluated the contribution of study design on a Likert Scale from “not at all important” to “extremely important”. Level of importance, therefore, constitutes the dependent variable in this analysis. Gender is the independent variable with two categories of values: women and men. Academic role and disciplinary area were the two controlled variables in the analysis. The statistical significance level was set at 0.05. By using ordinal logistic regression analysis, an odds ratio of women over men would be generated. When the odds ratio was statistically larger than 1, it represented that women were more likely than men to rate a higher importance level for the contribution of study design. An odds ratio value that is significantly smaller than 1 indicates that men are more likely than women to rate a higher importance level. Statistical significance could also be expressed from the confidence interval of the odds ratio. For a 95% confidence interval, we are 95% confident that the true population odds ratio falls between the lower and upper bound of this interval. An odds ratio confidence interval, including one, represents a statistical non-significance.

For questions with answers (the dependent variables) presented in a categorical, unordered scale, multinomial logistic regression (when the dependent variable contains more than two categories) or multiple logistic regression (when the dependent variable only contains two categories) was performed. The point statistic was still the odds ratio of
women over men. For instance, when respondents chose the author who they think should receive most recognitions from “first author”, “last author” and “all authors”, the author variable is an unordered dependent variable with three categories when we performed the multinomial logistic regression. Gender here again is the independent variable, with the academic role and disciplinary areas being the controlled variables. In multinomial logistic regression, one category of the dependent variable will be used as the baseline (reference category) to compare with the remaining variables. Each of the variable categories will have an odds ratio value from the regression analysis. In this analysis, the “last author” category of the dependent variable was considered as the reference category. A women to men odds ratio over 1 for “first author” category indicates that women were more likely than their men to choose “first author” over “last author” as the candidate for receiving most recognitions.

In the case when a dependent variable only has two categories (e.g., “yes” or “no” to an answer), multiple logistic regression analysis was conducted to analyze the data. An odds ratio value significantly over 1 indicates that women was more likely than men to select “Yes” for this question. Similarly, the academic role and disciplinary area variables are controlled.

Multiple testing is not a problem here, as we analyze gender differences separately on each hypothesis. Data on different disciplines were also tested separately: we were not trying to ascertain whether there were disciplinary differences, but rather there were gender differences within each discipline. This approach also solves the problem of differential response rates, given that each discipline was analyzed separately. In terms of response rates by gender, the response rates are not strongly different that global rates of gender participation in the scientific workforce.

Odds ratio

We use odds and odds ratio to quantify the potential gender difference in terms of contributing to the responses to survey questions. More specifically, we compare the odds of each gender opting an answer for each question in each disciplinary area separately. In the case when the dependent variable has two categories, the odds ratio provides a way to compare the relative odds of the occurrence of the outcome (e.g., yes vs no) given independent variables (e.g., men and women). If the odds ratio is close to one, in means that the independent variables have nearly the same probabilities of one outcome variable rather than the other. If the odds ratio is much larger, it means a higher probability of one outcome over the other. Using logistic regression, we can examine the odds ratio while controlling for other confounding variables. In our study, the controlled variables are discipline and career stage.

For Likert-scale type questions where the answer values range from 1-5 (e.g. from “not at all important” to “extremely important”), we utilize ordinal logistic regression. The odds ratio in ordinal logistic regression test whether one gender has a higher/lower probability to select the higher ordered category compared to another gender group. If the odds ratio from the ordinal logistic regression is significantly larger than 1, it means that focus group is more likely to select a higher ordered category than reference group. If the odds ratio is less than 1, it means that the focus group is less likely to select a higher ordered category than reference group.

| Table S7. Descriptive statistics and model parameters (in odds ratio) for questions of interest |
|-----------------------------------------------|
| Overall | Social Science | Natural Science & Engineering | Medical Science |


When you are leading a team research project, when do you discuss authorship?

| When the team is first formed, at the outset of the research project | 32.91% | 39.60% | 1.17 * |
| Continuous throughout the research project | 35.12% | 36.58% | 1.04 |
| During the manuscript writing process | 54.41% | 54.59% | 1.06 |
| When the manuscript is ready to be published | 19.10% | 15.09% | 0.733 *** |
| We never discuss authorship | 4.02% | 2.63% | 0.726 |
| I have never lead a team research project | 8.54% | 11.81% | 1.34 ** |
| Other | 2.79% | 3.03% | 1.05 |

In working with other researchers on a team project (not as the leading researcher), when, in your experience, is authorship discussed?

| When the team is first formed, at the outset of the research project | 26.27% | 30.17% | 1.06 |
| Continuous throughout the research project | 26.55% | 26.65% | 0.98 |
| During the manuscript writing process | 61.75% | 65.56% | 1.23 ** |
| When the manuscript is ready to be published | 27.05% | 27.00% | 0.95 |
| We never discuss authorship | 7.12% | 7.54% | 1.07 |
| I have never lead a team research project | 1.20% | 0.89% | 0.72 |
| Other | 2.71% | 3.13% | 1.07 |

In your experience, who usually decides which individuals to include as authors?

| The Principal Investigator, without consultation with the team | 9.38% | 12.11% | 1.15 |
| The Principal Investigator, after consultation with the main contributors | 48.68% | 50.92% | base |

(Multinomial logistic regression was conducted)
A few main contributors arrive at a consensus 19.46% 15.89% 0.81** 21.58% 16.14% 0.70* 20.71% 15.57% 0.68** 15.67% 16.01% 1.06

All contributors come to a common agreement 20.33% 18.73% 0.94 28.94% 28.15% 0.95 22.02% 19.51% 0.81 11.83% 12.19% 1.1

Other 2.16% 2.34% 1.09 2.40% 3.15% 1.59 2.51% 1.75% 0.62 1.31% 2.34% 1.82

How important are the following criteria in naming authors? Not at all important to extremely important: 1 to 5. (Ordinal logistic regression was conducted)

| What they contributed to the research project | mean4. 47 | mean4. 52 | 1.15* | Mean 4.56 | Mean 4.50 | 0.91 | Mean4. 43 | Mean 4.52 | 1.31** | Mean 4.53 | Mean 4.55 | 1.15 |
|---------------------------------------------|-----------|-----------|-------|-----------|-----------|-----|-----------|-----------|-------|-----------|-----------|-----|
| Overall time spent working on the research project | 3.54 | 3.75 | 1.38*** | 3.63 | 3.81 | 1.39** | 3.47 | 3.75 | 1.62*** | 3.64 | 3.71 | 1.15 |
| Taking responsibility for the research process and results | 3.93 | 4.14 | 1.58*** | 3.90 | 4.11 | 1.73*** | 3.89 | 4.11 | 1.63*** | 4.05 | 4.18 | 1.49*** |
| Securing funding | 2.75 | 2.93 | 1.28*** | 2.54 | 2.81 | 1.51*** | 2.73 | 2.98 | 1.42*** | 2.92 | 2.96 | 1.05 |
| Leadership | 3.41 | 3.53 | 1.24*** | 3.21 | 3.41 | 1.44** | 3.36 | 3.47 | 1.28** | 3.62 | 3.65 | 1.12 |
| Technical work (e.g., data collection, statistical analysis, experiments) | 3.55 | 3.66 | 1.23*** | 3.43 | 3.49 | 1.07 | 3.57 | 3.77 | 1.41*** | 3.57 | 3.67 | 1.15 |
| Academic rank | 1.98 | 2.11 | 1.16*** | 1.89 | 2.03 | 1.16 | 1.97 | 2.16 | 1.26** | 2.05 | 2.11 | 1.03 |

Have you ever encountered disagreement regarding authorship naming? (Multinomial logistic regression was conducted)

| Frequency of authorship naming disagreement. (Ordinal logistic regression was conducted) |
|-------------------------------------------------|-----------|-----------|-------|-----------|-----------|-----|-----------|-----------|-------|-----------|-----------|-----|
| Rarely                                           | 72.23% | 63.17% | 76.92% | 64.26% | 1.53** | 73.88% | 63.93% | 1.49** | 67.88% | 62.05% | 1.14 |
| Less than half of the time                       | 19.45% | 26.43% | 18.10% | 26.10% | 1.35*** | 17.90% | 23.75% | 1.49** | 22.32% | 28.51% | 1.14 |
| About half the time                              | 6% | 7.5% | 3.17% | 8.03% | 1.60* | 5.80% | 8.21% | 1.49** | 7.44% | 6.71% | 1.14 |
| Most of the time                                 | 1.69% | 2.81% | 0.45% | 1.61% | 1.93% | 4.11% | 1.81% | 2.52% | 0.63% | 0.09% | 0.54% | 0.21% |
| Always                                           | 0.63% | 0.09% | 1.36% | 0.00% | 0.48% | 0.00% | 0.54% | 0.21% | 0.63% | 0.09% | 0.54% | 0.21% |

What factors caused or contributed to disagreements among team members?

| Factors caused or contributed to disagreements among team members. |
|---------------------------------------------------------------|-----------|-----------|-------|-----------|-----------|-----|-----------|-----------|-------|-----------|-----------|-----|
| Differing disciplinary practices                              | 8.07% | 10.12% | 1.23* | 8.19% | 11.91% | 1.60* | 6.94% | 6.98% | 1.09 | 10.28% | 11.66% | 1.19 |
| Different ways of valuing or measuring the importance of contribution | 29.65% | 38.81% | 1.46*** | 22.87% | 33.59% | 1.66*** | 27.05% | 37.79% | 1.63*** | 38.91% | 42.94% | 1.21 |
| Confusion or lack of clarity                                  | 17.98% | 20.40% | 1.1 | 12.80% | 20.70% | 1.76** | 16.12% | 18.02% | 1.11 | 24.80% | 22.21% | 0.89 |
Regarding authorship definitions

|                                | 9.69% | 11.22% | 1.1 | 8.53% | 10.74% | 1.32 | 8.73% | 9.74% | 1.06 | 12.30% | 12.76% | 1.04 |
|--------------------------------|-------|--------|-----|-------|--------|------|-------|-------|------|--------|--------|------|
| Differing values               | 11.64%| 13.20% | 1.17| 8.70% | 13.09% | 1.57*| 12.08%| 13.52%| 1.15 | 12.50% | 13.01% | 1.02 |
| Differing ethics               | 3.41% | 4.37%  | 1.19| 1.54% | 3.71%  | 3.03**| 2.50% | 2.91% | 1.16 | 6.35%  | 6.01%  | 0.98 |
| Difference between the team's authorship practices and those of the journal | 12.48%| 14.39% | 1.1 | 10.24% | 13.67% | 1.43 | 11.23%| 11.63%| 1.03 | 16.33% | 17.18% | 1.05 |
| Lack of agreement within the team | 3.29% | 4.37%  | 1.24| 4.78% | 5.47%  | 1.22 | 2.64% | 3.05% | 1.18 | 3.73%  | 4.79%  | 1.3 |

Have you observed any of the following behaviors from scholars as a result of an authorship naming disagreement?

|                                | 23.56%| 27.49% | 1.20**| 21.50%| 28.71% | 1.54**| 21.81%| 27.18%| 1.34**| 28.33%| 26.99% | 0.94 |
|                                | 16.44%| 17.17% | 1.04 | 13.14%| 15.04% | 1.15 | 16.57%| 16.86%| 0.99 | 18.15%| 18.77% | 1.03 |
|                                | 8.35% | 7.99%  | 0.99 | 5.80% | 6.05%  | 0.99 | 9.18% | 9.45% | 1    | 8.17% | 7.98%  | 0.97 |
|                                | 5.92% | 6.20%  | 1.1 | 4.10% | 5.66%  | 1.41 | 6.14% | 7.41% | 1.24 | 6.55% | 5.52%  | 0.84 |
|                                | 3.60% | 2.48%  | 0.7* | 1.88% | 1.76%  | 0.85 | 4.04% | 2.91% | 0.69 | 3.73% | 2.58%  | 0.68 |
|                                | 38.25%| 38.76% | 1.02| 38.40%| 40.43% | 1.12 | 37.13%| 41.42%| 1.19 | 40.42%| 35.46% | 0.82*|
|                                | 3.63% | 3.37%  | 0.87 | 5.12% | 4.10%  | 0.77 | 3.24% | 2.76% | 0.85 | 3.53% | 3.44%  | 0.97 |
|                                | 46.57%| 45.46% | 0.96| 50.34%| 45.12% | 0.90 | 47.60%| 44.19%| 0.86 | 42.24%| 46.75% | 1.2 |

Have you ever engaged in any of the following behaviors as a result of an authorship naming disagreement?

|                                | 4.47% | 4.71%  | 1.06| 4.10% | 5.08%  | 1.16 | 4.69% | 4.51% | 0.98 | 4.23% | 4.66%  | 1.07 |
|                                | 3.38% | 2.78%  | 0.9 | 3.07% | 2.73%  | 0.95 | 4.09% | 3.20% | 0.78 | 2.12% | 2.45%  | 1.13 |
|                                | 1.56% | 1.34%  | 0.86| 0.85% | 0.98%  | 1.12 | 1.75% | 1.60% | 0.87 | 1.61% | 1.35%  | 0.79 |
Sabotaging someone’s research | 0.87% | 0.55% | 0.61 | 0.17% | 0.59% | 2.16 | 0.90% | 0.58% | 0.64 | 1.21% | 0.49% | 0.39%

Producing fraudulent research to compete with or undermine the results of a colleague | 0.73% | 0.45% | 0.67 | 0.68% | 0.59% | 0.79 | 0.90% | 0.44% | 0.53 | 0.40% | 0.37% | 0.87%

Limiting further collaboration | 26.13% | 27.20% | 1.08 | 26.62% | 28.71% | 1.16 | 24.80% | 27.33% | 1.2 | 28.53% | 26.13% | 0.94%

Other | 2.57% | 3.57% | 1.35 | 3.07% | 3.91% | 1.29 | 2.40% | 2.91% | 1.24 | 2.62% | 3.93% | 1.55%

I have not engaged in any specific behavior | 67.23% | 65.71% | 0.91 | 68.26% | 64.84% | 0.84 | 68.01% | 65.55% | 0.86 | 65.02% | 66.38% | 1.03%

What authorship ordering conventions have been used in your collaborative research publications? (Select all that apply.)

Alphabetical order | 21.30% | 20.94% | 1.05 | 38.23% | 39.45% | 1.1 | 22.83% | 19.19% | 0.86 | 8.17% | 10.80% | 1.43*

Partial alphabetical order | 11.00% | 11.22% | 1.11 | 12.46% | 13.67% | 1.14 | 12.18% | 12.06% | 1.03 | 7.76% | 8.96% | 1.25

Decreasing order of contribution | 62.73% | 65.66% | 1.15* | 65.36% | 68.75% | 1.18 | 63.37% | 66.13% | 1.11 | 59.88% | 63.31% | 1.19

Team leader or principal investigator last | 44.67% | 48.64% | 1.17* | 49.31% | 52.30% | 1.31 | 41.37% | 45.78% | 1.23* | 63.00% | 63.19% | 1.04

Team leader or principal investigator first | 32.33% | 40.00% | 1.22** | 37.54% | 46.48% | 1.33* | 28.94% | 33.14% | 1.15 | 36.09% | 41.72% | 1.23*

Team leaders or principal investigators of two groups become first/last authors, depending on who did the majority of the research | 19.46% | 27.79% | 1.50*** | 11.43% | 15.82% | 1.52* | 15.92% | 25.73% | 1.81*** | 31.35% | 37.06% | 1.29**

Other | 6.90% | 8.29% | 1.32* | 8.19% | 7.81% | 1.03 | 6.99% | 7.99% | 1.25 | 5.95% | 8.83% | 1.66**

Which author typically receives the most recognition in your collaborative publications?

(Multinomial logistic regression was conducted)

First author | 68.40% | 73.87% | base | 67.01% | 80.67% | base | 66.99% | 68.41% | base | 72.08% | 74.23% base

Last author | 6.63% | 8.08% | 1.18 | 1.20% | 0.39% | 0.34 | 4.78% | 7.13% | 1.59* | 13.60% | 13.69% | 1.08

All author | 13.55% | 8.18% | 0.67*** | 17.44% | 10.45% | 0.53** | 15.95% | 10.77% | 0.73* | 6.40% | 4.56% | 0.76

I don’t know | 6.35% | 5.24% | 0.83 | 10.43% | 5.13% | 0.42*** | 6.64% | 8.15% | 1.22 | 3.35% | 2.84% | 0.8

Other | 5.06% | 4.64% | 0.99 | 3.93% | 3.35% | 0.79 | 5.64% | 5.53% | 1.04 | 4.57% | 4.69% | 1.1

Which author should receive the most recognition in your collaborative publications?

(Multinomial logistic regression was conducted)

First author | 55.04% | 55.01% | base | 46.99% | 49.02% | base | 55.08% | 51.09% | base | 59.70% | 62.07% base

Last author | 4.31% | 5.18% | 1.22 | 0.86% | 1.38% | 1.66 | 2.62% | 3.93% | 1.86* | 9.75% | 8.62 | 0.98

All author | 30.39% | 28.00% | 0.99 | 42.00% | 38.39% | 0.89 | 31.64% | 31.88% | 1.16 | 21.02% | 18.23% | 0.86

I don’t know | 6.35% | 5.24% | 0.83 | 10.43% | 5.13% | 0.42*** | 6.64% | 8.15% | 1.22 | 3.35% | 2.84% | 0.8

Other | 6.98% | 8.52% | 1.33* | 7.06% | 8.27% | 1.23 | 6.79% | 9.46% | 1.60** | 7.31% | 7.88% | 1.14

Have you ever encountered disagreement regarding author order?

(Multinomial logistic regression was conducted)

Yes | 36.00% | 42.85% | 1.25*** | 34.13% | 42.16% | 1.39* | 30.86% | 37.52% | 1.43** | 47.47% | 47.78% | 1.03
|                | Rarely       | Less than half of the time | About half the time | Most of the time | Always       |
|----------------|--------------|----------------------------|---------------------|------------------|--------------|
|                | Base         | Base                       | Base                | Base             | Base         |
| No             | 55.48%       | 49.03%                     | 58.19%              | 51.96%           | Base 59.86% |
| Not sure       | 8.52%        | 8.12%                      | 7.68%               | 5.88%            | 0.89         |
| How often do you have disagreements regarding authorship ordering in your research collaborations? (Ordinal logistic regression was conducted) |
| Rarely         | 72.72%       | 64.19%                     | 75.00%              | 68.37%           | 73.82%       |
| Less than half of the time | 19.80%       | 26.51%                     | 19.00%              | 23.26%           | 17.89%       |
| About half the time | 5.61%        | 6.86%                      | 4.00%               | 7.44%            | 6.02%        |
| Most of the time | 1.56%        | 2.09%                      | 1.00%               | 0.93%            | 2.11%        |
| Always         | 0.31%        | 0.35%                      | 1.00%               | 0.00%            | 0.16%        |

What factors have caused or contributed to disagreement in author order among team members?

| Factor                                      | Rarely       | Less than half of the time | About half the time | Most of the time | Always       |
|---------------------------------------------|--------------|----------------------------|---------------------|------------------|--------------|
| Differing disciplinary practices            | 7.54%        | 9.63%                      | 1.30%               | 7.68%            | 1.60%        |
| Differing ways of valuing or measuring the importance of contribution | 25.35%       | 32.85%                     | 1.32***             | 24.06%           | 1.38%        |
| Confusion and lack of clarity               | 11.03%       | 13.45%                     | 1.12                | 9.04%            | 1.74**       |
| Differing values                            | 8.43%        | 9.73%                      | 1.11                | 8.70%            | 1.03         |
| Differing ethics                            | 7.68%        | 9.68%                      | 1.24%               | 7.68%            | 1.34         |
| Differences between the team's authorship practices and those of the journal | 2.85%        | 3.37%                      | 1.08                | 1.71%            | 2.80*        |
| Lack of discussion and agreement within the team | 12.23%       | 15.53%                     | 1.17                | 11.26%           | 1.46*        |
| Other                                       | 1.90%        | 2.17%                      | 1.14                | 3.07%            | 0.5          |

Have you observed any of the following behaviors from scholars as a result of an author order disagreement? (Select all that apply.)

| Behavior                                                                 | Rarely       | Less than half of the time | About half the time | Most of the time | Always       |
|--------------------------------------------------------------------------|--------------|----------------------------|---------------------|------------------|--------------|
| Being hostile towards colleagues                                        | 17.14%       | 20.35%                     | 1.18*               | 18.09%           | 1.20         |
| Undermining the work of colleagues during group meetings/talks           | 10.55%       | 11.22%                     | 1.02                | 9.56%            | 1.07         |
| Cutting corners on research to compete with a colleague                   | 4.86%        | 4.62%                      | 0.94                | 4.10%            | 0.80         |
| Sabotaging someone's research                                            | 3.57%        | 2.93%                      | 0.86                | 2.73%            | 1.14         |
| Producing fraudulent research to compete with or undermine the results of a colleague | 2.23%        | 0.99%                      | 0.44**              | 2.05%            | 0.98%        |

** denotes statistical significance at p<.05
*** denotes statistical significance at p<.01
** denotes statistical significance at p<.001
### Limiting further collaboration

|                | 27.3% | 28.19% | 1.03 | 28.50% | 29.69% | 1.06 | 25.60% | 26.89% | 1.1 | 30.04% | 28.34% | 0.95 |
|----------------|-------|--------|------|--------|--------|------|--------|--------|-----|--------|--------|-----|
| Other          | 1.76% | 1.74%  | 0.91 | 2.73%  | 2.34%  | 0.77 | 1.50%  | 1.16%  | 0.84 | 1.71%  | 1.84%  | 1.12 |

### Other

|                | 1.76% | 1.74%  | 0.91 | 2.73%  | 2.34%  | 0.77 | 1.50%  | 1.16%  | 0.84 | 1.71%  | 1.84%  | 1.12 |

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**Have you engaged in any of the following behaviors as a result of an author order disagreement? (Select all that apply.)**

- **Being hostile towards colleagues**
  - 3.55% 3.42% 0.95 3.58% 4.10% 1.09 3.54% 3.05% 0.91 3.53% 3.31% 0.88

- **Undermining the work of colleagues during group meetings/talks**
  - 2.74% 1.79% 0.68 2.05% 1.76% 0.8 3.19% 1.60% 0.51* 2.22% 1.96% 0.84

- **Cutting corners on research to compete with a colleague**
  - 1.45% 1.04% 0.75 0.68% 1.17% 2.03 1.85% 0.87% 0.45 1.11% 1.10% 0.98

- **Sabotaging someone’s research**
  - 0.75% 0.10% 0.14** 0.17% 0.00% --- 0.95% 0.29% 0.28 0.71% 0.00% ---

- **Producing fraudulent research to compete with or undermine the results of a colleague**
  - 0.56% 0.30% 0.54 0.68% 0.20% 0.27 0.55% 0.44% 0.82 0.50% 0.25% 0.46

- **Limiting further collaboration**
  - 17.78% 20.40% 1.18* 19.80% 22.27% 1.17 16.12% 19.33% 1.31* 19.96% 20.12% 1.06

- **Other**
  - 1.51% 1.19% 0.64 1.88% 0.78% 0.35 1.00% 0.73% 0.75 2.32% 1.84% 0.74

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**To what degree are individuals/institutions responsible for the overall research project in collaborative publications? “Not at all” to “A great deal”: 1 to 5.**

(Ordinal logistic regression was conducted)

| First author | Mean 4.41 | Mean 4.60 | 1.49*** | Mean 4.39 | Mean 4.58 | 1.76*** | Mean 4.35 | Mean 4.51 | 1.39*** | Mean 4.54 | Mean 4.68 | 1.53*** |
|--------------|-----------|-----------|---------|-----------|-----------|---------|-----------|-----------|---------|-----------|-----------|---------|
| Last author  | 3.52      | 3.64      | 1.12*   | 3.16      | 3.20      | 1.11    | 3.35      | 3.50      | 1.29**  | 4.03      | 4.01      | 0.99    |
| All authors (unequally) | 3.26 | 3.33 | 1.15* | 3.32 | 3.39 | 1.10 | 3.26 | 3.36 | 1.22* | 3.21 | 3.28 | 1.13 |
| All authors (equally) | 3.07 | 3.03 | 0.94 | 3.32 | 3.24 | 0.89 | 3.06 | 3.02 | 0.96 | 2.94 | 2.91 | 0.94 |
| Research institution of authors | 2.34 | 2.33 | 0.95 | 2.11 | 2.21 | 1.11 | 2.37 | 2.39 | 0.98 | 2.42 | 2.34 | 0.84* |
| individuals named in the acknowledgment | 2.00 | 2.03 | 1.04 | 1.84 | 1.95 | 1.14 | 2.03 | 2.10 | 1.11 | 2.02 | 2.01 | 0.91 |
| institutions named in the acknowledgment | 2.00 | 2.04 | 1.10 | 1.81 | 1.95 | 1.19 | 2.05 | 2.16 | 1.18* | 1.99 | 1.99 | 0.96 |
| Everyone who contributed to the research | 2.83 | 2.91 | 1.19** | 2.77 | 2.82 | 1.08 | 2.85 | 2.97 | 1.24* | 2.81 | 2.92 | 1.22* |

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If there were error(s) found in your collaborative research, who would be most accountable to the public/academic communities? "Not at all" to "A great deal": 1 to 5.

(Ordinal logistic regression was conducted)

| First author | Mean 4.34 | Mean 4.52 | 1.43*** | Mean 4.33 | Mean 4.56 | 1.90*** | Mean 4.26 | Mean 4.38 | 1.25* | Mean 4.49 | Mean 4.62 | 1.47*** |
|--------------|-----------|-----------|---------|-----------|-----------|---------|-----------|-----------|-----|-----------|-----------|---------|
| Last author  | 3.50      | 3.63      | 1.12*   | 3.12      | 3.22      | 1.16    | 3.30      | 3.45      | 1.26** | 4.07      | 4.13      | 0.96    |
| All authors (unequally) | 3.21 | 3.21 | 1.02 | 3.51 | 3.49 | 0.98 | 3.22 | 3.22 | 1.03 | 3.00 | 3.02 | 1.03 |
There are several factors that have influenced authorship ordering decisions in collaborative publications. To what extent have the following factors influenced authorship ordering decisions in your work: Technical, Nationality, Gender, culture, Disciplinary, researcher, Prestige of contribution, Financial, Academic rank? (Select all that apply.)

To what extent have the following factors influenced authorship naming decisions in your collaborative publication(s): "Not a great deal"; 1 to 5.

Do you use any guidelines to help in the distribution of authorship? (Multinomial logistic regression was conducted)

| Criteria                                      | Yes                | No                  | I am not sure       |
|-----------------------------------------------|--------------------|---------------------|---------------------|
| Guidelines developed within the team/lab      | 16.44%             | 17.97%              | 1.20*               |
| Departmental guidelines and Institutional guidelines | 4.05%            | 4.62%               | 1.16                |
| Journal guidelines                            | 7.68%              | 8.83%               | 1.37***             |
| Professional Association Guidelines           | 12.14%             | 16.87%              | 1.19                |
| Others                                        | 0.84%              | 0.50%               | 0.93                |

How useful were the guidelines for the following tasks: (Answered by all participants). "Not at all useful" to "Extremely useful": 1 to 5. (Ordinal logistic regression was conducted)

| Task                                          | Naming authors | Ordering authors | Distributing responsibility | Managing authorship disputes or disagreements |
|-----------------------------------------------|----------------|------------------|----------------------------|-----------------------------------------------|
| Mean                           | 3.79           | 3.58             | 3.21                       | 3.14                                          |
| Mean                           | 3.74           | 3.47             | 3.07                       | 3.07                                          |

To what extent have the following factors influenced authorship naming decisions in your collaborative publication(s): "Not at all" to "A great deal": 1 to 5. (Ordinal logistic regression was conducted)

| Factor                     | Academic rank | Financial contribution | Prestige of researcher | Disciplinary culture | Gender | Nationality | Technical work |
|----------------------------|---------------|------------------------|------------------------|----------------------|--------|-------------|----------------|
| Mean                      | 2.34          | 2.29                   | 2.47                   | 2.44                 | 1.16   | 1.19        | 3.31           |
| Mean                      | 2.54          | 2.31                   | 2.58                   | 2.60                 | 1.17   | 1.17        | 3.15           |
| 1.14**                    | 1.02          | 1.07                   | 1.20                   | 0.89                 | 0.90   | 0.89        | 0.89           |

To what extent have the following factors influenced authorship ordering decisions in your collaborative publication(s)? "Not at all" to "A great deal": 1 to 5. (Ordinal logistic regression was conducted)

| Factor                     | Academic rank | Financial contribution | Prestige of researcher | Disciplinary culture | Gender | Nationality | Technical work |
|----------------------------|---------------|------------------------|------------------------|----------------------|--------|-------------|----------------|
| Mean                      | 2.34          | 2.29                   | 2.47                   | 2.44                 | 1.16   | 1.19        | 3.31           |
| Mean                      | 2.54          | 2.31                   | 2.58                   | 2.60                 | 1.17   | 1.17        | 3.15           |
| 1.14**                    | 1.02          | 1.07                   | 1.20                   | 0.89                 | 0.90   | 0.89        | 0.89           |
Please select the extent to which you agree with the following statements. "Disagree" to "Strongly agree": 1 to 6.
(Ordinal logistic regression was conducted)

| Academic rank                                      | Mean 2.33 | Mean 2.49 | 1.08 | Mean 2.15 | Mean 2.44 | 1.32* | Mean 2.28 | Mean 2.45 | 1.18* | Mean 2.55 | Mean 2.55 | 0.86 |
|-----------------------------------------------------|-----------|-----------|------|-----------|-----------|-------|-----------|-----------|-------|-----------|-----------|------|
| Financial contribution                              | 2.09      | 2.14      | 1.04 | 1.80      | 1.99      | 1.24  | 2.10      | 2.24      | 1.19* | 2.25      | 2.14      | 0.80*|
| Prestige of researcher                              | 2.30      | 2.45      | 1.12*| 2.13      | 2.44      | 1.38**| 2.26      | 2.48      | 1.30**| 2.47      | 2.43      | 0.84*|
| Disciplinary culture                                | 2.26      | 2.43      | 1.22***| 2.33     | 2.63      | 1.52***| 2.23      | 2.35      | 1.21* | 2.27      | 2.38      | 1.07 |
| Gender                                              | 1.15      | 1.17      | 1.09 | 1.14      | 1.22      | 1.57* | 1.16      | 1.16      | 0.98  | 1.14      | 1.15      | 1    |
| Nationality                                         | 1.17      | 1.15      | 0.87 | 1.15      | 1.18      | 1.18  | 1.18      | 1.14      | 0.83  | 1.18      | 1.15      | 0.77 |
| Technical work                                      | 3.14      | 3.07      | 0.99 | 2.63      | 2.66      | 1.02  | 3.31      | 3.33      | 0.99  | 3.09      | 3.10      | 0.98 |

Please assess the value of these contributions in your field of research.
(Ordinal logistic regression was conducted)

| Study design                                         | Mean 4.00 | Mean 4.16 | 1.25***| 4.02   | 4.11   | 1.2   | 3.86   | 3.98   | 1.31**| 4.28   | 4.34   | 1.22*|
|------------------------------------------------------|-----------|-----------|--------|--------|--------|------|--------|--------|-------|--------|--------|------|
| Literature review                                    | 3.59      | 3.72      | 1.31***| 3.66   | 3.76   | 1.25  | 3.54   | 3.74   | 1.53***| 3.64   | 3.69   | 1.14 |
| Data collection                                      | 3.90      | 4.00      | 1.20** | 3.83   | 3.92   | 1.2   | 3.85   | 4.06   | 1.49***| 4.06   | 4.01   | 0.93 |
| Data analysis                                        | 4.21      | 4.35      | 1.34***| 4.19   | 4.32   | 1.36**| 4.18   | 4.39   | 1.56***| 4.30   | 4.34   | 1.12 |
| Writing of the manuscript                            | 4.32      | 4.49      | 1.48***| 4.43   | 4.55   | 1.49**| 4.26   | 4.40   | 1.40***| 4.38   | 4.53   | 1.60***|
| Management and coordination                          | 3.40      | 3.56      | 1.34***| 3.32   | 3.39   | 1.16  | 3.33   | 3.57   | 1.60***| 3.60   | 3.66   | 1.19*|
| Technical work (e.g., experiments)                   | 3.84      | 3.71      | 0.92   | 3.40   | 3.36   | 0.94  | 3.98   | 3.98   | 1.02  | 3.84   | 3.68   | 0.80*|
| Other                                                | 3.22      | 3.35      | 1.18   | 3.28   | 3.54   | 1.38  | 3.24   | 3.34   | 1.11  | 3.14   | 3.27   | 1.21 |
**Supplementary Figures**

![Graphs showing the percentage of different author decision scenarios](image)

**Fig. S1:** Who usually decides which individuals to include as authors? Total number of valid observations: NS&E (N=2,676), MS (N=1,800), SS (N=1,092).

Multinomial logistic regression was conducted separately for each discipline with rank controlled in the model. All statements were compared with “The PI, after consultation with the main contributors” (baseline). * indicates p < 0.05; ** indicates p < 0.01.
Fig. S2: Have you observed any of the following behaviors from scholars because of an authorship ordering disagreement? Total number of valid observations: NS&E (N=2,678), MS (N=1,800), SS (N=1,097). * indicates $p<0.05$; ** indicates $p<0.01$. 
Fig. S3. Please select the extent to which you agree with the following statements.
Scaled from 1-6, “disagree” to “strongly agree”. Total number of valid observations: NS&É (N=2,643), MS (N=1,786), SS (N=1,077). * indicates $p<0.05$; ** indicates $p<0.01$. 
Fig. S4. Which author typically receives the most recognition in your collaborative publications? NS&E (N=2,336), MS (N=1,657), SS (N=965) for “should”; NS&E (N=2,373), MS (N=1,613), SS (N=973) for “is”. Multinomial logistic regression was conducted separately for each discipline with rank controlled in the model. “All authors receive most recognition”, “Last author receives most recognition” were compared with “First author receives most recognition”; “All author should receive most recognition”, “Last author should receive most recognition” were compared with “First author should receive most recognition”. Binary logistic regression was conducted to explore the recognition gap between who does and who should receive most recognition (have gap vs. no gap). * indicates $p<0.05$; ** indicates $p<0.01$. 

Women □ Men □ Multinomial Logistic Regression Analysis Odd Ratio [W/M]
Fig. S5. What factors have caused or contributed to disagreement in author order among team members? Total number of valid observations: NS&E (N=2,678), MS (N=1,800), SS (N=1,097). * indicates $p<0.05$; ** indicates $p<0.01$. 
Survey instrument

Note: These questions are part of a larger study on authorship and acknowledgement ethics. Only specific questions that were used during the analysis of the manuscript have been included.

Definition of authorship naming: the inclusion of different contributors as authors in a research publication.

Have you ever encountered disagreement regarding authorship naming?

- Yes (1)
- No (2)
- I am not sure (3)

If No is selected, then skip next section. If I am not sure is selected, then skip to next section.

How often do you have disagreements regarding authorship naming in your research collaborations?

- Rarely (1)
- Less than half of the time (2)
- About half the time (3)
- Most of the time (4)
- Always (5)

What factors caused or contributed to disagreements among team members? (Select all that apply.)

- Differing disciplinary practices (1)
- Different ways of valuing or measuring the importance of contribution (2)
- Confusion or lack of clarity regarding authorship definitions (3)
- Differing values (4)
- Differing ethics (5)
- Difference between the team’s authorship practices and those of the journal (6)
- Lack of agreement within the team (7)
- Other (please specify) (8) ____________________

Have you observed any of the following behaviors from scholars as a result of an authorship naming disagreement? (Select all that apply)

- Being hostile towards colleagues (1)
- Undermining the work of colleagues during group meetings/talks (2)
- Cutting corners on research to compete with a colleague (3)
- Sabotaging someone’s research (4)
- Producing fraudulent research to compete with or undermine the results of a colleague (5)
- Limiting further collaboration (6)
- Other (please specify) (7) ____________________
- No specific behavior has been observed (8)

Have you ever engaged in any of the following behaviors as a result of an authorship naming disagreement? (Select all that apply.)

- Being hostile towards colleagues (1)
- Undermining the work of colleagues during group meetings/talks (2)
- Cutting corners on research to compete with a colleague (3)
- Sabotaging someone’s research (4)
- Producing fraudulent research to compete with or undermine the results of a colleague (5)
- Limiting further collaboration (6)
- Other (please specify) (7) ____________________
- I have not engaged in any specific behavior (8)

Definition of **authorship ordering**: The order in which authors are named on a research publication.

Have you ever encountered disagreement regarding author order?

- Yes (1)
- No (2)
- I am not sure (3)

If No Is Selected, Then Skip Next Section, If I am not sure Is Selected, Then Skip To Next Section

How often do you have disagreements regarding authorship ordering in your research collaborations?

- Rarely (1)
- Less than half of the time (2)
- About half the time (3)
- Most of the time (4)
- Always (5)

What factors have caused or contributed to disagreement in author order among team members? (Select all that apply.)
• Differing disciplinary practices (1)
• Differing ways of valuing or measuring the importance of contribution (2)
• Confusion and lack of clarify (e.g., process, criteria) (3)
• Differing values (4)
• Differing ethics (5)
• Differences between the team’s authorship practices and those of the journal (6)
• Lack of discussion and agreement within the team (7)
• Other (please specify) (8) ____________________

Have you observed any of the following behaviors from scholars as a result of an author order disagreement? (Select all that apply.)

• Being hostile towards colleagues (1)
• Undermining the work of colleagues during group meetings/talks (2)
• Cutting corners on research to compete with a colleague (3)
• Sabotaging someone’s research (4)
• Producing fraudulent research to compete with or undermine the results of a colleague (5)
• Limiting further collaboration (6)
• Other (please specify) (7) ____________________
• No specific behavior has been observed (8)

Have you engaged in any of the following behaviors from scholars as a result of an author order disagreement? (Select all that apply.)

• Being hostile towards colleagues (1)
• Undermining the work of colleagues during group meetings/talks (2)
• Cutting corners on research to compete with a colleague (3)
• Sabotaging someone’s research (4)
• Producing fraudulent research to compete with or undermine the results of a colleague (5)
• Limiting further collaboration (6)
• Other (please specify) (7) ____________________
• I have not engaged in any specific behavior (8)

What is your present role/rank? (Select all that apply.)

• Bachelor’s student (1)
• Master’s student (2)
• Doctoral student or candidate (3)
• Postdoctoral fellow (5)
• Lecturer (teaching graduate or undergraduate courses)
• Technician or technician assistant (e.g., statistician, laboratory assistant) (7)
• Research assistant (8)
• Research associate (at public or private institution) (6)
• Senior researcher (at public or private institution)
• Assistant professor (9)
• Associate professor (10)
• Full professor (11)
• Emeritus professor (12)
• Other (please specify) (13) ____________________

What is your gender?
• Male (1)
• Female (2)
• Other (3)
• I prefer not to answer (4)

What is your area(s) of study? (Select all that apply.)
• Social Sciences (1)
• Humanities (2)
• Medical Sciences (3)
• Natural Sciences and Engineering (4)
• Other (please specify) (5) _______