



PreReg

# Preregistration for Quantitative Research in Psychology Template

## Gender Differences in Psychology Journal Manuscript Submission and Review During COVID-19 Pandemic, APA Journals

### T1 Title

The title should be focused and descriptive, using relevant key terms to reflect what will be done in the study. Use title case (<https://apastyle.apa.org/style-grammar-guidelines/capitalization/title-case>).

Gender Differences in Psychology Journal Manuscript Submission and Review During COVID-19 Pandemic, APA Journals

### T2 Contributors, Affiliations, and Persistent IDs (recommend ORCID iD)

Provide in separate entries the full name of each contributor, each contributor's professional affiliation, and each contributor's persistent ID. See ORCID iD for an example of persistent ID (<https://orcid.org/>). Optional: include the intended contribution of each person listed (e.g. statistical analysis, data collection; see CRediT, <https://casrai.org/credit/>).

Lois Jones, APA Journals  
Jessica Conroy, Center for Workforce Studies, APA  
Rose Sokol-Chang, APA Journals and Books (<https://orcid.org/0000-0003-4558-3281>)  
Karen Stamm, Center for Workforce Studies, APA

<b>T3 Date of Preregistration</b>
This is assigned by the system upon preregistration submission.
1/25/21

<b>T4 Versioning information</b>
This is assigned by the system upon submission of original and subsequent revisions. Should be a persistent identifier, if not a DOI.

<b>T5 Identifier</b>
This unique identifier is assigned by the system upon submission.

<b>T6 Estimated duration of project</b>
Include best estimate for how long the project will take from preregistration submission to project completion.
2 Months

**T7 IRB Status**  
**(Institutional Review Board/Independent Ethics Committee/Ethical Review Board/Research Ethics Board)**

If the study will include human or animal subjects, provide a brief overview of plans for the treatment of those subjects in accordance with established ethical guidelines. If appropriate institutional approval has been obtained for the study, provide the relevant identifier here. If the study will be exempt from ethical board review, provide reasoning here.

N/A

**T8 Conflict of Interest Statement**

Identify any real or perceived conflicts of interest with this study execution. For example, any interests or activities that might be seen as influencing the research (e.g., financial interests in a test or procedure, funding by pharmaceutical companies for research).

Authors are employed by the APA, and analyzing/reporting on data collected during peer review at APA Journals.

**T9 Keywords**

Include terms specific to your topic, methodology, and population. Use natural language and avoid words used in the title or overly general terms. If you need help with keywords, try a keyword search using your proposed keywords in a search engine to check results.

peer review, gender differences, leadership, pandemic

**T10 Data accessibility statement and planned repository**

"We plan to make the data available (yes / no)

If "yes", please specify the planned data availability level by selecting one of the options:

- Data access via download; usage of data for all purposes (public use file)
- Data access via download; usage of data restricted to scientific purposes (scientific

use file) <ul style="list-style-type: none"> <li>• Data access via download; usage of data has to be agreed and defined on an individual case basis</li> <li>• Data access via secure data center (no download, usage/analysis only in a secure data center)</li> <li>• Data available upon email request by member of scientific community</li> <li>• Other (please specify)</li> </ul>
Primary data (removing personally identifiable data) will be available upon email request by member of scientific community or accessible via download (public use) following embargo period of 6 months.

<p align="center"><b>T11 Optional: Code availability</b></p>
We plan to make the code available (yes / no). If „yes“, please specify the planned code availability level (use same descriptors of data in T10).
Jupyter Notebook and Python Code made available (public use)

<p align="center"><b>T12 Optional: Standard lab practices</b></p>
Standard lab practices refer to a (timestamped) document, software package, or similar, which specifies standard pipelines, analytical decisions, etc. Which always apply to certain types of research in a lab. Specify here and refer to at the appropriate positions in the remainder of the template: We plan to make the standard lab practices available (yes / no). If „yes“, please specify the planned standard lab practices availability level (use same descriptors of data in T10).
N/A

# Abstract

(150 words)

## A1 Background

(See introduction I1)

Initial research shows that women are facing an unequal burden of childcare during the COVID-19 pandemic. This is affecting their career development, including their participation in peer review. For example, see Viglione, G. (2020). Are women publishing less during the pandemic? Here's what the data say. *Nature*, 581, 365-366.

## A2 Objectives and Research questions

(See introduction I2)

This study examines the impact specific to psychology by analyzing peer review data collected by the APA Journals program from March-December 2019 (pre-pandemic/baseline) compared to March-December 2020 (pandemic).

## A3 Participants

(See methods M4)

N/A

## A4 Study method

(See methods M10-14)

This analysis employs an observational, between subjects design. Using data collected in the APA Journals peer review systems (N=90 journals), measured variables include gender, author order, journal subfield, whether individual was invited to review a manuscript, reviewer response to invitation, date review received. This data will be combined for two periods: March 2019-December 2019; March 2020-December 2020.

An algorithm was employed to predict gender based on first name of individual (author or reviewer), and extending to middle name as needed. Data fields include first name, date, author order, review invitation, review response, journal.

# Introduction

(no word limit)

## I1 Theoretical background

Provide a brief overview that justifies the research hypotheses.

Initial research shows that women are facing an unequal burden of childcare during the COVID-19 pandemic. This is affecting their career development, including their participation in peer review. For example, see Viglione, G. (2020). Are women publishing less during the pandemic? Here's what the data say. *Nature*, 581, 365-366.

## I2 Objectives and Research question(s)

Outline objectives and research questions that inform the methodology and analyses (below).

This study examines the impact specific to psychology by analyzing peer review data collected by the APA Journals program from March-December 2019 (pre-pandemic/baseline) compared to March-December 2020 (pandemic).

## I3 Hypothesis (H1, H2, ...)

Provide hypothesis for predicted results. If multiple hypotheses, uniquely number them (e.g., H1, H2a, H2b,) and refer to them the same way at other points in the registration document and in the manuscript.

H1: The percentage of women engaged as authors on manuscripts to APA Journals in 2020 is lower than in 2019.

H2: The percentage of women who accepted invitations to review manuscripts for APA Journals in 2020 is lower than in 2019.

## I4 Exploratory research questions (if applicable; E1, E2, ....)

If planning exploratory analyses, provide rationale for them here. If multiple exploratory analyses, uniquely number them (E1, E2, ...) and refer to them in the same way in the registration document and in future publications.

E1: if H1 and H2 are supported, were these effects more exaggerated in some sub-fields than others? Requires analysis by sub-field (e.g. Applied psychology, social psychology)

## Method

### M1 Time point of registration

Select one of the options:

- Registration prior to creation of data
- Registration prior to any human observation of the data
- Registration prior to accessing the data
- Registration prior to analysis of the data
- Other (please specify; might include if T1 longitudinal data has been analyzed, but T2 has not yet been analyzed)

Registration prior to the analysis of the data

### M2 Proposal: Use of pre-existing data (re-analysis or secondary data analysis)

Will pre-existing data be used in the planned study? If yes, indicate if the data were previously published and specify the source of the data (e.g., DOI or APA style reference of original publication). Specify your level of knowledge of the data (e.g., descriptive statistics from previous publications), whether or not this is relevant for the hypotheses of the present study, and how it is assured that you are unaware of results or statistical patterns in the data of relevance to the present hypotheses.

No

### *Sampling Procedure and Data Collection*

### M3 Sample size, power and precision

(1) Relevant sample sizes: e.g., single groups, multiple groups, and sample sizes (or sample ranges) found at each level of multilevel data. (2) Provide power analysis (e.g. power curves) for fixed-N designs. For sequential designs, indicate your 'stopping rule' such as the points at which you intend to be viewing your data and in any way analyzing

them (e.g., t-tests and correlations, but even descriptively such as with histograms).

Approximately 105,000 unique Authors submitted articles to 90 different APA Journals between January 2019 and October 2020.

#### **M4 Participant recruitment, selection, and compensation**

Indicate (a) methods of recruitment (e.g., subject pool advertisement, community events, crowdsourcing platforms, snowball sampling); (b) selection and inclusion/exclusion criteria (e.g., age, visual acuity, language facility); (c) details of any stratification sampling used; (d) planned participant characteristics (Gender, Race/Ethnicity, Sexual Orientation and Gender Identity, SES, education level, age, disability or health status, geographic location); (e) compensation amount and method (e.g., same payment to all, pay based on performance, lottery).

N/A

#### **M5 How will participant drop-out be handled?**

Indicate any special treatment for participants who drop out (e.g., there is follow-up in a manner different from the main sample, last value carried forward) or whether participants are replaced.

N/A

#### **M6 Masking of participants and researchers**

Indicate all forms of masking and/or allocation concealment (e.g., administrators, data collectors, raters, confederates are unaware of the condition to which participants were assigned).

N/A



## **M7 Data cleaning and screening**

Indicate all steps related to data quality control, e.g., outlier treatment, identification of missing data, checks for normality, etc.

Data were cleaned using python version 3.0 in Jupyter lab. Initial cleaning included ingestion and reformatting of the complete dataset from multiple excel pages to a single csv file. Exact duplicates were dropped and basic text processing was performed to standardize formatting of the author and editor names.

The resulting data was deduplicated further using the dedupe python library, a machine learning algorithm which is used to identify clusters in the data based upon a threshold of similarity. This analysis was based upon the document title, publication number, author first and last names, and editor first and last names. Data elements with an estimated match threshold of 70% or higher were classified as being in the same cluster and likely representing a duplicate of each other. No partial duplicates were dropped, rather unique cluster IDs were maintained in the dataset and unique counts were used for analysis.

## **M8 How will missing data be handled?**

Indicate any procedures that will be applied during the analysis to deal with missing data, such as (a) case deletions; (b) averaging across scale items (to handle missing items for some); (c) test of missingness (MAR, MCAR, MNAR assumptions; (d) imputation procedures (FIML vs. MI); (e) Intention to treat analysis and per protocol analysis (as appropriate).

Missing data, i.e. those authors missing full first names and middle names, will be excluded from the gender analysis.

Additional missing data, such as those cases missing journal names preventing identification of the journal subfield, will be excluded from those analyses that involve that field and the included N value calculated.

To summarize:

44 rows were missing a first name all together, these were excluded.

There were 338 missing publication numbers (field used to identify journal name)

## **M9 Other information (optional)**

For example, training of raters/participants or anything else not yet specified.

N/A

## **Conditions and design**

### **M10 Type of study and study design**

Indicate the type of study (e.g., experimental, observational, crosssectional vs. Longitudinal, single case, clinical trial) and planned study design (e.g., between vs. Within subjects, factorial, repeated measures, etc.), number of factors and factor levels, etc..

Observational, between subjects

### **M11 Randomization of participants and/or experimental materials**

If applicable, describe how participants are assigned to conditions or treatments, how stimuli are assigned to conditions, and how presentation of tests, trials, etc. is randomized. Indicate the randomization technique and whether constraints were applied (pseudo-randomization). Indicate any type of balancing across participants (e.g., assignments of responses to hands, etc.).

N/A

### **M12 Measured variables, manipulated variables, covariates**

This section shall be used to unambiguously clarify which variables are used to operationalize the hypotheses specified above (item I3). Please (a) list all measured variables, and (b) explicitly state the functional role of each variable (i.e., independent variable, dependent variable, covariate, mediator, moderator). It is important to (c) specify for each hypothesis how it is operationalized, i.e., which variables will be used to test the respective hypothesis and how the hypothesis will be operationally defined in terms of these variables. The description here shall be consistent with the statistical analysis plans specified under AP5 (below).

Measured variables:

Gender (male/female/androgynous/mostly male/mostly female; predicted by algorithm using first name)

Author order (first, last, other)

Journal Subfield (Social, Clinical & Counseling, Health & Medicine, General, I/O and Management, Neuroscience & Cognition, Basic/Experimental, Developmental, Educational, Forensic)

Reviewer invitation

Reviewer response (yes/no)

Date Received

### **M13 Study Materials**

Please describe any relevant study materials. This could include, for example, stimulus materials used for experiments, questionnaires used for rating studies, training protocols for intervention studies, etc.

N/A

### **M14 Study Procedures**

Please describe here any relevant information about how the study will be conducted, e.g., the number and timing of measurement time points for longitudinal research, the number of blocks or runs per session of an experiment, laboratory setting, the group size in group testing, the number of training sessions in interventional studies, questionnaire administration for online assessments, etc.

Peer review data collected for  
T1: March 2019-December 2019  
T2: March 2020-December 2020  
Algorithm predicts gender based on first name of individual (author or reviewer)  
Data fields include first name, date, author order, review invitation, review response, journal

### **M15 Other information (optional)**

# Analysis plan

(NOTE: If this varies by hypothesis, repeat analysis plan for each)

## AP1 Criteria for post-data collection exclusion of participants, if any

Describe all criteria that will lead to the exclusion of a participant's data (e.g. performance criteria, non-responding in physiological measures, incomplete data). Be as specific as possible.

If gender is determined to be unknown based upon the first name and unable to be estimated using middle name, then the data will be dropped from the analysis. Ns of excluded data will be described along with reasons for exclusion in the final reports

## AP2 Criteria for post-data collection exclusions on trial level (if applicable)

Describe all criteria that will lead to the exclusion of a trial or item (e.g. statistical outliers, response time criteria). Be as specific as possible.

## AP3 Data preprocessing

Describe all data manipulations that are performed in preparation of the main analyses, e.g. calculation of variables or scales, recoding, any data transformations, preprocessing steps for imaging or physiological data (or refer to publicly accessible standard lab procedure, cf. T12).

Once duplicates were identified, the python library gender-guesser version 0.4.0 (<https://pypi.org/project/gender-guesser/>) was applied to identify the probably author gender based upon first and, if necessary, middle name. This algorithm is limited in that it is unable to handle foreign names well. A paper by Santamaria and Mihaljević (2018) which compared accuracy of multiple gender indentifying algorithms, found that gender-guesser had an error rate of about 1.5% for European names, but was less accurate for international names, demonstrating an error rate of 6% for Asian names and 3.6% of African names. This is once unknown names were removed. The rates of names classified as unknown was also much higher for international names than European names using this library.

Using a crosswalk of journal codes and the publication number, journal names and subfields were assigned to each column.

#### **AP4 Reliability analysis (if applicable)**

Specify the type of scale reliability that will be estimated, whether it is internal consistency (e.g. Cronbach's alpha, omega), test-retest reliability, or some other form (e.g., a confirmatory factor analysis incorporating multiple factors as sources of variance). In a study involving measure development, researchers should specify criteria for removing items from measures a priori (e.g., largest factor loading magnitude, smallest drop in alpha-if-item removed).

N/A

#### **AP5 Statistical models (provide for each hypothesis if varies)**

Specify the statistical model (e.g. t test, ANOVA, LMM) that will be used to test each of your hypotheses. Give all necessary information about model specification (e.g., variables, interactions, planned contrasts) and follow-up analyses. Include model selection criteria (e.g., fit indices), corrections for multiple testing, and tests for statistical violations, if applicable. Wherever unclear, describe how effect sizes will be calculated (e.g., for d-values, use the control SD or the pooled SD).

Chi Square

Variables:

gender (female/male/androgenous/mostly male/mostly female)

author order (first, last, other)

review invitation (yes)

review response (accept/decline)

#### **AP6 Inference criteria**

Specify the criteria used for inferences (e.g., p values, Bayes factors, effect size measures) and the thresholds for accepting or rejecting your hypotheses. If possible, define a smallest effect size of interest. If inference criteria differ between hypotheses,

specify separately for each hypothesis and respective statistical model by explicitly referring to the numbers of the hypotheses. Describe which effect size measures will be reported and how they are calculated.

p value = .05

### **AP7 Exploratory analysis (optional)**

Describe any exploratory analyses to be conducted with your data. Include here any planned analyses that are not confirmatory in the sense of being a direct test of one of the specified hypotheses.

Chi Square

Variables:

gender (female/male/androgenous/mostly male/mostly female)

sub-field (Social, Clinical & Counseling, Health & Medicine, General, I/O and Management, Neuroscience & Cognition, Basic/Experimental, Developmental, Educational, Forensic)

Date Received

Interaction: gender x sub-field

Gender distribution by time

p value = .025

### **AP8 Other information (optional)**

N/A

# Other information optional

(NOTE: If needed, multiple lines with other information can be included)

## O1 Other information (optional)

If there is any additional information that you feel needs to be included in your preregistration, please enter it here. Literature cited, disclosures of any related work such as replications or work that uses the same data, or other context that will be helpful for future readers would be appropriate here.

N/A

# References

## R1 References

Enter your references below. Use a consistent format (e.g., <https://apastyle.apa.org/style-grammar-guidelines/references/examples>)

Saeta Pérez, I. (2016, December 5). gender-guesser 0.4.0. Package in Python. Available at <https://pypi.org/project/gender-guesser/>

Santamaria, L., and Mihaljević, H. (2018). Comparison and benchmark of name-to-gender inference services. *PeerJ Computer Science*. <https://peerj.com/articles/cs-156/>

Viglione, G. (2020). Are women publishing less during the pandemic? Here's what the data say. *Nature*, 581, 365-366.

This document was created using the **Psychological Research Preregistration-Quantitative (aka PRP-QUANT) Template** (available at [PsychArchives](https://psycharchives.org/)).

The template was developed by a task force composed of members of the American Psychological Association (APA), the British Psychological Society (BPS), the German Psychological Society (DGPs), the Center for Open Science (COS), and the Leibniz Institute for Psychology (ZPID). This work is licensed under the [CC BY 4.0](https://creativecommons.org/licenses/by/4.0/) license. Thus, you are free to share and adapt the content, given that you attribute the source and indicate if changes were made.

The implementation as Google Doc was done by ZPID. Find out more about ZPID and our preregistration service **PreReg** by visiting <https://leibniz-psychology.org/> and <http://prereg-psych.org/>, respectively.

To receive a timestamp and a DOI (digital object identifier), submit your preregistration protocol to **PsychArchives** via <https://pasa.psycharchives.org/>, preferably as PDF.