Comprehensive Results in Social Psychology

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Guidelines for authors

Contents

Introduction

CRSP is dedicated only to the format of *Registered Reports (RR).* RR is a form of empirical article in which the theorizing, hypothesis, methods and proposed analyses are pre-registered and reviewed prior to research being conducted. If the reviewed pre-registration article is accepted, the manuscript is published irrespective of the outcome of data analysis, provided the agreed-upon protocol was followed. While a RR is the core of the manuscripts published by CRSP, it is still possible to conduct exploratory analyses beyond the pre-registered content, and also to add additional (pre-registered or exploratory) studies in the process of the manuscript development. Another option is to add a non-registered pilot study to your submission. Preregistration and exploratory research are not mutually exclusive.

Contrary to other journals, we strongly encourage an open and continuous communication with the editorial team. The editorial team is there to help authors through the pre-registration process and ensure that opportunities for creating quality research designs and analyses are maximized. The notion of registered reports is open science, instead of trying to camouflage potentially problematic aspects of the research, including those aspects of methodology that could have been addressed by review early on. Moreover, we aim to provide an outlet for scientific discovery by publishing research which sets up appropriate conditions for discovery, even if the results might be predicted by multiple theories or by no known current theory (rather than forcing authors to claim adherence to a single theory ahead of time or after the results are known).

The cornerstone of the articles published in CRSP is that everything but the results and discussion will be reviewed prior to data collection. Initial submissions will include an introduction, proposed methods (including all experimental procedures and materials), proposed analyses (including statistical power analysis or Bayesian equivalent where applicable), and any pilot data. The editorial board of CRSP contains statistical advisors whose sole purpose is to advise authors about potential solutions to their analytic questions.

Initial submissions may be desk-rejected by our editorial team. Those that pass desk rejection will be sent for in-depth peer review (Stage 1). Following review, the article will then be either rejected or accepted in principle for publication. Following In-Principle Acceptance (IPA), the authors will then proceed to conduct the study, adhering exactly to the peer-reviewed procedures. When the study is complete the authors will

submit their finalised manuscript for re-review (Stage 2) and will share their raw data and laboratory log. Uploading these materials to a free and publicly accessible file-sharing service is strongly encouraged at the final publication stage, too. Pending re-review, quality checks and a sensible interpretation of the findings, the manuscript will be published regardless of the results. Publication of the manuscript by default comes with online supplementary material, including material, additional tables and figures, etc.

Authors may add additional exploratory analyses or studies during Stage 2 to complement their RR material. In the case of additional studies, one option is to pre-register these studies on top of the running process furnished with an IPA (in which case the editorial team will make efforts to reduce the delay caused by this process). If authors choose not to preregister their exploratory material it will be published after careful review and clearly marked as exploratory. In this case, authors should use robust statistics and avoid simple null-hypothesis testing.

In line with our mission, *CRSP* strongly encourages collaboration between two or more labs, ideally situated in different geographical or cultural contexts, where applicable to add additional "reality checks" and to explore boundary conditions.

Stage 1: Initial manuscript submission and review

Before sending for in-depth peer review, the *CRSP* editorial team will assess manuscripts for adherence to basic requirements. Stage 1 submissions should include the manuscript (details below) and a brief cover letter. Authors are welcome to submit pre-submission enquires for advice on the likely suitability of a study as a manuscript for *CRSP*. However, please note that the editorial board will not agree to send manuscripts for in-depth review until a complete Stage 1 submission has been received and considered.

The cover letter should include:

- A brief scientific case for consideration. *CRSP* is dedicated to novel research, but considers high-value replication studies as well, especially in cases of replication and extension.
- A statement confirming that all necessary support (e.g. funding, facilities) and approvals (e.g. ethics committees, IRBs) are in place for the proposed research. Note that manuscripts will be considered only for studies that are able to commence without significant delay.
- In case that funding is not fully secured, e.g. in the context of a pending grant proposal, authors need to indicate the likelihood of the study being conducted if the funding falls through.
- An anticipated timeline for completing the study if the initial submission is accepted.
- A statement confirming that the authors agree to share their raw data and laboratory log for all published results, or why their data cannot be shared (e.g. due to further planned analyses in the context of longitudinal studies, anonymity issues in the context of specialty samples)

A statement confirming that if the authors later withdraw their paper after having received an IPA, they agree to *CRSP* publishing a short summary of the pre-registered study under a section *Withdrawn Registrations*.

Manuscript preparation guidelines – Stage 1

Initial Stage 1 submissions should include the following sections:

Abstract

- An abstract of no more than 200 words, similar in purpose and style to the abstract of any APA-style publication.

Introduction

- A review of the relevant literature that motivates the research question and a full description of the experimental aims and hypotheses. Please note that following IPA, the Introduction section cannot be altered (see below). If exploratory analyses or additional studies are added later, the reasoning has to be provided following the presentation of the pre-registered results.

Methods

- To avoid confusion, the methods and results sections should be written in the future tense at Stage 1. Once the methodology and analyses have been carried out, these should be switched to the past tense for the Stage 2 submission.
- Full description of proposed sample characteristics, including criteria for subject inclusion and exclusion, and detailed description of procedures for defining outliers. Procedures for participant inclusion criteria (screening procedures) and objectively defining exclusion criteria due to technical errors (e.g. defining what counts as 'excessive' head movement during fMRI, or outliers in response latency studies) or for any other reasons must be documented, including details of how and under what conditions subjects would be replaced. In the context of field studies, a clear description of the sampling method, and how the researchers plan to deal with deviations from the planning sampling goal, must be provided. For longitudinal samples, the authors need to specify how and when, i.e., under which conditions, re-sampling will occur. In case of meta-analyses, inclusion and exclusion criteria of studies, search methods, the definition of the variables for the analyses (inclusion and exclusion of differences in variable operationalization), and the model to be tested, need to be specified.
- A description of experimental procedures in sufficient detail to allow another researcher to repeat the methodology, without requiring further information. These procedures must be adhered to exactly in the subsequent experiments or any Stage 2 manuscript will be rejected. Please note that reviewers at Stage 1 will be asked to specifically consider whether the stated experimental procedures contain sufficient detail to prevent undisclosed procedural flexibility.
- Proposed analysis pipeline, including all preprocessing steps, and a precise description of all planned analyses, including appropriate correction for multiple comparisons and any covariates to be included. Where analysis decisions are contingent on the outcome of prior analyses, these contingencies must be specified and adhered to. All pre-planned analyses must be reported in the main Results section of Stage 2 submissions. However, unplanned *post hoc* analyses will be admissible in a separate section of the Results (see below) and will clearly be flagged as exploratory.
- Studies involving null hypothesis significance testing must include a statistical power analysis. Estimated effect sizes for power analysis should be justified with reference to the existing literature. To account for existing publication bias, which leads to overestimation of true effect sizes (Hedges & Vevea, 1996; Lane & Dunlap, 1978), power analysis must be based on the *lowest* available or meaningful estimate of the effect size. The *a priori* power must be 0.8 or higher for all statistical hypothesis tests. In the case of highly uncertain effect sizes, a variable sample size and interim data analysis will be permissible but with inspection points stated in advance, appropriate Type I error correction for 'peeking' employed (Strube, 2006), and a final stopping rule for data collection outlined. Given this, CRSP is best suited for situations in which there is some existing research on a topic, rather than "first attempts" at a brand-new idea for which no reasonable estimates of effect sizes can be made. A non-preregistered pilot study, as part of the Stage 1 submission can often solve this issue.
- For studies involving Bayesian hypothesis testing, the predictions of the theory must be specified so that a Bayes factor can be calculated. Authors should indicate what distribution will be used to

represent the predictions of the theory and how its parameters will be specified. For example, will you use a uniform up to some specified maximum, or a normal/half-normal to represent a likely effect size (Dienes, 2011), or a JZS/Cauchy with a specified scaling constant (Rouder et al., 2009)? The parameters need not be stated in advance, but where unstated, authors must indicate what aspect of data will be used to set those parameters. For inference by Bayes factors, authors should guarantee testing participants until the Bayes factor is either more than 3 and less than 0.33 to ensure clear conclusions. When using Bayes factors, adjustments for multiple comparisons are not required. We are fully aware that Bayes hypothesis testing is not standard. We seek to support authors as much as possible when they want or need to use this analysis. Null hypothesis testing and Bayesian estimation approaches can also be mixed in one manuscript.

- Full descriptions must be provided of any outcome-neutral criteria that are required for successful testing of the stated hypotheses. Such 'reality checks' might include the absence of floor or ceiling effects, or the success of positive controls. Please note that reviewers will be asked to judge whether the manuscript includes sufficient specification of reality checks.
- Timeline for completion of the study and proposed resubmission date if Stage 1 review is successful. Extensions to this deadline can be negotiated with the action editor.

Pilot Data

- Optional. Can be included to establish reality checks, effect size estimations, feasibility, or proof of principle. Any pilot experiments will be published with the final version of the manuscript and will be clearly distinguished from data obtained for the main experiment(s).

Stage 1 submissions that are judged by the editors-in-chief of *CRSP* to be of sufficient quality and scientific significance will be sent for peer review. In considering papers at the registration stage, reviewers will be asked to assess:

- The significance of the research question(s)
- The logic, rationale, and plausibility of the proposed hypotheses and the ability of the proposed methodology to address the hypotheses
- The soundness and feasibility of the methodology and analysis pipeline (including statistical power analysis where applicable)
- Whether the clarity and degree of methodological detail would be sufficient to replicate exactly the proposed experimental procedures and analysis pipeline
- Whether the authors provide a sufficiently clear and detailed description of the methods to prevent undisclosed flexibility in the experimental procedures or analysis pipeline.
- Whether the authors have considered sufficient outcome-neutral conditions (e.g. absence of floor or ceiling effects; positive controls) for ensuring that the results obtained are able to test the stated hypotheses

RR submissions at CRSP based on existing data

Secondary analysis of existing data is possible. As secondary data we usually consider third party data that is available to the public (e.g. a large scale survey) or compiled experimental data by third parties publicly made available. Already collected large own datasets (for example surveys or compiled experimental data) are usually not an empirical basis for RR submissions at CRSP – please consult with the Editors before submission. Consistent with the standard editorial process, Stage 1 submissions will be sent out for review, and authors should plan to incorporate feedback from the reviewers and editor.

The authors should consider the following aspects when submitting a Stage 1 manuscript:

- Given the nature of the submission, the evaluative focus will predominantly rest on the theoretical contribution and the analytical rigor. Authors should employ statistical approaches that are in line with the demands and characteristics of the (size of) their data set, and expect higher evaluation standards compared to a submission with future data collection.
- Ideally different models or analytical approaches should be compared.
- The dataset must be publicly available
- Datasets should be split into learn/trial and test subsets. Depending on the size of the dataset the split should be set at an n for which stable models can be expected. For example for Ns of <1000 participants a split could be at 50% of the sample, and decreasing for larger samples. If possible cross validation (e.g., a random 10% of the sample are left out to test a model developed on 90% of the sample; with 10 repetitions such that all subjects have once served to test the model) should be employed, too. For more information on such approaches see: Steyerberg, E. W., Harrell Jr, F. E., Borsboom, G. J., Eijkemans, M. J. C., Vergouwe, Y., & Habbema, J. D. F. (2001). Internal validation of predictive models: efficiency of some procedures for logistic regression analysis. Journal of Clinical Epidemiology, 54(8), 774-781.
- If applicable and possible, additional experimental tests of causal/correlations relations derived from the large dataset should be pre-registered as well, to complement the dataset analysis
- If applicable and possible, applications of the same analysis to other large datasets (e.g., data from other years or waves of data collection) should be pre-registered as well, to complement the dataset analysis

To be considered at Stage 2 submission:

- Exploratory analyses added to the preregistered analyses are not deemed adequate for this format. We suggest a sequential pre-registration in this case.
- The data and syntax must be submitted with the Stage 2 submission to allow for an editorial check

For the protection of intellectual ownership of the submitting authors, CRSP by default asks for non-anonymous reviews. In special cases, reviewers may request to remain anonymous.

Following Stage 1 peer review, manuscripts will be rejected outright, offered the opportunity to revise, or accepted. Manuscripts that pass peer review will be issued an *In-Principle Acceptance* (IPA), indicating that the article will be published pending successful completion of the study according to the exact methods and analytic procedures outlined, as well as a defensible and evidence-bound interpretation of the results. In case of the addition of **exploratory analysis** or **exploratory studies** those are reviewed in stage 2 and will be subject full manuscript review (see below).

Please note that any deviation from the stated experimental procedures, regardless of how minor it may seem to the authors, could lead to rejection of the manuscript.

In cases where the pre-registered protocol is altered after IPA due to unforeseen circumstances (e.g. change of equipment or unanticipated technical or procedural error), the authors must consult the editorial board immediately for advice, and prior to the completion of data collection. Very minor changes to the protocol may be permitted according to editorial discretion. In such cases, IPA would be preserved and the deviation from protocol reported in the Stage 2 submission. If the authors wish to alter the experimental procedures more substantially following IPA but still wish to publish their article as a Registered Report, then the manuscript must be submitted to a review procedure determined by the Action Editor. In this case, the IPA is temporarily withdrawn from the authors. Note that registered analyses must be undertaken, but additional unregistered analyses can also be included in a final manuscript (see below).

Stage 2: Full manuscript review

Once the approved research is complete, authors prepare and resubmit their manuscript for full review, with the following additions:

Submission of raw data and laboratory log

- Next to uploading data and laboratory log, we strongly encourage that raw data must be made freely available via a publicly accessible archive. A *stable* URL should be provided in the manuscript (authors' dropbox accounts are not stable).
- Data files should be appropriately time stamped to show that data was collected *after* IPA and not before. Data must be submitted in a format that lends itself to inspection via common statistical packages (by default .csv file, other formats to be accepted in agreement with the Action Editor) and accompanied by guidance notes, where required, to assist other scientists in replicating the analysis pipeline. Authors are encouraged to upload any relevant analysis scripts. These recommendations also hold for exploratory analyses and exploratory additional studies.
- The authors must collectively certify in the resubmission Cover Letter that all non-pilot data was collected after the date of IPA. A basic laboratory log must also be provided outlining the range of dates during which data collection took place.

Introduction

- Please note that **the Introduction cannot be altered from the approved Stage 1 submission, and the stated hypotheses cannot be amended or appended**. Depending on the timeframe of data collection, new relevant literature may have appeared between Stage 1 and Stage 2. Any such literature should be covered in the Discussion. Relevant introductions to exploratory analyses or exploratory studies must be introduced in the flow of the manuscript, i.e., after the pre-registered studies.

Results & Discussion

- Results section must have the heading "Preregistered Analyses" and, if applicable, "Exploratory Analyses." Subheadings under these headings should describe the specific analytic topics.
- The outcome of all registered analyses must be reported in the manuscript, except in rare instances where a registered and approved analysis is subsequently shown to be logically flawed or unfounded. In such cases, the authors, reviewers, and editor must agree that a collective error of judgment was made and that the analysis is inappropriate. In such cases the analysis would still be mentioned in the Methods but omitted with justification from the Results.
- It is reasonable that authors may wish to include **additional analyses** and/or **studies** that were not included in the registered submission. For instance, a new analytic approach might become available between IPA and full review, or a particularly interesting and unexpected finding may emerge. Such analyses are admissible but must be reported in a separate section of the Results titled "*Exploratory analyses.*" The same holds for exploratory studies that authors may want to add. Where the interpretation depends on inferential statistical analysis, authors should be careful not to base their conclusions entirely on the outcome of statistically significant exploratory tests. In case that an additional exploratory study is added to the final manuscript, the balance towards pre-registered and exploratory content should be discussed with the editors prior to inclusion. For example, it may be 1:1 (in case of 2-study papers), or 2:1 (in case of multiple registered studies papers), but not 1 RR and 3 exploratory studies. A majority of exploratory studies while having registered only one study does not fall under the publication policy of *CRSP*. In that case, authors are advised to pre-register additional studies.

- Exact *p* values, effect sizes, and confidence intervals must be reported for all null hypothesis significance tests.
- A limit of five tables and figures (cumulative) is imposed. Additional tables and figures should be presented in the *Online Supplemental Material* and should be referenced appropriately in the manuscript text.

Funding and conflict of interest

- All funding sources have to be listed, as well as conflict of interest declared.

Appendix

- There is no appendix included in CRSP publications. All material not in the main text should be placed in an Online Supplemental Material document.

The resubmission will be evaluated by the editor alone, or in case of additional review ideally be considered by the same reviewer(s) as those from Stage 1, but in rare cases could also be assessed by new reviewers. In considering papers at Stage 2, reviewer(s) will be asked to decide:

- Whether the data are able to test the authors' proposed hypotheses by passing the approved outcome-neutral criteria (such as absence of floor and ceiling effects or success of positive controls).
- Whether the Introduction, rationale, and stated hypotheses are the same as the approved Stage 1 submission (required).
- Whether the authors adhered closely to the registered experimental procedures.
- Whether any unregistered exploratory statistical analyses and/or studies are justified, methodologically sound, and informative. In case that there is doubt about the quality of the exploratory analyses and/or studies, the Action Editor may decide not to publish the exploratory reporting.
- Whether the authors' conclusions are justified given the data.

Crucially, reviewers will be informed that editorial decisions will not be based on the perceived importance, impact, novelty, or clarity of the results.

While reviewers are free to enter such comments on the record, they will not influence editorial decisions.

Overall, then, the final manuscript should have the following general structure (including examples of how each section might read):

Introduction
[as preregistered, with only minor formatting or wording changes]

Method
"We preregistered the following methodology: 300 subjects were planned to be collected based on power analysis *x*, *y*, *z*. We collected data from online source x, we planned to ask them questions *a*, *b*, and *c*. In practice, 313 subjects were collected. All other preregistered methodology was followed exactly."

Results: Preregistered
"We preregistered the following analysis: ANOVA with Factors 1 and 2. This is the analysis we conducted, and the following effects were observed..."

Results: Exploratory
[if any]

"The following were exploratory, non-preregistered analyses..."

General Discussion
[typical General Discussion, plus any additional information that might normally be included in the intro, e.g., explaining exploratory findings]

Throughout, one should be clear about which aspects of the report were preregistered and which (if any) were not preregistered.

Of course, there will be variation from manuscript to manuscript in the exact details of how the above is implemented. As always, we encourage authors to maintain contact with the editorial board as needed.

IPA publication, Manuscript withdrawal and *Withdrawn Registrations*

CRSP will publish all IPAs as an advanced content list.

It is possible that authors with IPA may wish to withdraw their manuscripts following or during data collection. Possible reasons could include technical error or an inability to complete the study due to other unforeseen circumstances. In all such cases, manuscripts can of course be withdrawn. However, the journal will publicly record each case in a section called *Withdrawn Registrations*. This section will include the authors, proposed title, the abstract from the approved Stage 1 submission, and brief reason(s) for the withdrawal.

Partial withdrawals are not possible; i.e. authors cannot publish part of a registered study by selectively withdrawing one of the planned experiments. Such cases must lead to withdrawal of the entire paper.

Incremental Registrations

Authors have the option to add experiments to approved submissions. In such cases the approved manuscript will be considered accepted for publication, and authors will be able to propose additional experiments for Stage 1 consideration. Where these experiments would extend the approved submission (as opposed to being part of new submissions), the editorial team will seek to fast-track the review process. This option may be particularly appropriate where an initial experiment reveals a major serendipitous finding that warrants follow-up within the same paper. In cases where an incremented submission is rejected (at either Stage 1 or 2), authors will retain the option of publishing the most recently approved version of the manuscript. For further advice on specific scenarios for incremental registration, authors are invited to contact the editorial board.

Replication Studies

CRSP is interested in publishing replications of previous results, particularly when such replications are accompanied by meaningful theoretical or empirical extensions. Authors of such type of studies must engage in the project openly without having clear preconceptions of the replicability of the original effect. In case of original authors that are still active in the field, *CRSP* seeks to support collaborations between both (groups of) authors. If this is not feasible or possible, *CRSP* may offer the original author(s) a commentary or the opportunity to pre-register an own replication study.

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