

# Pre-Registration and Data Repository Practices in Business and Marketing Research

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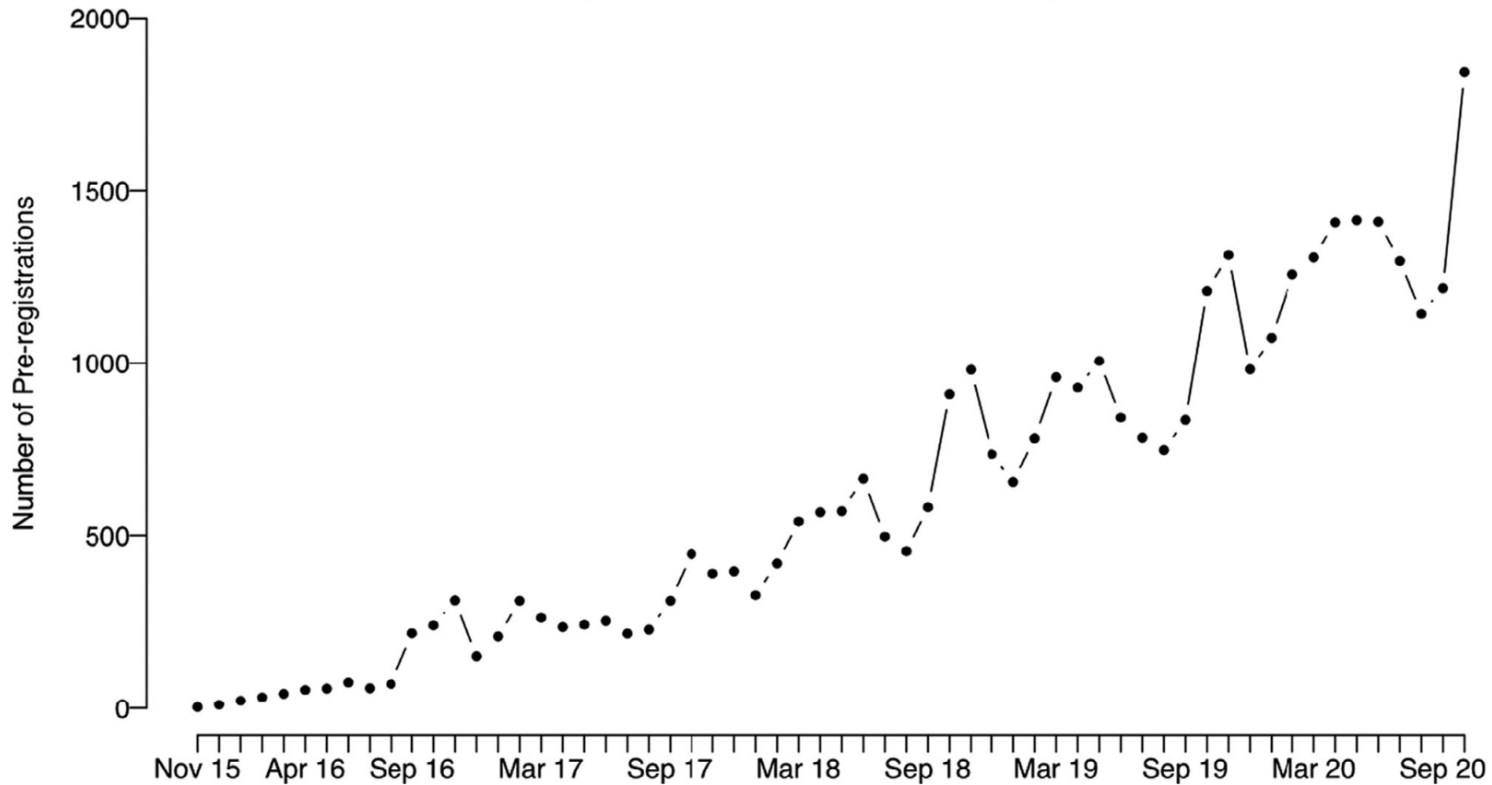


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# Pre-Registrations are generally on the rise...

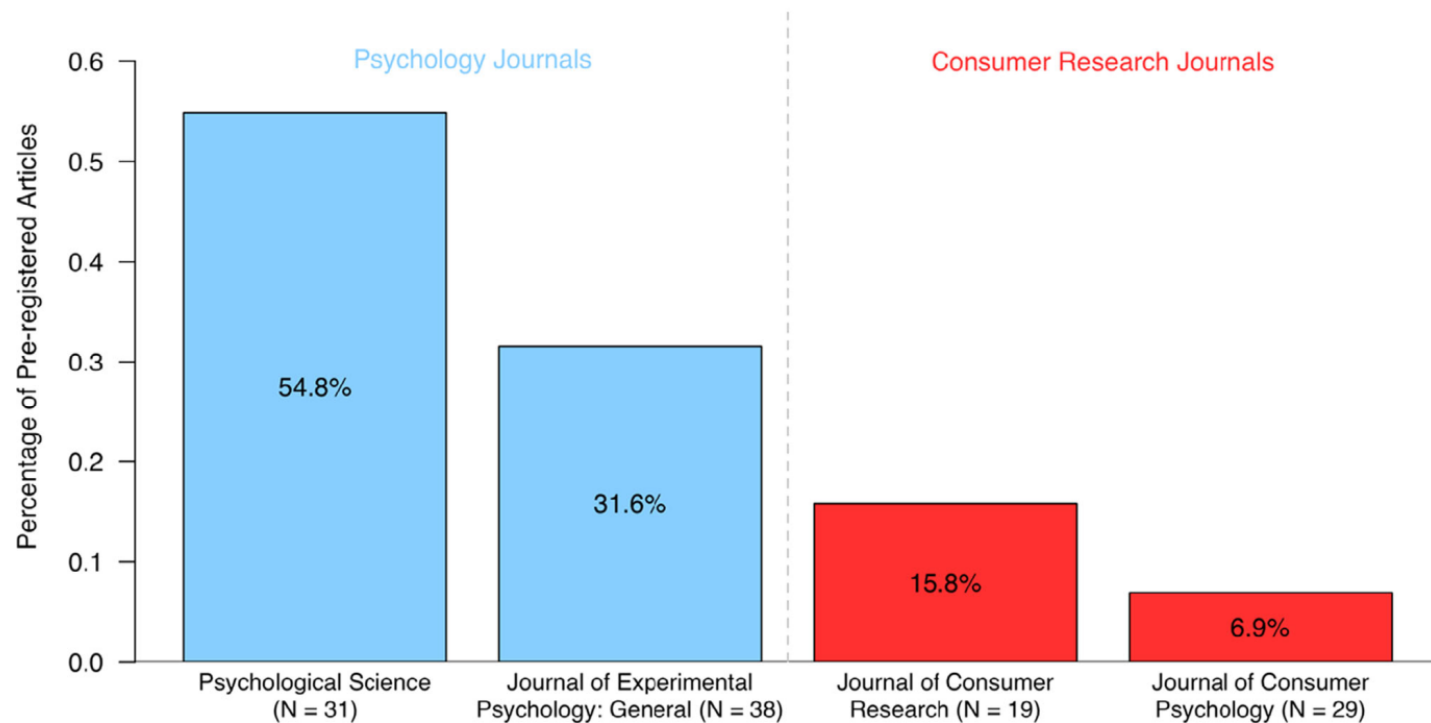
**Number of New AsPredicted Pre-registrations In Each Month  
(November 2015-October 2020)**



Source: Simmons, Nelsen & Simonsohn 2021a

# ... but pre-registration practices differ across disciplines

**Psychology vs. Consumer Research Journals:  
Percentage of Articles Containing A Pre-registered Study**



Source: Simmons, Nelsen & Simonsohn 2021a

# Pre-registration requirements also differ from journal to journal



## Guidelines for All Submissions

“...

c. If the protocol was preregistered, an anonymized link to the preregistration source should be included. Authors are strongly encouraged to preregister their studies, especially those studies conducted during the review process.”



“If a revision of the manuscript is invited, the data and study materials used in the research must be made accessible to the editors when submitting the revision unless the data are exempt... Access to the data and study materials should be provided through anonymized posting on one of the data repositories listed in the above subsection...”



“Authors should provide explanations of sample size determination, information regarding participant eligibility or selection (such as exclusions based on past participation in experiments, college major, etc.), all manipulations, and all measures collected. This should be summarized as part of the discussion of experimental design and analysis in the submitted manuscript. If exclusions are preregistered, authors should include an anonymized link to the pre-registration source.”

# Problems pre-registration practice seeks to address

- Pre-registration can **safeguard against p-hacking**, which is the selective reporting of statistically significant confirmatory analyses.
  - This should increase our confidence that reported confirmatory analyses were not cherry-picked from a broader set of data.
- Pre-registration **avoids misinterpreting exploratory results as confirmatory ones** – i.e., Hypothesizing After Results are Known, or “HARKing”.
  - This increases our confidence that results reported as confirmatory were hypothesized before data analysis.

Source: Simmons, Nelsen & Simonsohn (2021b)

# For pre-registrations to be effective, editors, AEs, and reviewers must review them

## Insights from reviewing manuscripts:

- Excluding participants even though clearly stating that it is not intended to exclude participants in the pre-registration.
- Unregistered pretests of high sample size before pre-registering the actual studies are defeating the purpose of preregistrations (e.g., unregistered pretest of study 3: N=240, pre-registered study 3: N=375).
- Preregistering studies in a different order than shown in the manuscript (e.g., study 3 was preregistered on May 16, but study 4 was already pre-registered on April 24).
- „Although we did not pre-register the data exclusion, three outliers were evident (i.e., they indicated WTP 3.5 SD from the mean), yielding 197 participants in the main analysis“

# For pre-registrations to be effective, editors, AEs, and reviewers must review them (cont.)

## Insights from reviewed manuscripts:

- “Only one study is preregistered. Although one is better than nothing, I think all studies should be preregistered.”
- “The study that is preregistered (study 3) used some data deletion criteria (“We needed to delete 12 participants for failing our attention checks, speedy responding, and inconsistent answering patterns” p.30), which are too vague (what are the criteria to determine inconsistent patterns?).

# Pre-Registering is not trivial

As the overall goal of a pre-registration is to avoid p-hacking and HARKing, we need the following:

- Good pre-registrations need precision and detail.
  - E.g., the researcher must specify all of the experimental conditions, how the dependent variables are measured, how exactly exclusion criteria are applied, or what the exact sample size is.
- Information that is not p-hackable is not important for the pre-registration.
  - Concise pre-registrations facilitate the research process and the reviewing of pre-registrations.
- We should still be able to explore and learn from our data.
  - This is the most frequently voiced concern about pre-registration. But pre-registering a study does not prevent researchers from doing exploratory analyses that were not preregistered but allows reviewers and readers to distinguish unplanned, exploratory analyses from planned, confirmatory analyses.

Sources: Logg & Dorison (2021); Simmons, Nelsen & Simonsohn (2021a)



# Problems that pre-registrations cannot resolve: Fraud

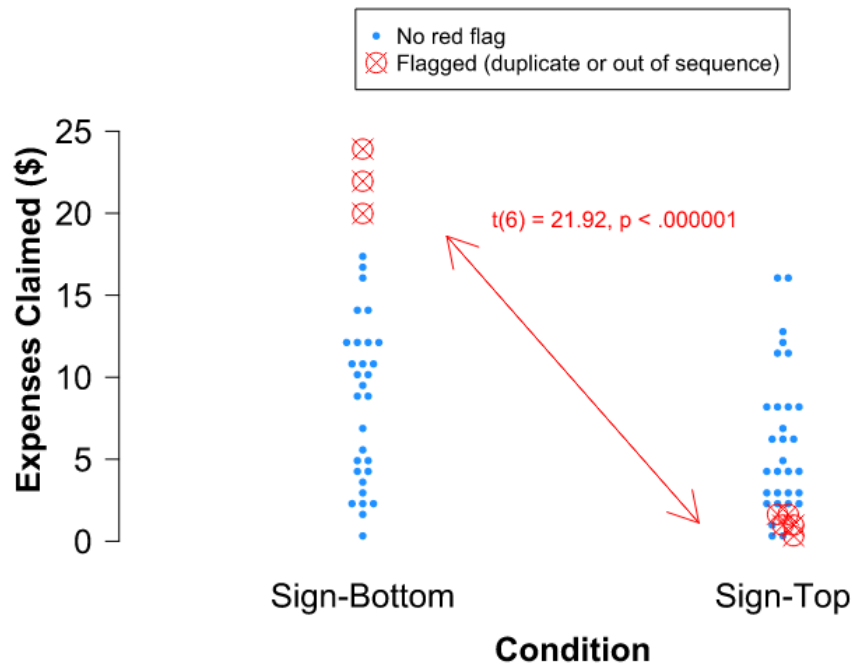
	A	B	C	D	E	F	G	H	I
1	P#	Cond	Stude	Major	CS3	Male	Age	#B	\$B
47	35	1	1	Journalism	3	1	19	12	12
48	37	1	1	Economics	4	0	21	9	9
49	40	1	1	Political Science	5	1	29	15	15
50	42	1	1	Political Science	3	0	20	7	7
51	46	1	1	Political Science	4	0	21	12	12
52	49	1	1	English	4	1	21	9	9
53	49	1	1	English	4	1	21	7	7
54	55	1	1	Biology	4	1	21	12	12
55	58	1	1	Environmental Sciences	3	0	20	10	10
56	61	1	1	Nursing	3	0	20	15	15
57	63	1	0	NA		0	22	12	12
58	68	1	1	Business	3	1	20	16	16
59	70	1	1	Chemistry	4	0	21	11	11
60	73	1	1	Chemistry	5	0	20	16	16
61	76	1	1	Chemistry	2	1	19	15	15
62	80	1	1	Nursing	4	0	21	15	15
63	82	1	1	Economics	4	1	21	9	9
64	85	1	1	Psychology	4	0	20	5	5
65	88	1	1	Chemistry	3	0	20	13	13
66	95	1	1	Math Education	3	1	22	13	13
67	51	1	0	NA	0	0	52	4	4
68	12	1	1	Psychology	3	0	20	13	13
69	101	1	0	Business	3	1	20	6	6
70	7	2	0	Political Science	5	1	22	17	17
71	91	2	1	Japanese	2	1	20	17	17
72	52	2	0	NA	5	0	22	8	8
73	5	2	1	Biology/Psychology	2	0	18	16	16
74	8	2	1	Communication Studies	4	0	22	15	15
75	13	2	1	Chemistry	4	0	20	18	18
76	17	2	1	Communications	4	0	21	14	14
77	18	2	1	Communications	4	1	22	13	13
78	22	2	0			0	23	13	13
79	26	2	0			0	47	6	6
80	27	2	1	Mathematics - Sociology	3	1	19	18	18

Sources: <https://datacolada.org/>; Shu, Mazar, Gino, Ariely, & Bazerman (2012)

# Problems that pre-registrations cannot resolve: Fraud (cont.)

## Flagged Observations Show Huge Effect

*Travel Expenses in Study 1 - Shu et al. (2012)*



Sources: <https://datacolada.org/>; Shu, Mazar, Gino, Ariely, & Bazerman (2012)

# Pre-registration and data repositories are jointly needed

- In addition to pre-registering empirical studies, we must be able to scrutinize every piece of published data using data repositories.
- Pre-registration and data repositories require specificity which encourages clarity benefitting both researchers and disciplines.
- Generational differences in adopting open science practices give rise to optimism that the use of these practices will further increase in the future.

# Adoption rates across generations indicate trend towards pre-registrations and data repository practices

Career status	Data	Materials	Pre-Reg
Junior researchers	63% (58)	53% (49)	66% (61)
Tenure-track faculty	62% (43)	42% (29)	51% (35)
Tenured faculty	41% (14)	44% (15)	29% (10)
Across generations (195)	59% (115)	48% (93)	54% (106)

Source: Logg & Dorison (2021)



**THANK YOU  
VERY MUCH!**

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# References

- <https://datacolada.org/> (accessed 11 Oct 2023)
- Logg, J. M., & Dorison, C. A. (2021). Pre-registration: Weighing costs and benefits for researchers. *Organizational Behavior and Human Decision Processes*, 167, 18-27.
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- Simmons, J. P., Nelson, L. D., & Simonsohn, U. (2021a). Pre-registration: Why and how. *Journal of Consumer Psychology*, 31(1), 151-162.
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