心理学开放科学的发展与趋势

胡传鹏（博士）

南京师范大学心理学院

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为什么(心理)科学积极拥抱开放科学？

心理学研究中的开放实践如何？

心理学如何继续推动开放科学？

“多去看文献，看看别人怎么做的。”如果去找组里的老师问问题的话，经常得到这个回答。

夏天，拼了命地赶进度，还得跟其他人共用一些设备，于是为了提高使用效率，我把白天让给了别人，晚上通宵了好几次做实验，期望着赶紧做完，我好专心备考公务员。

然后？然后就是不断地，不断地做无用功，我也不知道为什么，一模一样的条件，每一次居然都能得到不同的结果，趴在电脑前看着自己的数据，感受着自己的心态一块一块碎落下来。

看着我的实验设备，然后看了看自己的手，不知道是哪一个出了毛病，或许是脑子也说不定。

“不对啦！肯定是你自己的问题！”

nature

CAREER COLUMN | 01 June 2020

Is the reproducibility crisis fuelling poor mental health in science?

An inability to focus during a weekend trip forced Jeff Clements to ponder often-overlooked drivers of academic mental health.

Jeff C. Clements ✉

我的“可重复危机”


Science
Current Issue
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HOME > SCIENCE > VOL. 328, NO. 5986 > INCIDENTAL HAPTIC SENSATIONS INFLUENCE SOCIAL JUDGMENTS AND DECISIONS
REPORT
Incidental Haptic Sensations Influence Social Judgments and Decisions
JOSHUA M. ACKERMAN, CHRISTOPHER C. NOCERA, AND JOHN A. BARGH Authors Info & Affiliations
SCIENCE • 25 Jun 2010 • Vol 328, Issue 5986 • pp. 1712-1715 • DOI: 10.1126/science.1189993

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重(量)
重(要性)

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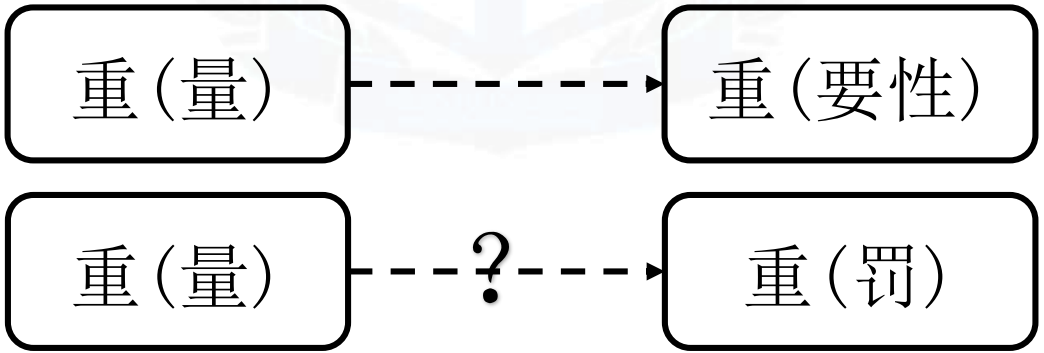
重(量)
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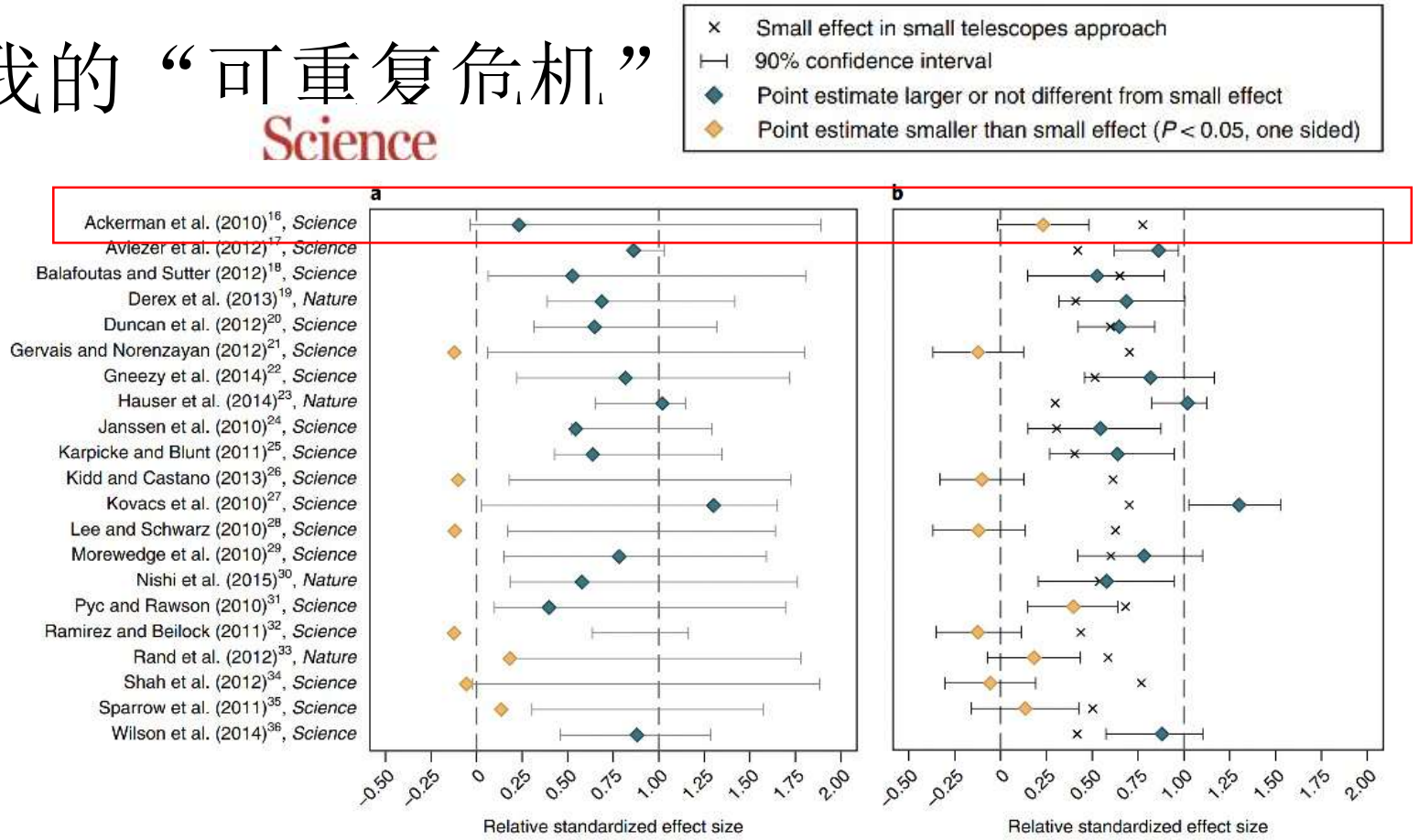
我的“可重复危机”

Science



Camerer et al., 2018, Nat Hum Behav.

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PLOS ONE

OPEN ACCESS PEER-REVIEWED

RESEARCH ARTICLE

No Effect of Weight on Judgments of Importance in the Moral Domain and Evidence of Publication Bias from a Meta-Analysis

André L. A. Rabelo, Victor N. Keller, Ronaldo Pilati, Jelte M. Wicherts

Published: August 4, 2015 • https://doi.org/10.1371/journal.pone.0134808

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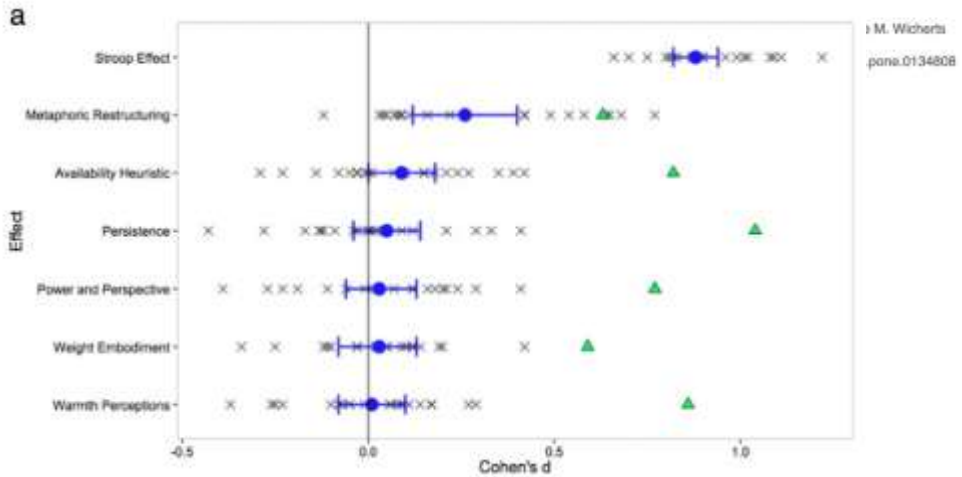


M. Wicherts

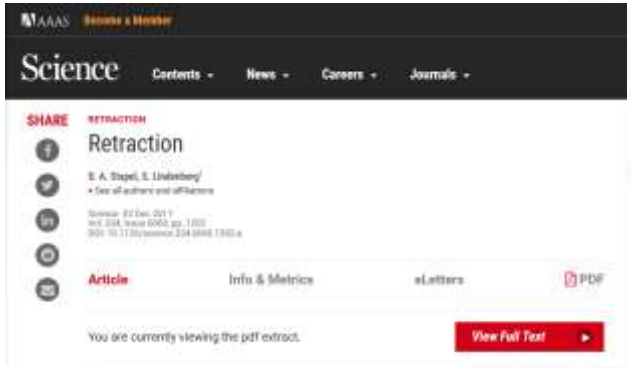
pone.0134808

Ebersole et al., 2016. JESP (ManyLab 3)

心理学的可重复危机

- 2011, Stapel’s Affairs
- 2011, Bem’s extrasensory perception paper in JPSP
- 2011, False-positive psychology: Simmons, Nelson, & Simonsohn
- **2012, debate on the failed replication of the elderly priming effect**
- …

心理学的可重复危机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SCIENCEINSIDER | EDUCATION
Final Report: Stapel Affair Points to Bigger Problems in Social Psychology
In video statement, disgraced psychologist expresses 'deep, deep remorse'
28 NOV 2012 • BY MARTIN ENSERINK

心理学的可重复危机

Journal of Personality and Social Psychology
2011, Vol. 100, No. 3, 407–425

0022-3514/11/$12.00 DOI: 10.1037/a0021524

Feeling the Future: Experimental Evidence for Anomalous Retroactive Influences on Cognition and Affect

Daryl J. Bem
Cornell University

心理学的可重复危机


https://slate.com/health-and-science/2017/06/daryl-bem-proved-esp-is-real-showed-science-is-br
SCIENCE
Daryl Bem Proved ESP Is Real
Which means science is broken.
BY DANIEL ENGBER
JUNE 07, 2017 • 2:57 PM

心理学的可重复危机

False-positive psychology: Undisclosed flexibility in data collection and analysis allows presenting anything as significant

JP Simmons, LD Nelson… - Psychological …, 2011 - journals.sagepub.com

In this article, we accomplish two things. First, we show that despite empirical psychologists' nominal endorsement of a low rate of false-positive findings (≤. 05), flexibility in data …

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	Significance level		
Researcher degrees of freedom	***p* < .1**	***p* < .05**	***p* < .01**
Situation A: two dependent variables (*r* = .50)	17.8%	9.5%	2.2%
Situation B: addition of 10 more observations per cell	14.5%	7.7%	1.6%
Situation C: controlling for gender or interaction of gender with treatment	21.6%	11.7%	2.7%
Situation D: dropping (or not dropping) one of three conditions	23.2%	12.6%	2.8%
Combine Situations A and B	26.0%	14.4%	3.3%
Combine Situations A, B, and C	50.9%	30.9%	8.4%
Combine Situations A, B, C, and D	81.5%	60.7%	21.5%

如何解决可重复性问题 → 开放科学

- 2011, Stapel's Affairs
- 2011, Bem's extrasensory perception paper in JPSP
- 2011, False-positive psychology: Simmons, Nelson, & Simonsohn
- **2012, debate on the failed replication of the elderly priming effect**
- …

为什么心理学积极拥抱开放科学？

- 要解决可重复性的问题。

- 为什么开放科学能帮助解决可重复性的问题?
  - 在反思中逐渐采用和发现了开放科学的原则;
  - 进一步提炼并与其他领域的开放科学形成合力

- 可重复性的多层意义

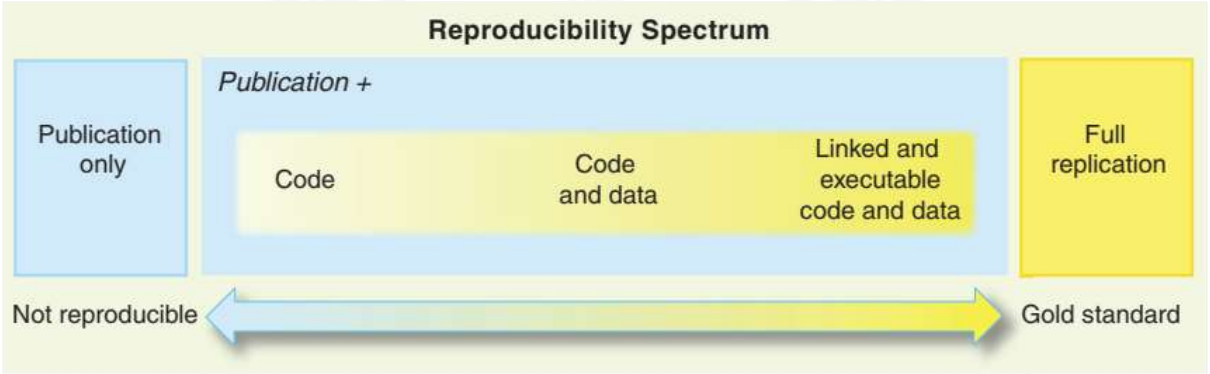


Fig. 1. The spectrum of reproducibility.

Peng, 2011, *Science*, doi: 10.1126/science.1213847

- 可重复性的多层意义

数据	分析方法	术语
相同	相同	计算上的可复制性 (Computational reproducibility)
相同	不同	结果的稳健性 (Robustness)
不同	相同	可重复性 (Replication)

National Academies of Sciences, (2019)

Status of Reproducibility

- Same **data**, same analytic strategy

Crüwell et al (2023, *Psych Sci*)

14 papers with open data badges

√ 1 of 14 exactly reproducible

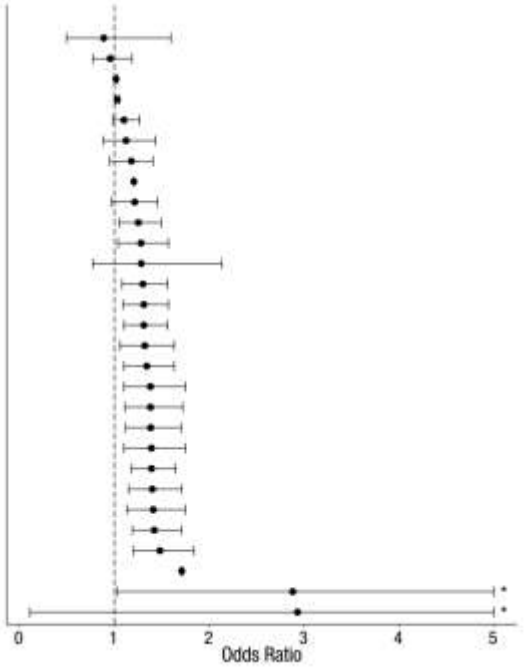
3 of 14 essentially reproducible with minor deviations

(See also Artner et al, 2021; Bakker & Wicherts, 2011; Hardwicke et al., 2018, 2021; Maassen et al., 2020; Nuijten et al., 2016;)

Status of Robustness: Same data, Diff methods

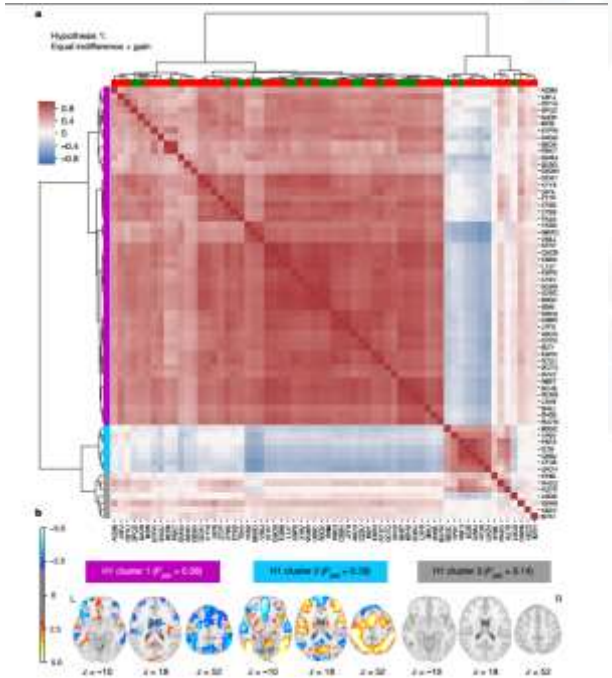
- Silberzahn and colleagues (2018, AMPPS)

Team	Analytic Approach	Odds Ratio
12	Zero-Inflated Poisson Regression	0.89
17	Bayesian Logistic Regression	0.96
15	Hierarchical Log-Linear Modeling	1.02
10	Multilevel Regression and Logistic Regression	1.03
18	Hierarchical Bayes Model	1.10
31	Logistic Regression	1.12
1	OLS Regression With Robust Standard Errors, Logistic Regression	1.18
4	Spearman Correlation	1.21
14	WLS Regression With Clustered Standard Errors	1.21
11	Multiple Linear Regression	1.25
30	Clustered Robust Binomial Logistic Regression	1.28
6	Linear Probability Model	1.28
26	Hierarchical Generalized Linear Modeling With Poisson Sampling	1.30
3	Multilevel Logistic Regression Using Bayesian Inference	1.31
23	Mixed-Model Logistic Regression	1.31
16	Hierarchical Poisson Regression	1.32
2	Linear Probability Model, Logistic Regression	1.34
5	Generalized Linear Mixed Models	1.38
24	Multilevel Logistic Regression	1.38
28	Mixed-Effects Logistic Regression	1.38
32	Generalized Linear Models for Binary Data	1.39
8	Negative Binomial Regression With a Log Link	1.39
20	Cross-Classified Multilevel Negative Binomial Model	1.40
13	Poisson Multilevel Modeling	1.41
25	Multilevel Logistic Binomial Regression	1.42
9	Generalized Linear Mixed-Effects Models With a Logit Link	1.48
7	Dirichlet-Process Bayesian Clustering	1.71
21	Tobit Regression	2.88
27	Poisson Regression	2.93

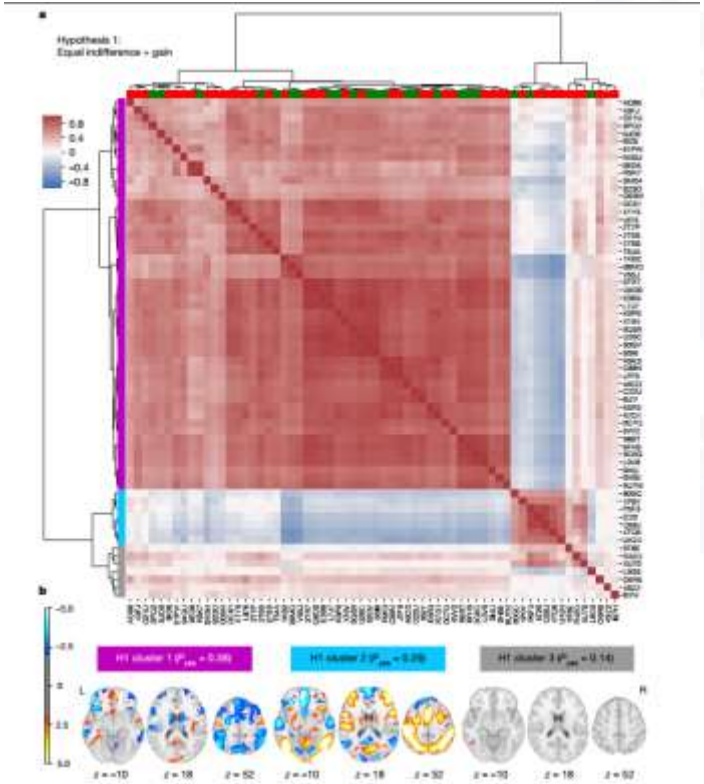


Status of Robustness: Same data, Diff methods

- Botvinik-Nezer et al., (2020, Nature)



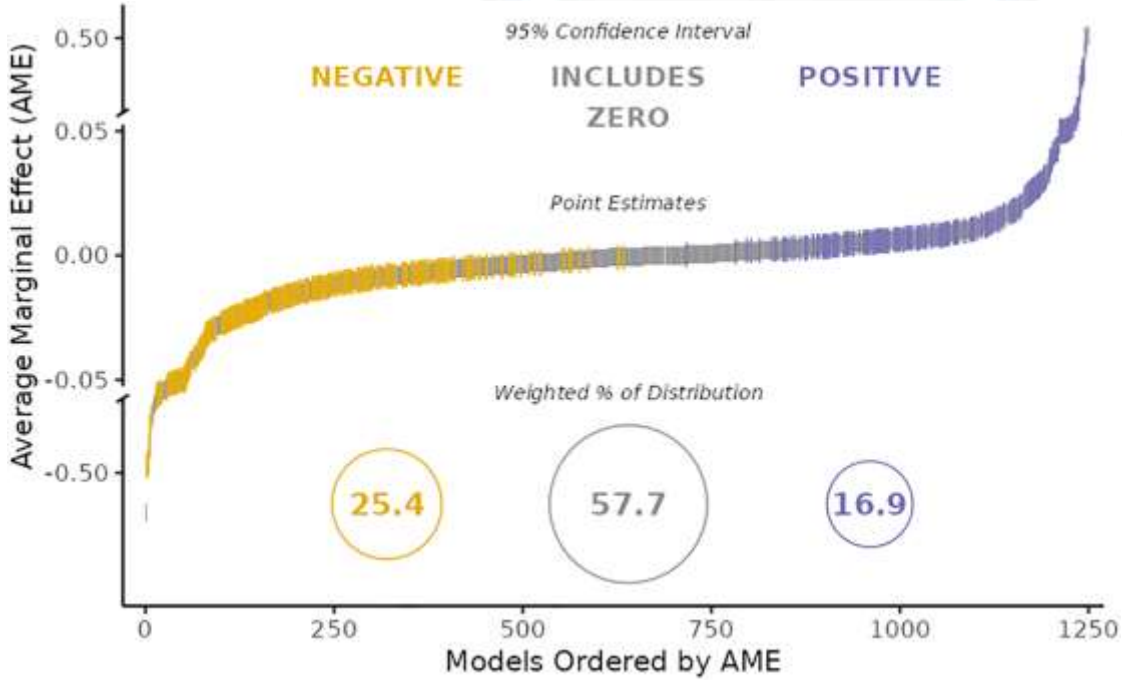
Status of Robustness: Same data, Diff methods



OpenTalks #2: https://dwz.mn/0r4qw

Status of Robustness: Same data, Diff methods

- Breznau and colleagues (2022, PNAS)



73 teams testing the same hypothesis with the same data

Status of Replicability: Diff data, Diff methods

Is social science replicable?

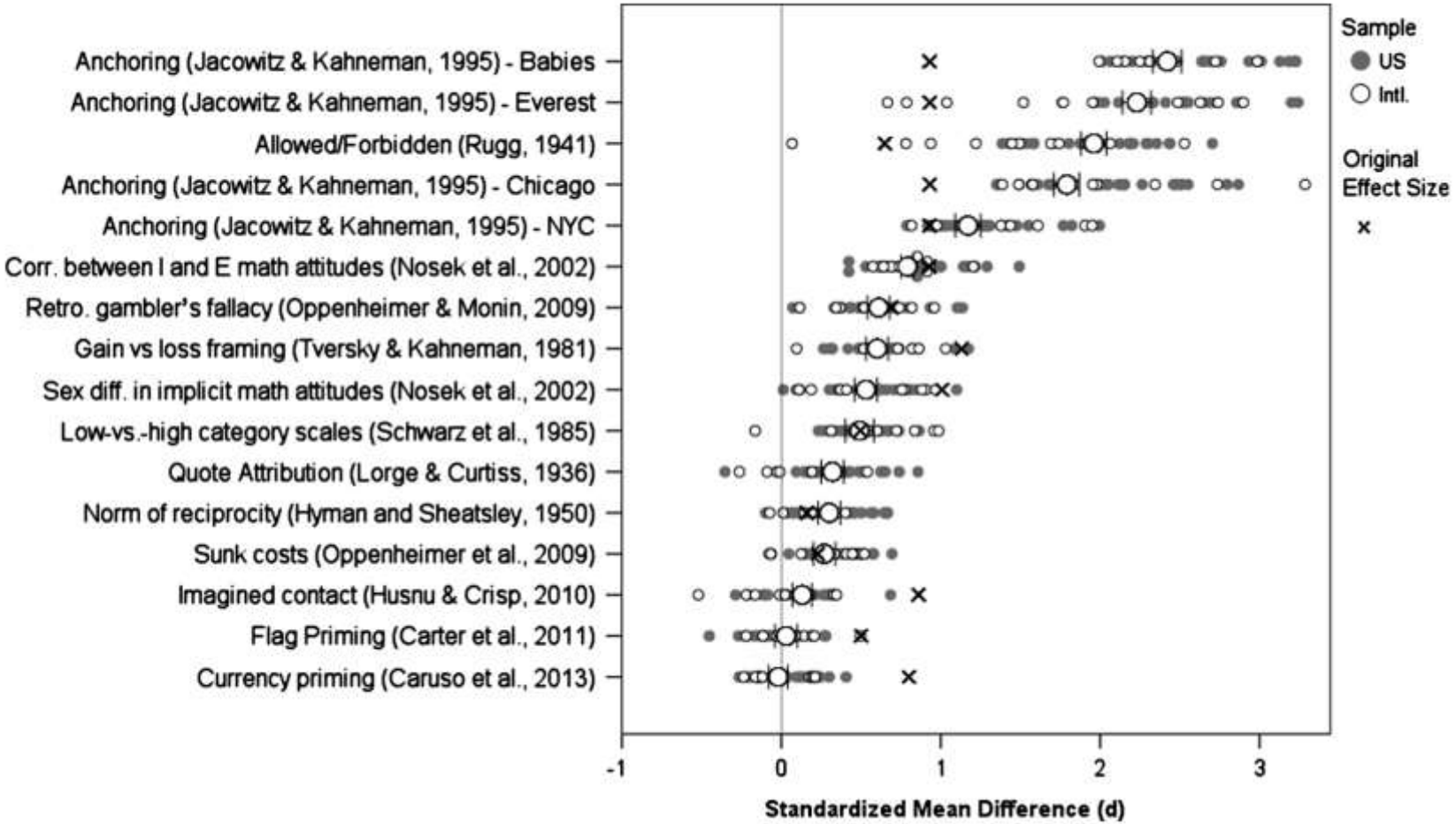
36/100 R:PP (Psychology)
11/18 EERP (Experimental Economics)
10/13 Many Labs 1 (Psychology)
14/28 Many Labs 2 (Psychology)
3/10 Many Labs 3 (Psychology)
13/21 SSRP (Science & Nature social science)

= 87/190
= 46% replication rate (54% false discovery rate)

Should we not do better?

-Initial- replication evidence: Other fields

• Economics (2015)		22 of 67 (33%)
• Experimental economics (2016)		11 of 18 (61%)
• Experimental philosophy (2018)		28 of 40 (70%)
• Microarray gene expression analysis (2009)		8 of 18 (44%)
• Oncology & cardiovascular medicine (2011)		14 of 67 (20%)
• RP: Cancer Biology*	(mixed results)	11%-25%
• Neuroscience		~6%



Klein, R. A., Ratliff, K. A., Vianello, M., Adams Jr, R. B., Bahn ĸ, Š., Bernstein, M. J., . . . Nosek, B. A. (2014). Investigating variation in replicability: a "many labs" replication project. Social Psychology, 45(3), 142–152. doi:10.1027/1864-9335/a000178

Status of Replicability: Diff data, Diff methods

	Effect size comparison							Original and replication combined			
	Replications $P < 0.05$ in original direction	Percent	Mean (SD) original effect size	Median original *df/N*	Mean (SD) replication effect size	Median replication *df/N*	Average replication power	Meta-analytic mean (SD) estimate	Percent meta-analytic ($P < 0.05$)	Percent original effect size within replication 95% CI	Percent subjective "yes" to "Did it replicate?"
Overall	35/97	36	0.403 (0.188)	54	0.197 (0.257)	68	0.92	0.309 (0.223)	68	47	39
JPSP, social	7/31	23	0.29 (0.10)	73	0.07 (0.11)	120	0.91	0.138 (0.087)	43	34	25
JEP:LMC, cognitive	13/27	48	0.47 (0.18)	36.5	0.27 (0.24)	43	0.93	0.393 (0.209)	86	62	54
PSCI, social	7/24	29	0.39 (0.20)	76	0.21 (0.30)	122	0.92	0.286 (0.228)	58	40	32
PSCI, cognitive	8/15	53	0.53 (0.2)	23	0.29 (0.35)	21	0.94	0.464 (0.221)	92	60	53

Open Science Collaboration (2015). *Science*

Status of Replicability: Diff data, Diff methods

Gilad Feldman

Mass Replications & Extensions (CORE)

Quick jump to sections: Background / Project summary / Get involved: Join us / Resources / Publications & preprints / Media attention / Our team / Completed replications / Planned replications / Registered Reports

可重复性危机的争议

- “进行重复实验的研究者能力不行！”(Gilbert et al., 2016)

- 反驳证据：
  - Ebersole et al (2020, ManyLab 5)，10个研究的不同重复团队结果，**没有区别**。

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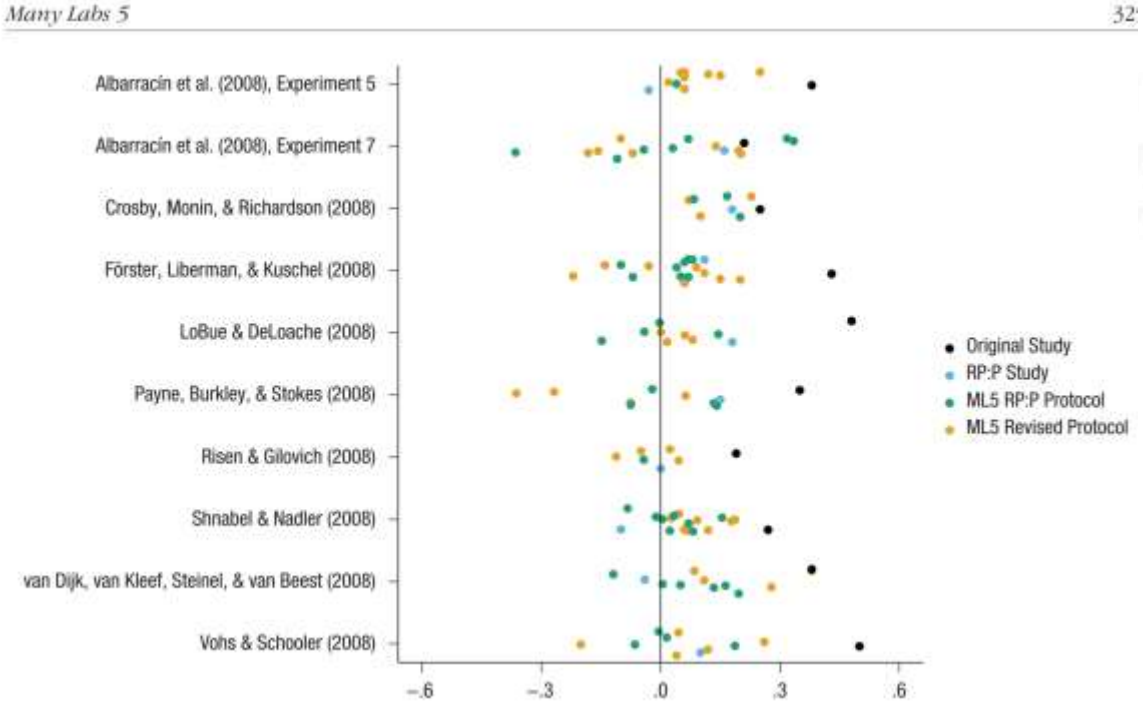

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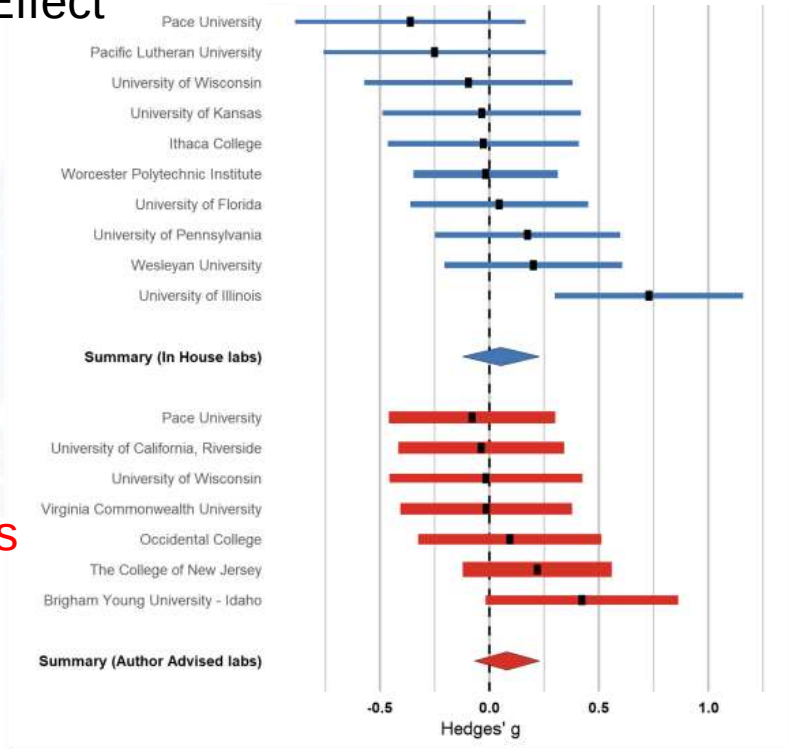
  - 原作者是否参与，**没有区别**。
  - 原作者是组织大规模重复，**无法成功重复**。

Mortality Salience Effect

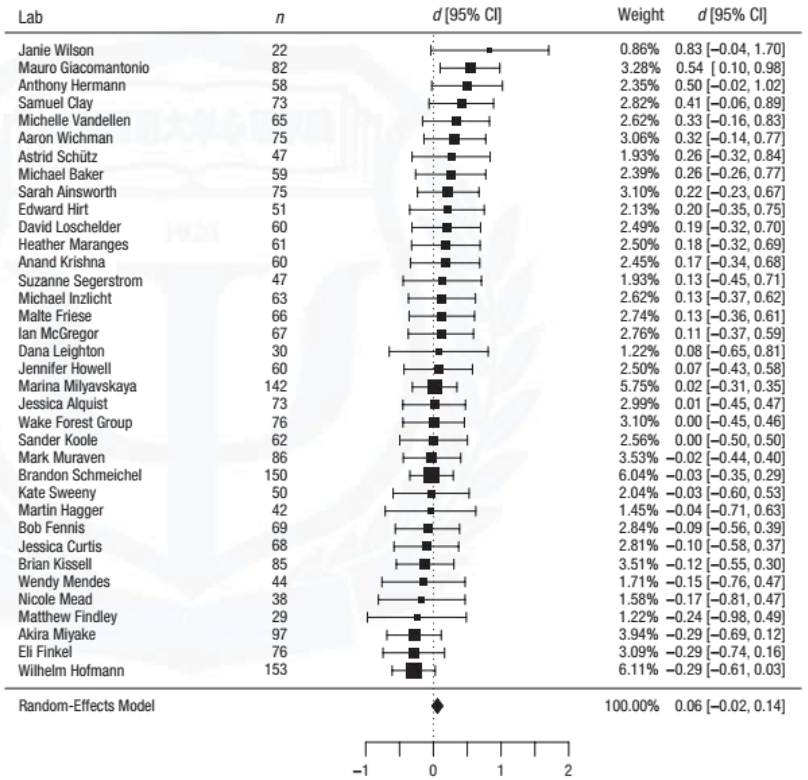
In-house sites

Author advised sites



原作者是否参与 (Klein et al., 2022, ManyLab 4, *Collabra: Psychology*)

Ego depletion effect

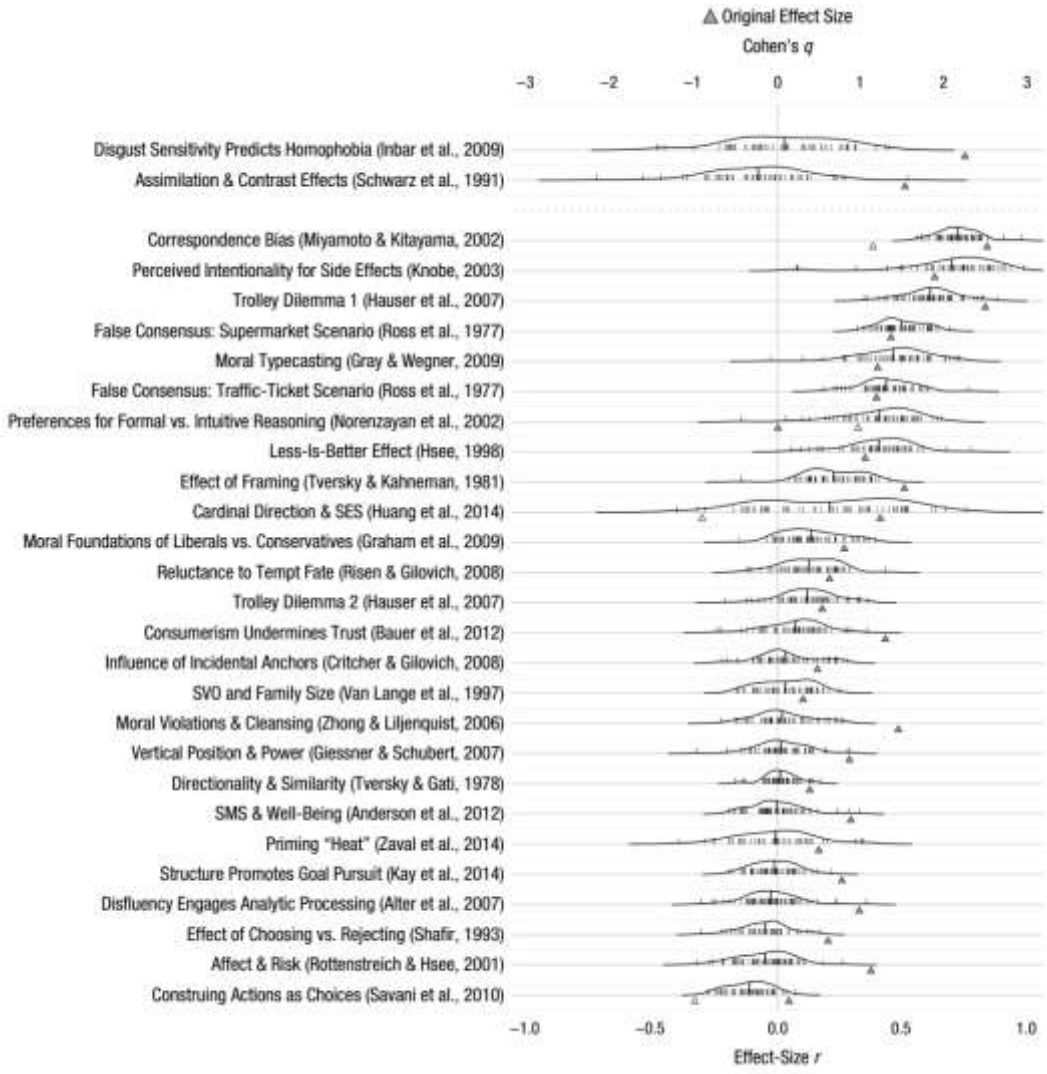


原作者自己组织重复(Vohs et al., 2022, *Psych Sci*)

可重复性危机的争议

- “社会心理学效应非常依赖于背景！”(van Bavel et al., 2016)

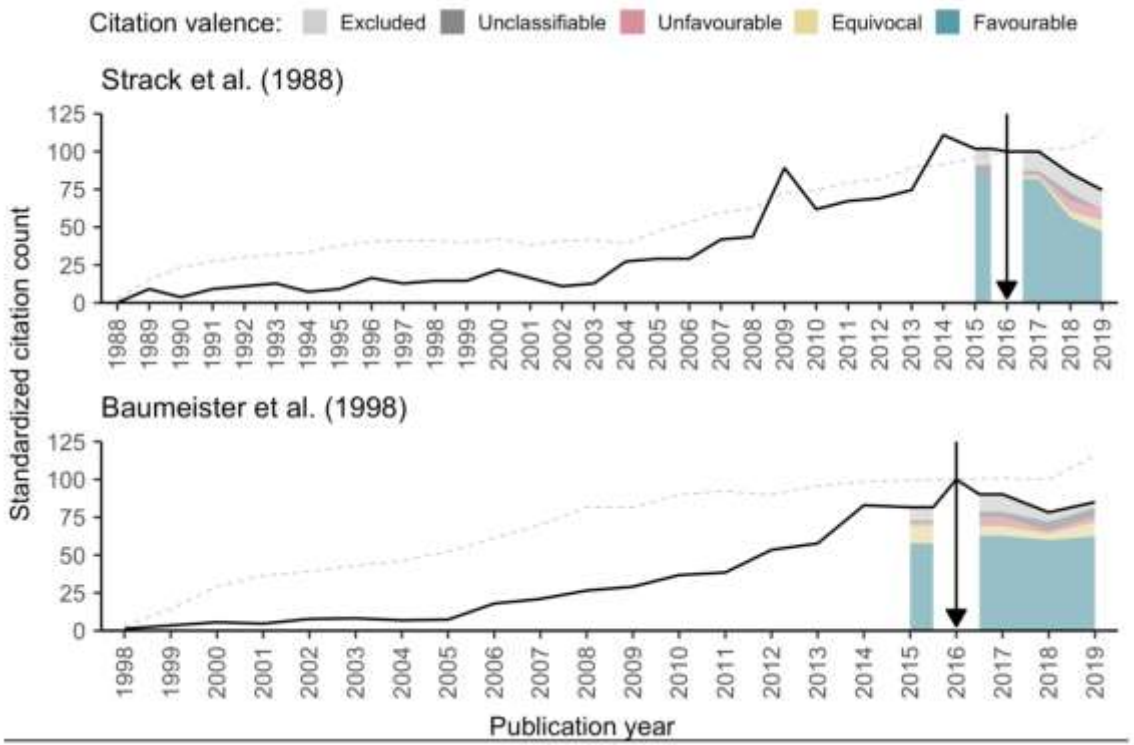
- 反驳证据
  - Klein et al (2018, ManyLab 2)：在不同文化下重点重复几个研究，结果一致。


△ Original Effect Size
Cohen's q
−3
−2
−1
0
1
2
3
Disgust Sensitivity Predicts Homophobia (Inbar et al., 2009)
Assimilation & Contrast Effects (Schwarz et al., 1991)
Correspondence Bias (Miyamoto & Kitayama, 2002)
Perceived Intentionality for Side Effects (Knobe, 2003)
Trolley Dilemma 1 (Hauser et al., 2007)
False Consensus: Supermarket Scenario (Ross et al., 1977)
Moral Typecasting (Gray & Wegner, 2009)
False Consensus: Traffic-Ticket Scenario (Ross et al., 1977)
Preferences for Formal vs. Intuitive Reasoning (Norenzayan et al., 2002)
Less-Is-Better Effect (Hsee, 1998)
Effect of Framing (Tversky & Kahneman, 1981)
Cardinal Direction & SES (Huang et al., 2014)
Moral Foundations of Liberals vs. Conservatives (Graham et al., 2009)
Reluctance to Tempt Fate (Risen & Gilovich, 2008)
Trolley Dilemma 2 (Hauser et al., 2007)
Consumerism Undermines Trust (Bauer et al., 2012)
Influence of Incidental Anchors (Critcher & Gilovich, 2008)
SVO and Family Size (Van Lange et al., 1997)
Moral Violations & Cleansing (Zhong & Liljenquist, 2006)
Vertical Position & Power (Giessner & Schubert, 2007)
Directionality & Similarity (Tversky & Gati, 1978)
SMS & Well-Being (Anderson et al., 2012)
Priming "Heat" (Zaval et al., 2014)
Structure Promotes Goal Pursuit (Kay et al., 2014)
Disfluency Engages Analytic Processing (Alter et al., 2007)
Effect of Choosing vs. Rejecting (Shafir, 1993)
Affect & Risk (Rottenstreich & Hsee, 2001)
Construing Actions as Choices (Savani et al., 2010)
−1.0
−0.5
0.0
0.5
1.0
Effect-Size r

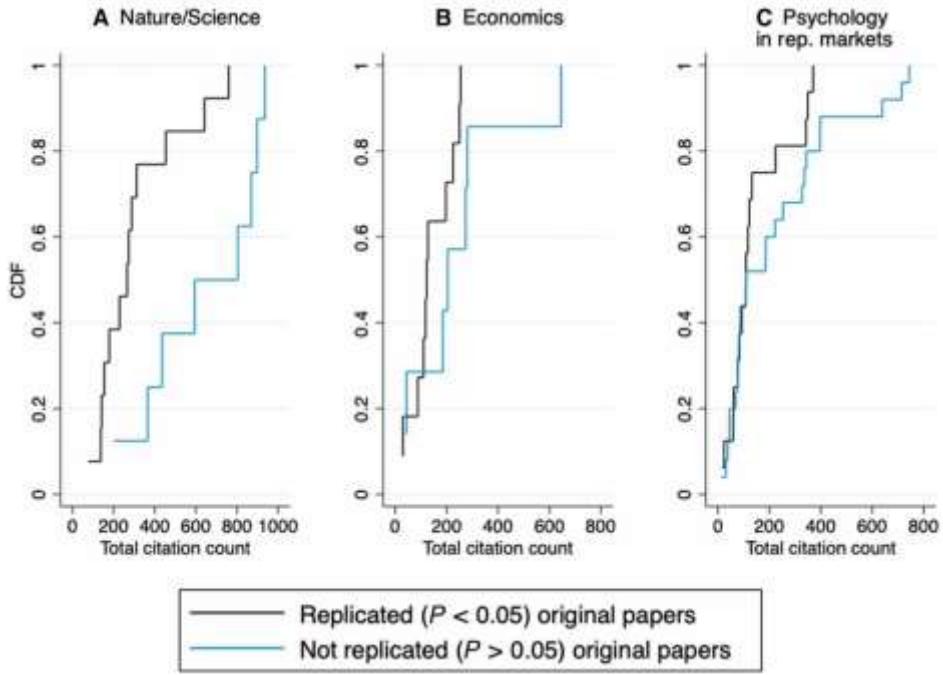
可重复性危机的争议

- “科学能进行自我校正”!

- 反驳证据
  - 科学的自我校正机制可能没有那么强

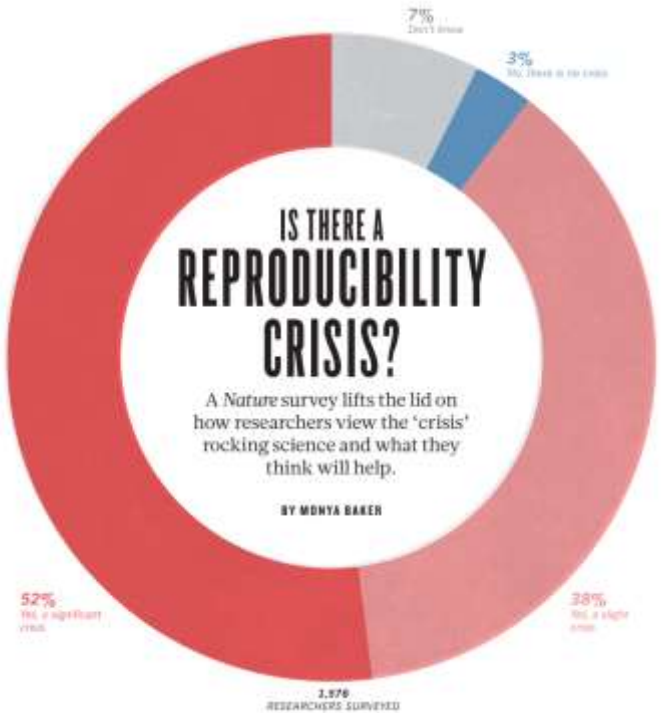


Nosek et al (2022, Ann Rev Psych)



Serra-Garcia & Gneezy (2022, Sci. Adv)

存在
且不局限于心理学



https://www.nature.com/news/1-500-scientists-lift-the-lid-on-reproducibility-1.19970

When preparing replications of **193 experiments** from **53 papers** there were a number of challenges.

2%
experiments with open data

70%
of experiments required asking for key reagents

69%
of experiments needing a key reagent original authors were willing to share

0%
of protocols completely described

32%
of experiments the original authors were not helpful (or unresponsive)

41%
of experiments the original authors were very helpful

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- For positive effects, 40% of replications (39/97) succeeded according to three or more of these five methods;
- For null effects 80% of replications (12/15) were successful on this basis;
- Combining positive and null effects, the success rate was 46% (51/112).

Errington et al., (2021) *elife*

小结：为什么心理学积极拥抱开放科学？

- 要解决可重复性的问题。

- 为什么开放科学能帮助解决可重复性的问题？
  - 在反思中逐渐采用和发现了开放科学的原则：
    - **开放的数据**
    - **开放的平台**
    - **开放的材料和代码**
    - **大团队**

- (心理)科学的可重复性问题推动了开放科学实践
- 开放实践正帮助解决心理科学的可重复性问题

为什么(心理)科学积极拥抱开放科学？

心理学研究中的开放实践如何？

心理学如何继续推动开放科学？

研究全过程的开放与透明

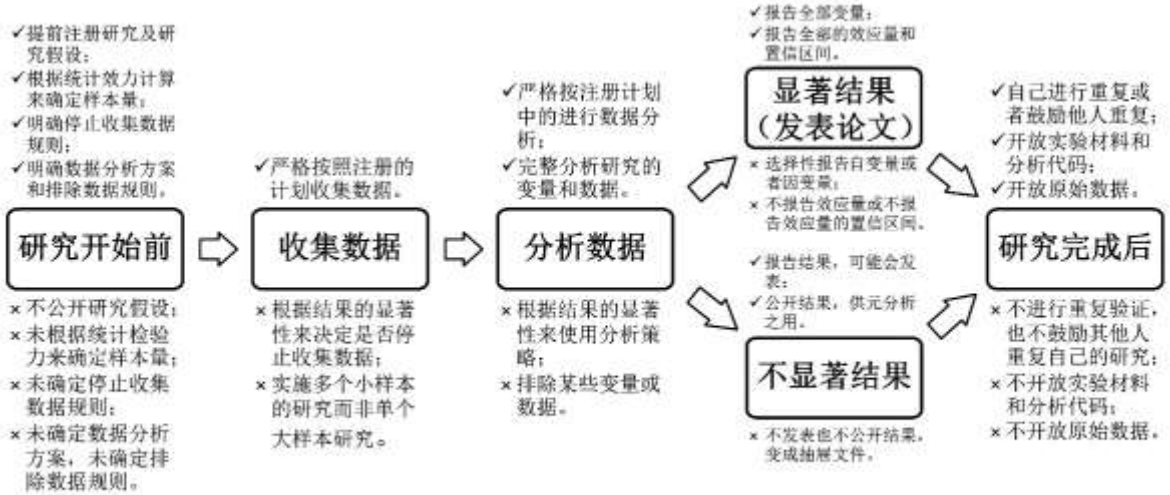
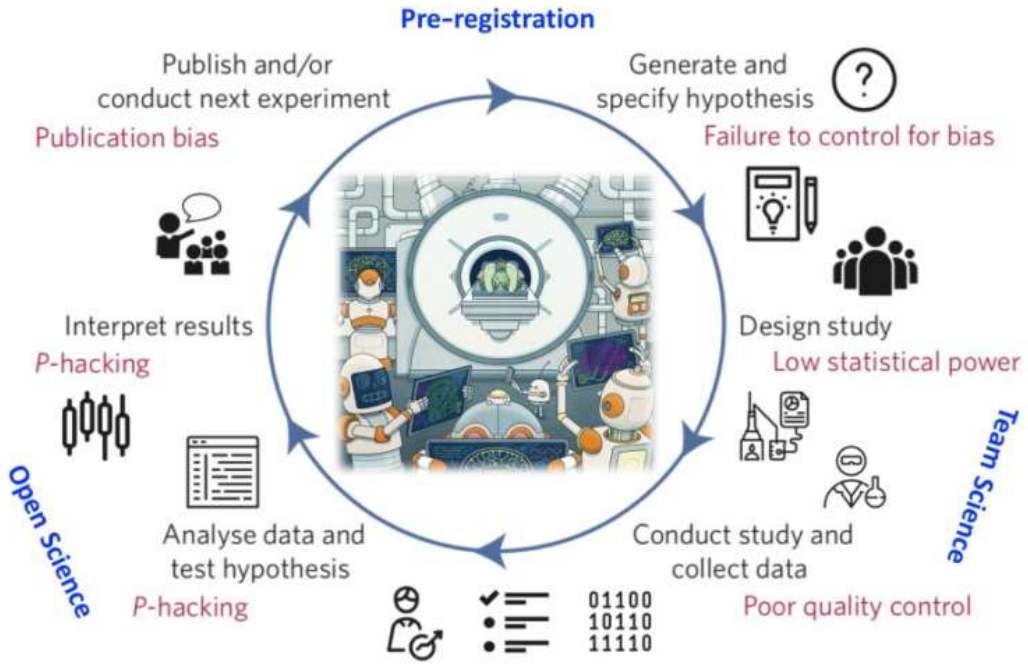


图 3　研究过程中符合公开、透明和开放原则的研究操作(上)以及可疑研究操作(下)。

胡传鹏等 2016, 心理科学进展

研究全过程的开放与透明



Nosek et al (2017, *Nat. Hum. Behav*)

研究全过程的开放与透明

Psychonomic Bulletin & Review (2019) 26:1596–1618
https://doi.org/10.3758/s13423-019-01645-2

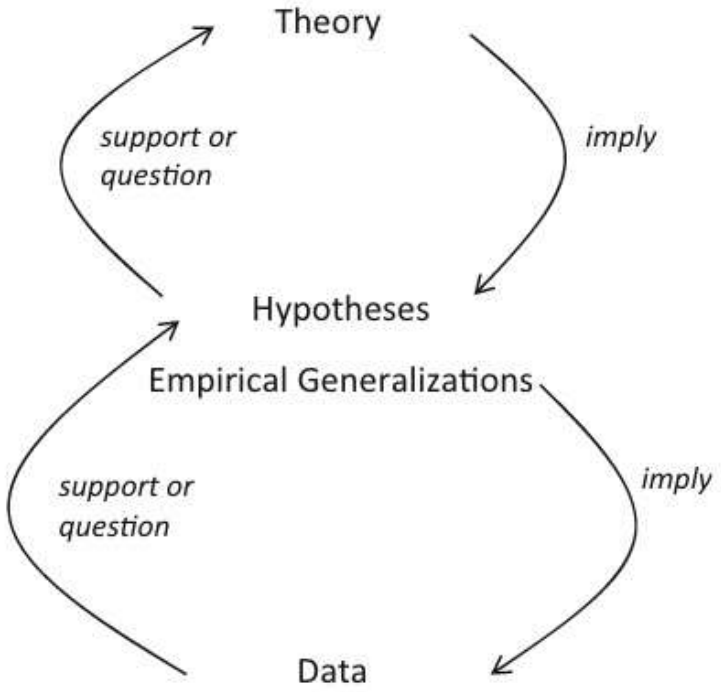
THEORETICAL REVIEW

Addressing the theory crisis in psychology

Klaus Oberauer[1] · Stephan Lewandowsky[2,3]

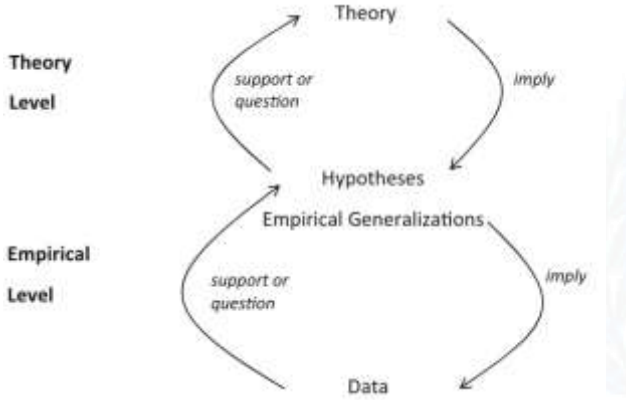
Theory Level

Empirical Level



理论与数据的关系透明 → *理论危机*

研究全过程的开放与透明



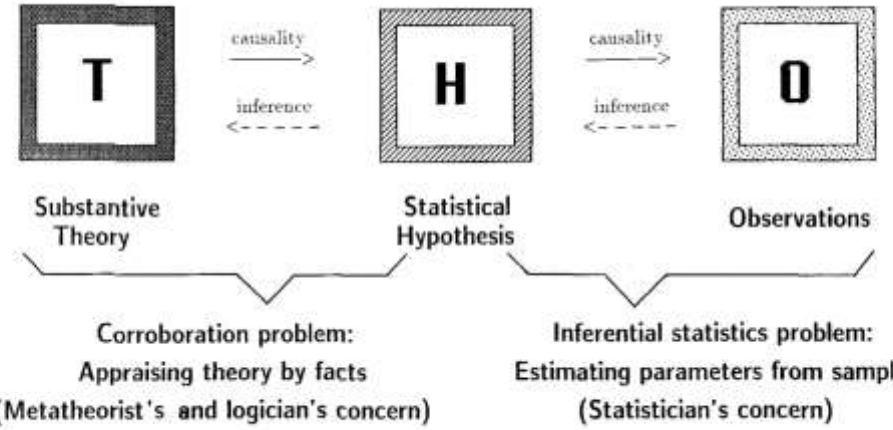


Figure 2. Causal and inferential relations between substantive theory, statistical hypothesis, and observational data.

Oberauer & Lewandowsky, 2019; Meehl (1990) *Psychol Inquiry*

理论与数据的关系透明 → *理论危机*

研究全过程的开放与透明

Personality and Social Psychology Review
1998, Vol. 2, No. 3, 196–217

HARKing: Hypothesizing After the Results are Known

Norbert L. Kerr
Department of Psychology
Michigan State University

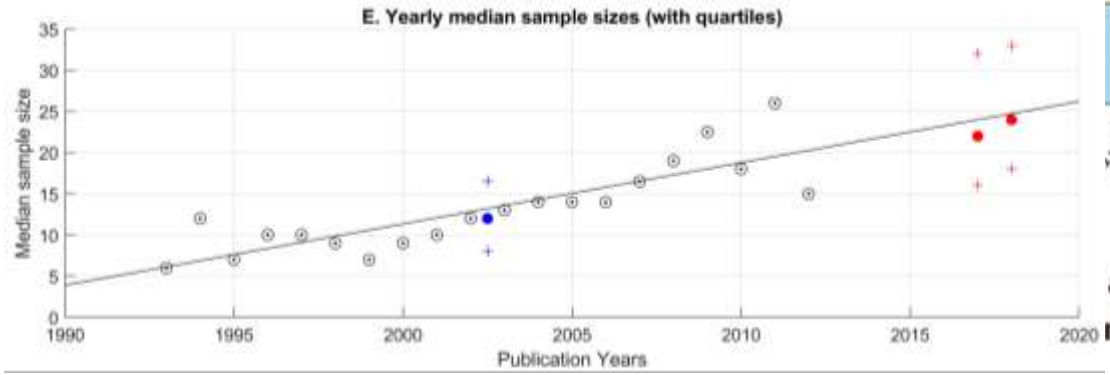
假设产生过程透明 → *HARKing*

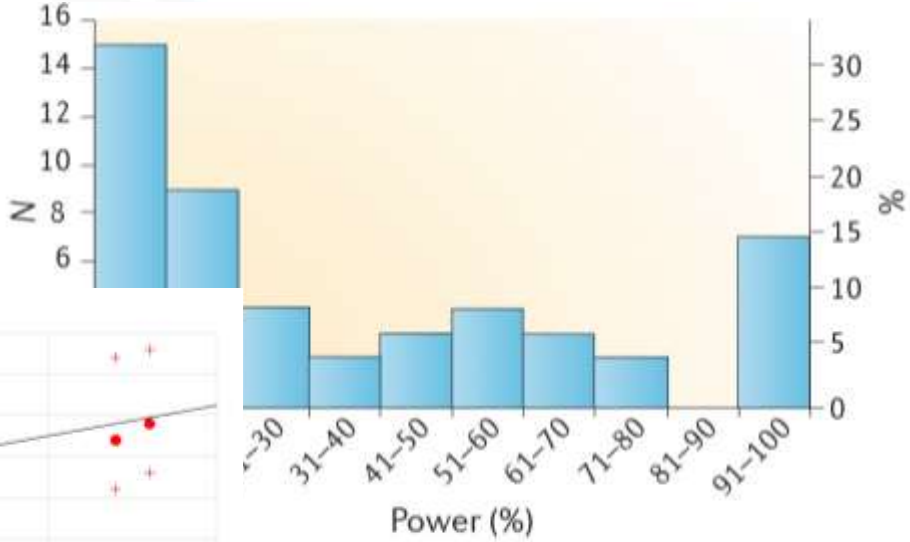
Kerr, 1998, *PSPR*

研究全过程的开放与透明

Power failure: why small sample size undermines the reliability of neuroscience

Katherine S. Button[1,2], John P. A. Ioannidis[3], Claire Mokrysz[1], Brian A. Nosek[4], Jonathan Flint[5], Emma S. J. Robinson[6] and Marcus R. Munafò[1]





an power of studies included in meta-analyses. The figure shows a

实验设计透明 → *Low Power*

Szucs & Ioannidis, 2022, *Neuroimage*

研究全过程的开放与透明

EJN European Journal of Neuroscience
The official journal of FENS
Federation of European Neuroscience Societies

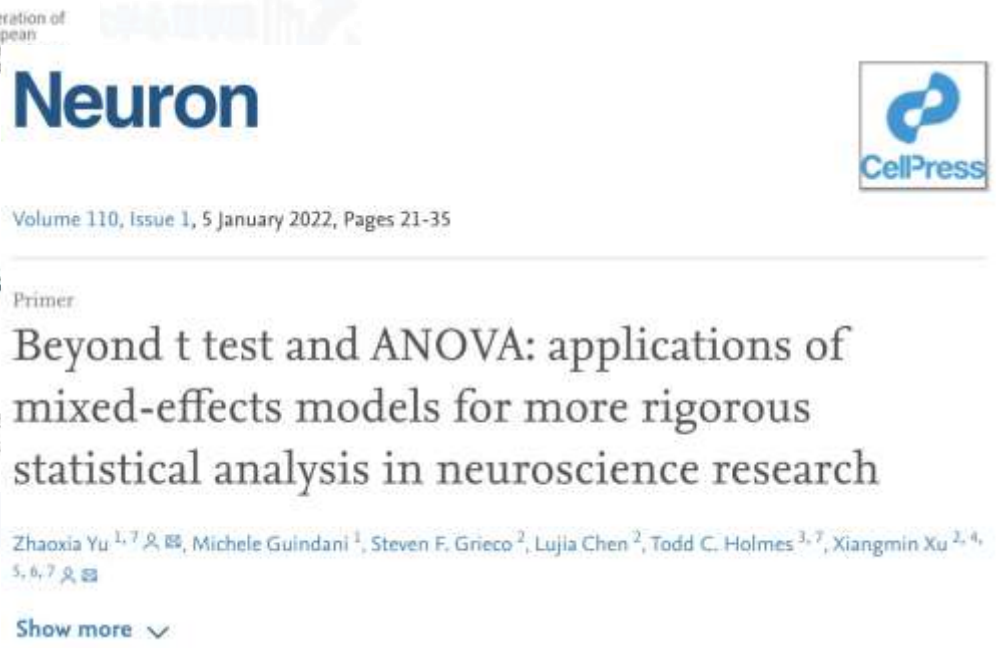
SPOTLIGHT

Beyond ANOVA and MANOVA for repeated measures: advantages of GEE and GLMM and its use in neuroscience research

Márcio Braga de Melo, Dimitri Daldegan-Bueno, Maria Gabriela Menezes Oliveira, Altay Lino de S

First published: 07 November 2022 | https://doi.org/10.1111/ejn.15858

Peer Review The peer review history for this article is available at https://publons.com/publon/10.1111/ejn.15858.
This article has been accepted for publication and undergone full peer review but has not been t the copyediting, typesetting, pagination and proofreading process which may lead to differences this version and the Version of Record. Please cite this article as doi: 10.1111/ejn.15858.



Neuron

CellPress

Volume 110, Issue 1, 5 January 2022, Pages 21-35

Primer

Beyond t test and ANOVA: applications of mixed-effects models for more rigorous statistical analysis in neuroscience research

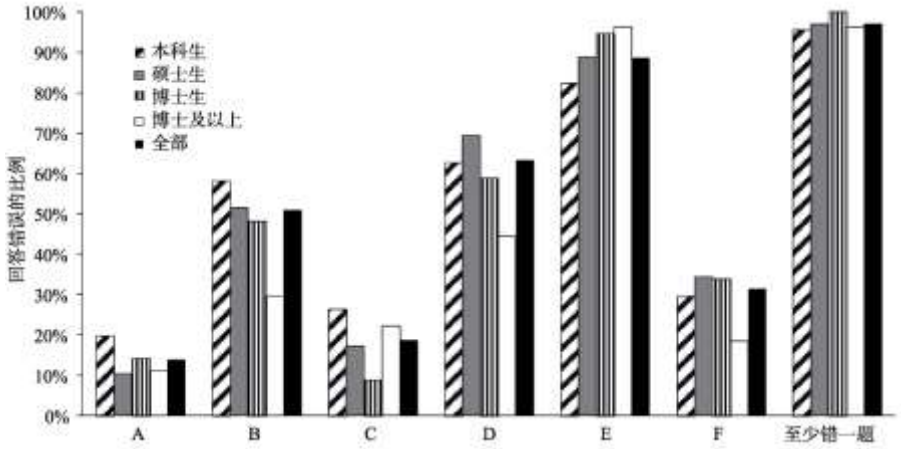
Zhaoxia Yu [1, 7], Michele Guindani [1], Steven F. Grieco [2], Lujia Chen [2], Todd C. Holmes [3, 7], Xiangmin Xu [2, 4, 5, 6, 7]

Show more

统计推断过程透明 → 新方法

研究全过程的开放与透明

- 无法正确地理解*p*值和CI

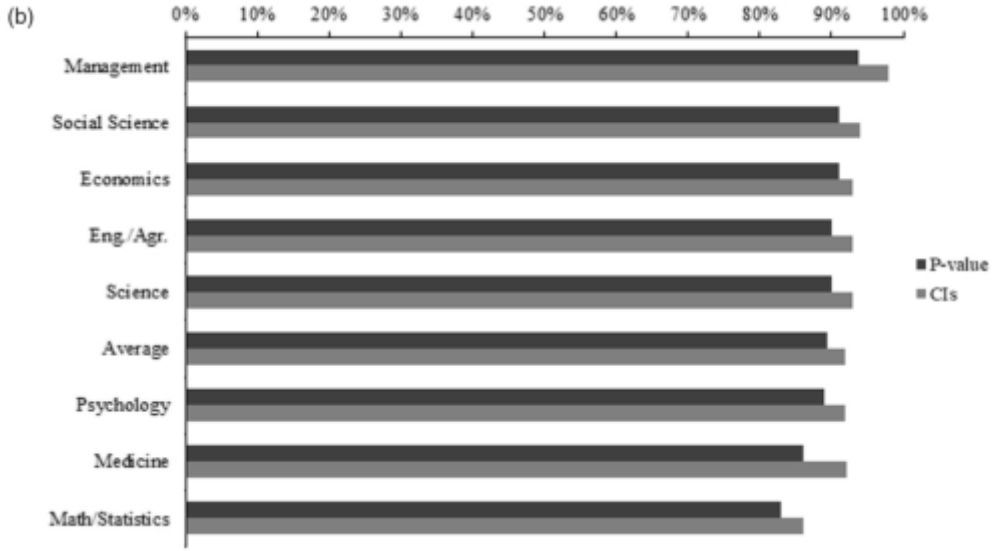


统计推断过程透明 → 新方法

胡传鹏 等(2016); Z. Lyu et al. (2018)

研究全过程的开放与透明

- 无法正确地理解*p*值和CI

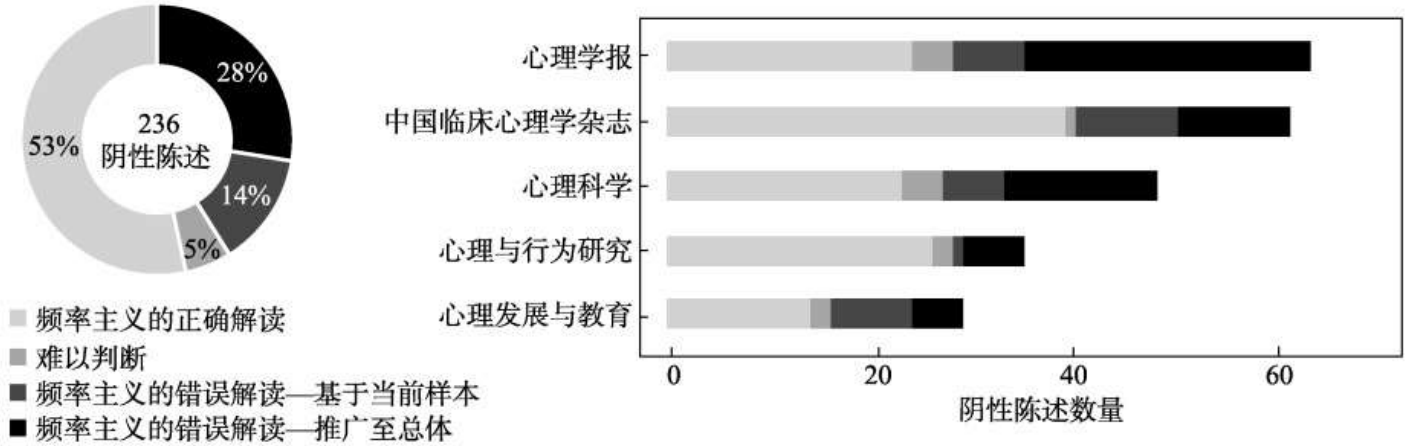


统计推断过程透明 → 新方法

X. Lyu, …, Hu. (2020) *J Pacific Rim*

研究全过程的开放与透明

- 无法正确地理解*p*值和CI

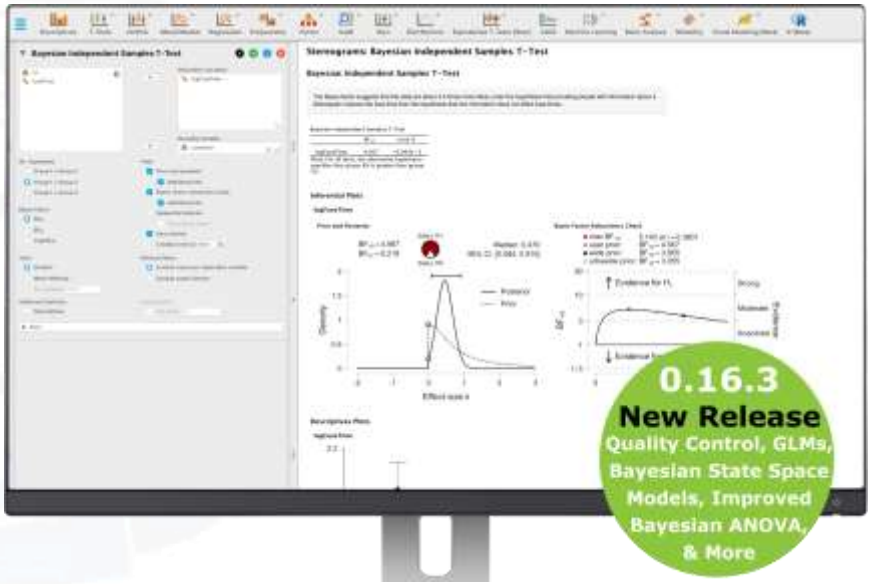


统计推断过程透明 → 新方法

王珺等(2021), 心理科学进展

研究全过程的开放与透明

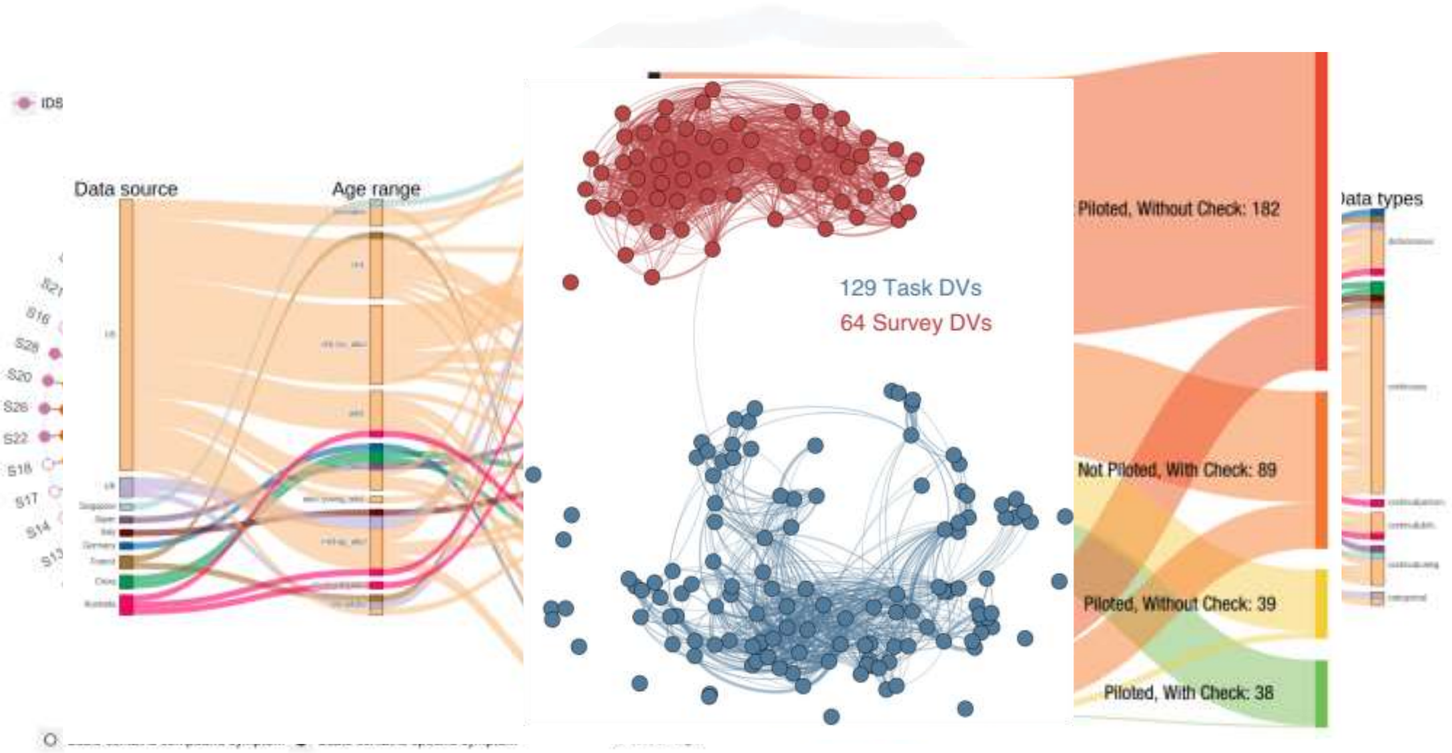
- 贝叶斯统计



统计推断过程透明 → 新方法

Wagenmakers et al. 2018; 胡传鹏等, 2018, 心理科学进展；王允宏等 2023, 心理技术与应用

研究全过程的开放与透明：测量工具



Eisenberg et al (2019) *Nat Comm*

Hu, Cai, Fried, & Forscher (2022) https://osf.io/hwtxq

Fried (2017) *J affective Disorders*

Chester & Lasko (2021) *PoPS*

研究全过程的开放与透明

回归不显著？ 一键显著2.0 强势到来！

[redacted] 2022-02-08 17:00

以下文章来源[redacted]，作者[redacted]

False-positive psychology: undisclosed flexibility in data collection and analysis allows presenting anything as significant.

JP Simmons, LD Nelson, U Simonsohn - 2016 - psycnet.apa.org

… Second, **false positives** waste resources: They inspire … **false positives** risks losing its credibility. In this article, we show that despite the nominal endorsement of a maximum **false-positive** …

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[redacted]

2. 多个模型（方程）命令bq_multi，配合单个模型用，可以同时找出使得多个模型（方程）显著的控制变量组合。

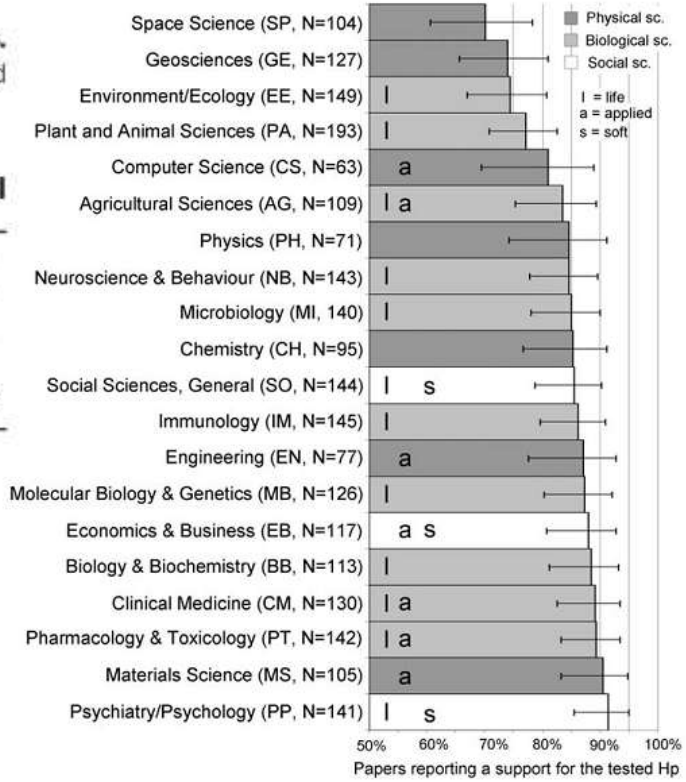
数据分析过程透明 → *p*-hacking

研究全过程的开放与透明

Table 2. Cross-tabulation between statistical results of TESS studies and their publication status. Entries are counts of studies by publication status and results. Bolded entries indicate observations included in the final sample for analysis (*40*). Results are robust to the inclusion of book chapters (table S7).

	Unpublished, not written	Unpublished, written	Published	Book chapter	Missing	Total
Null results	**31**	**7**	**10**	1	0	49
Mixed results	**10**	**32**	**40**	3	1	86
Strong results	**4**	**31**	**56**	1	1	93
Missing	6	1	0	2	12	21
Total	51	71	106	7	14	249

Franco et al., 2014, *Science*



Fanelli, 2010, *Plos One*

论文发表透明 → 发表偏见

研究全过程的开放与透明

论文发表透明 → 发表偏见

研究全过程的开放与透明

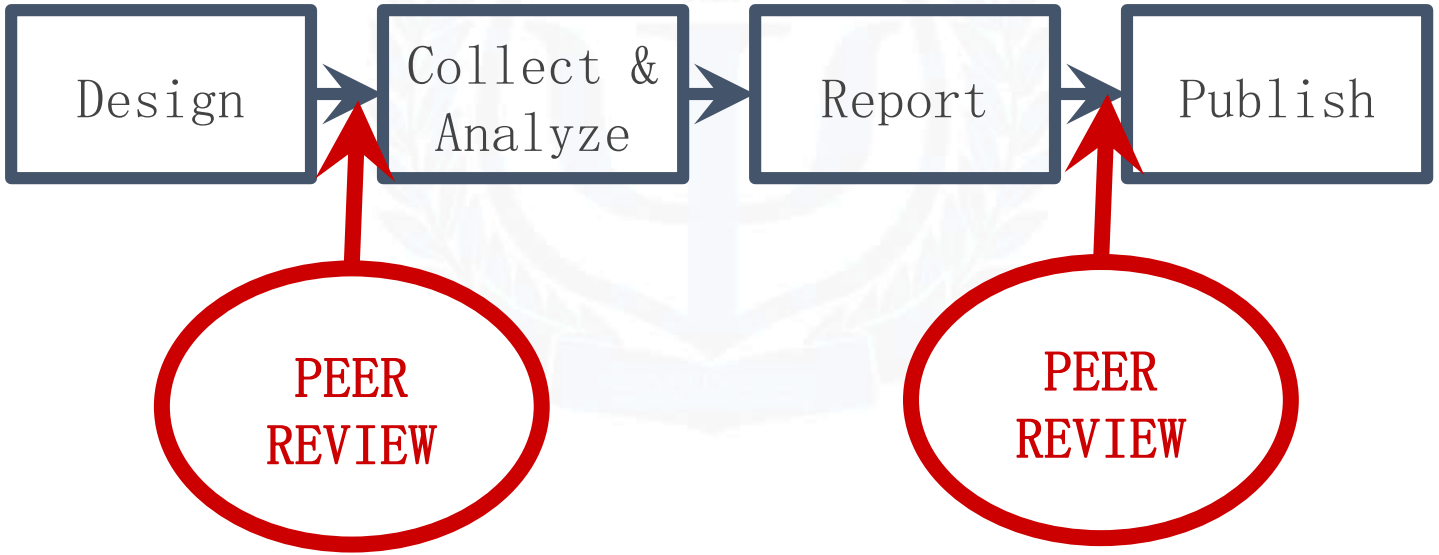
预注册 & 注册报告

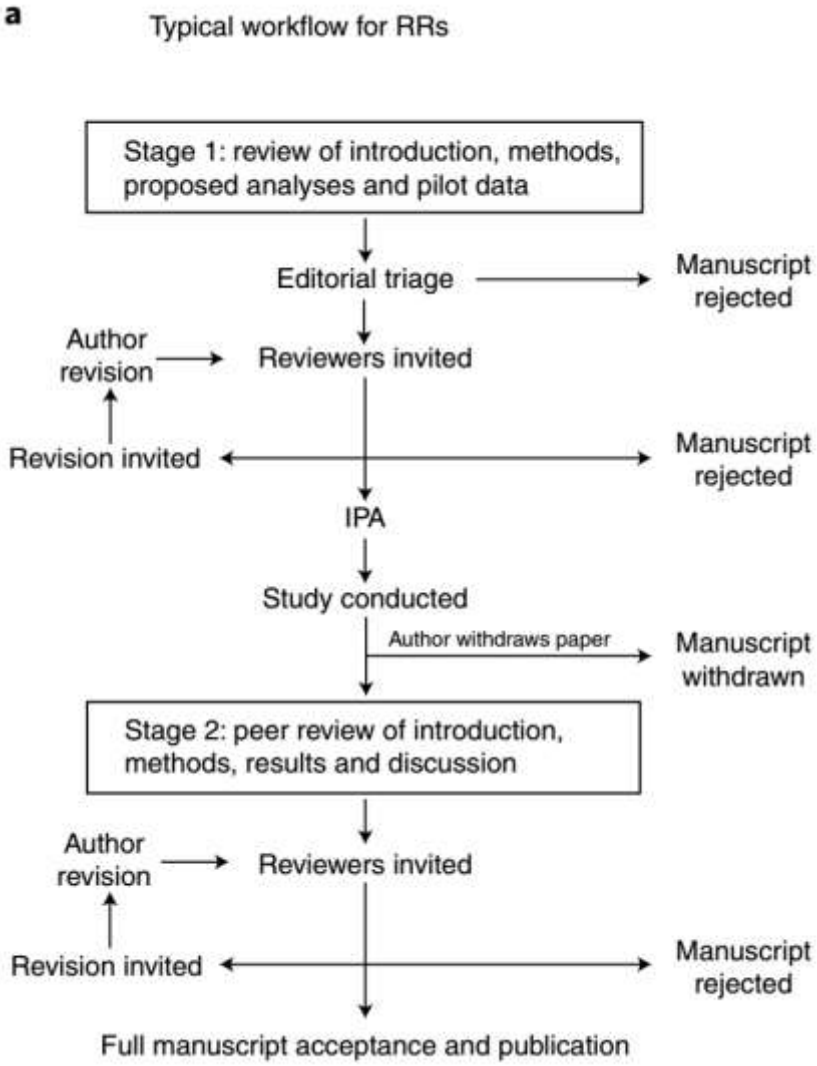
研究全过程的开放与透明

预注册 & 注册报告

研究全过程的开放与透明

预注册 & 注册报告

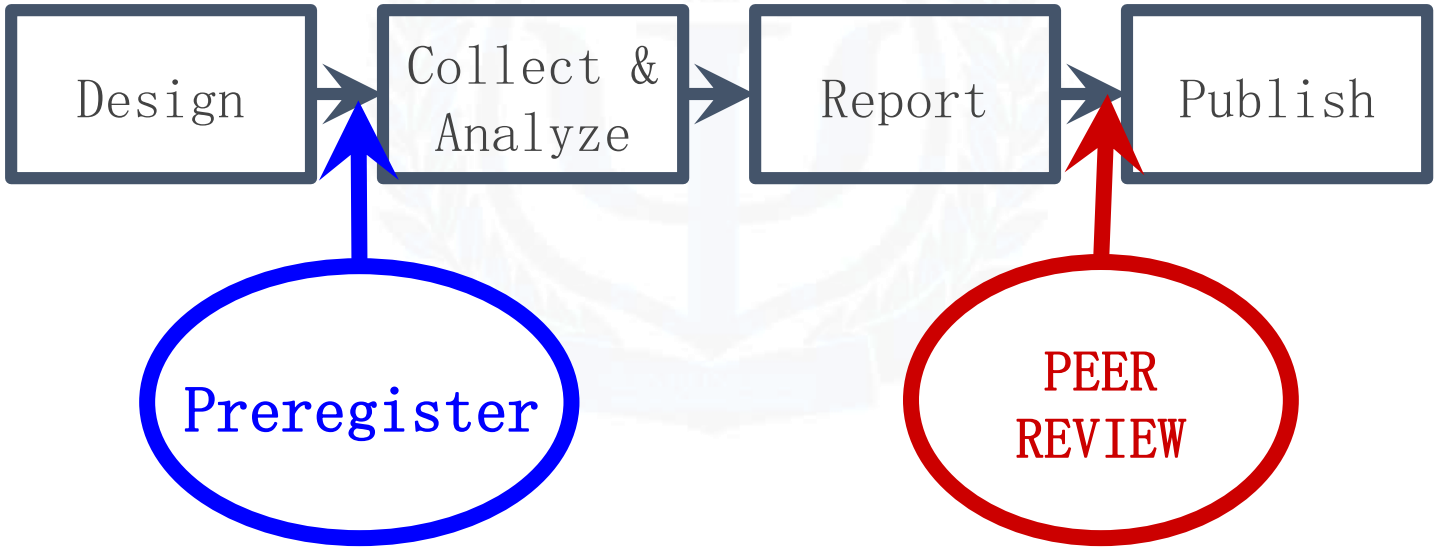




Chambers & Tzavella, 2021,

研究全过程的开放与透明

预注册 & 注册报告



研究全过程的开放与透明

TABLE 3 Relative frequencies of journal guidelines relevant to open data fo qualitative research

Policy detail	Stance on qualitative res Explicitly accepting ($N = 74$)
Of *n* (%) journals with open data guidelines …	44 (59.5%)
… has open qualitative data guidelines	2 (4.5%)
… makes use of external policy	31 (70.5%)
… open data "encouraged"	37 (84.1%)
… open data "required"	1 (2.3%)
… open data requirement unspecified	6 (13.6%)
… non-sharing justification expected	17 (38.6%)
… data availability statement expected	33 (75.0%)

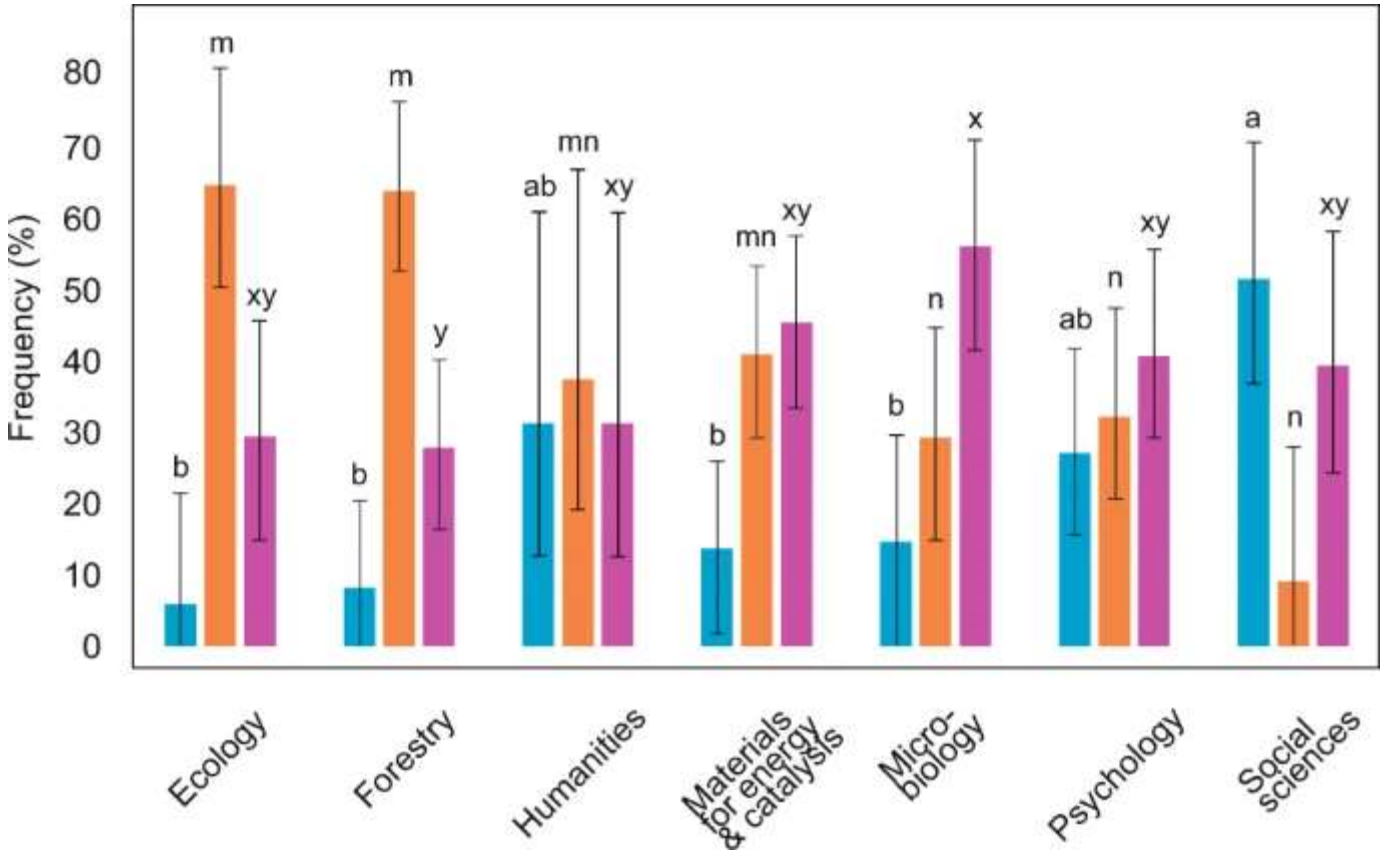
Note. "Total relevant journals" represents both journals explicitly accepting qualitative research explicitly stated not accepting qualitative research and are not included here.

Prosser, 2022, Br J Soc Psychol

Of the 300 included systematic reviews with meta-analysis, 86 (29%) had a data availability statement, and seven (2%) had both a data and code availability statement. In 12/93 (13%) data availability statements, authors stated that data files were available for download from the journal website or a data repository, which we verified as being true. While 39/93 (42%) authors stated data were available upon request, 37/93 (40%) implied that sharing of data files was not necessary or applicable to them, most often because "all data appear in the article" or "no datasets were generated or analyzed".

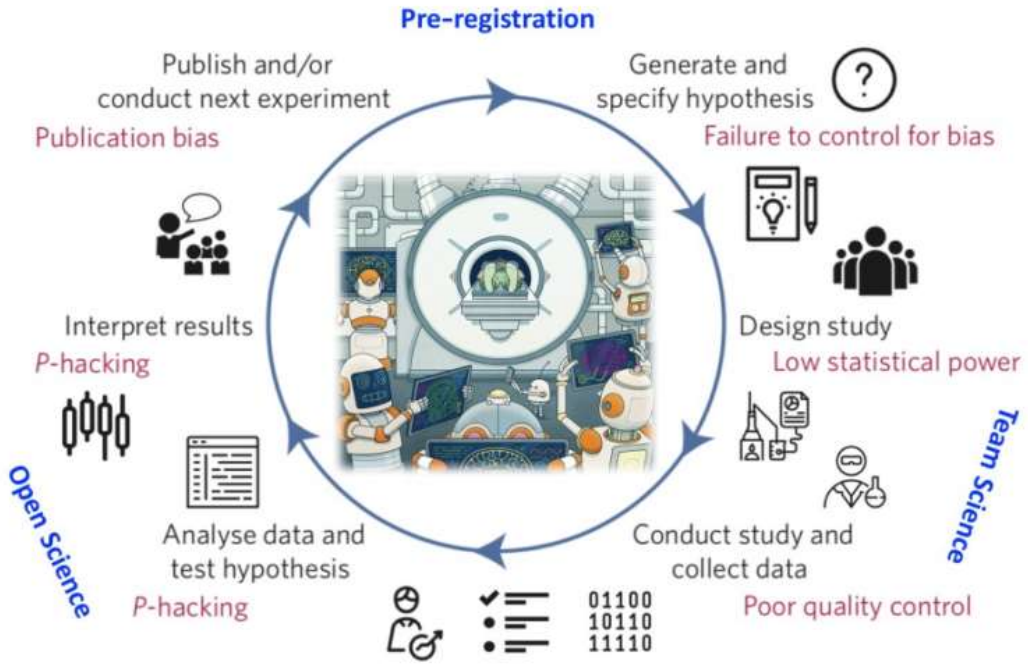
Page et al., 2022, J Clinical Epidemiol

实验数据透明 → *非开放的数据*



Tedersoo, 2021, *sci data*

研究全过程的开放与透明



Nosek et al (2017, *Nat. Hum. Behav*)

Nosek et al (2015, *Science*)

JOURNAL ARTICLE

An Agenda for Open Science in Communication

Tobias Dienlin ✉, Niklas Johannes, Nicholas David Bowman, Philipp K Masur, Sven Engesser, Anna Sophie Kümpel, Josephine Lukito, Lindsey M Bier, Renwen Zhang, Benjamin K Johnson ... Show more

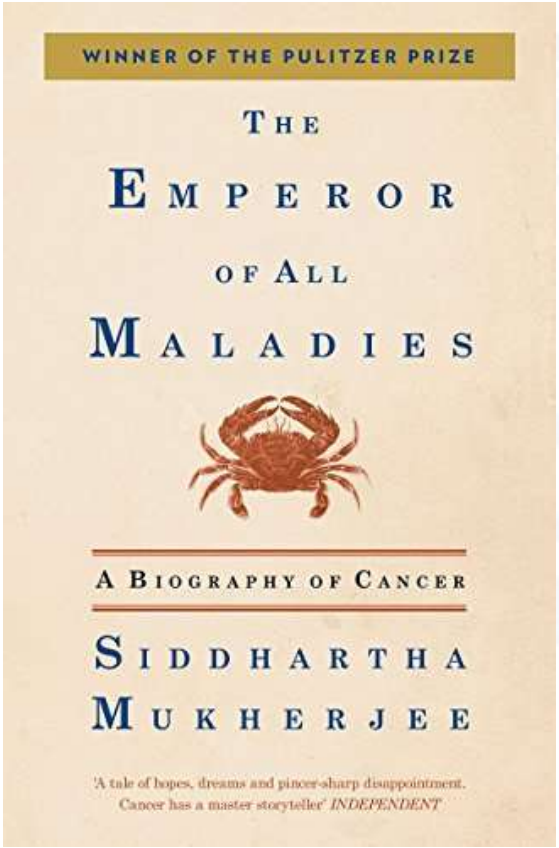
Journal of Communication, Volume 71, Issue 1, February 2021, Pages 1–26, https://doi.org/10.1093/joc/jqz052

Published: 17 February 2020 **Article history** ▾

开放科学具有极强的跨学科特点

研究者是在特定的时空背景下进行研究行为

人 * 环境

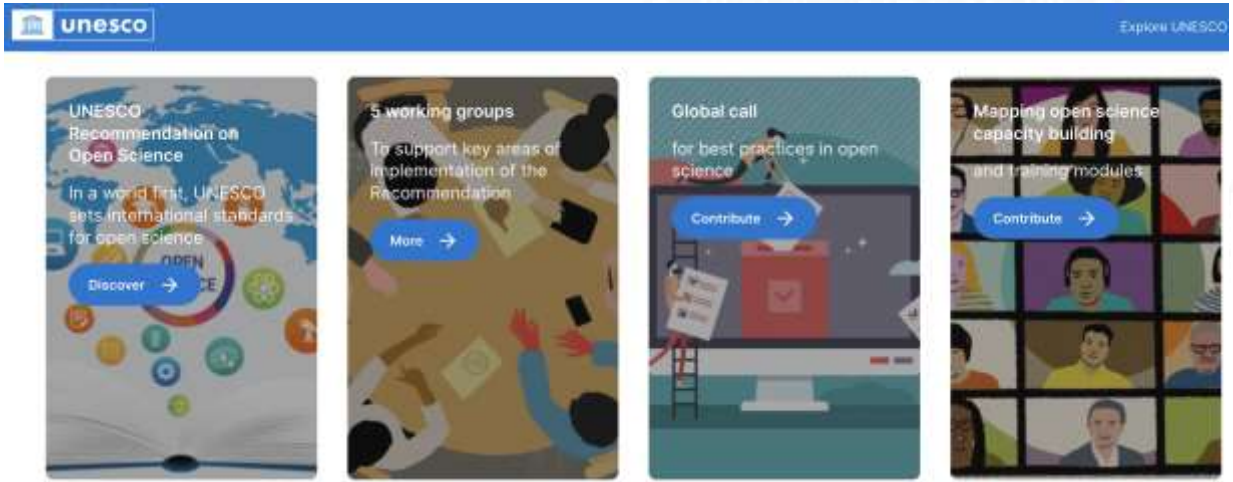


人 * 环境

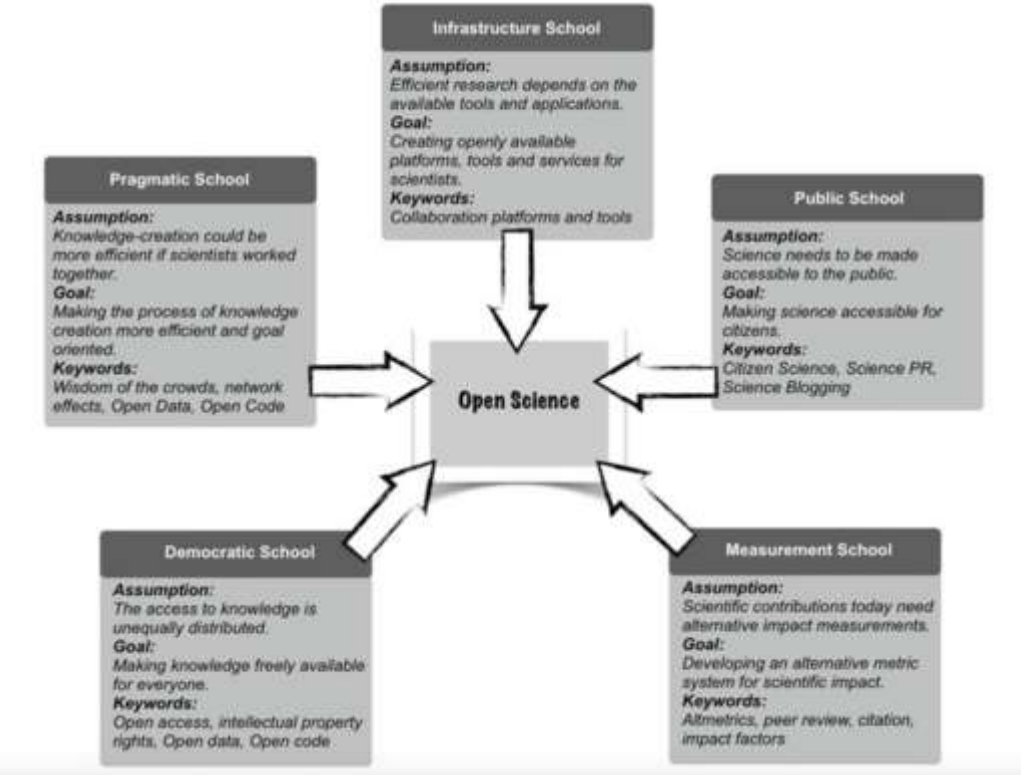
研究者作为人类的行为规律?

“历史的进程”也很重要

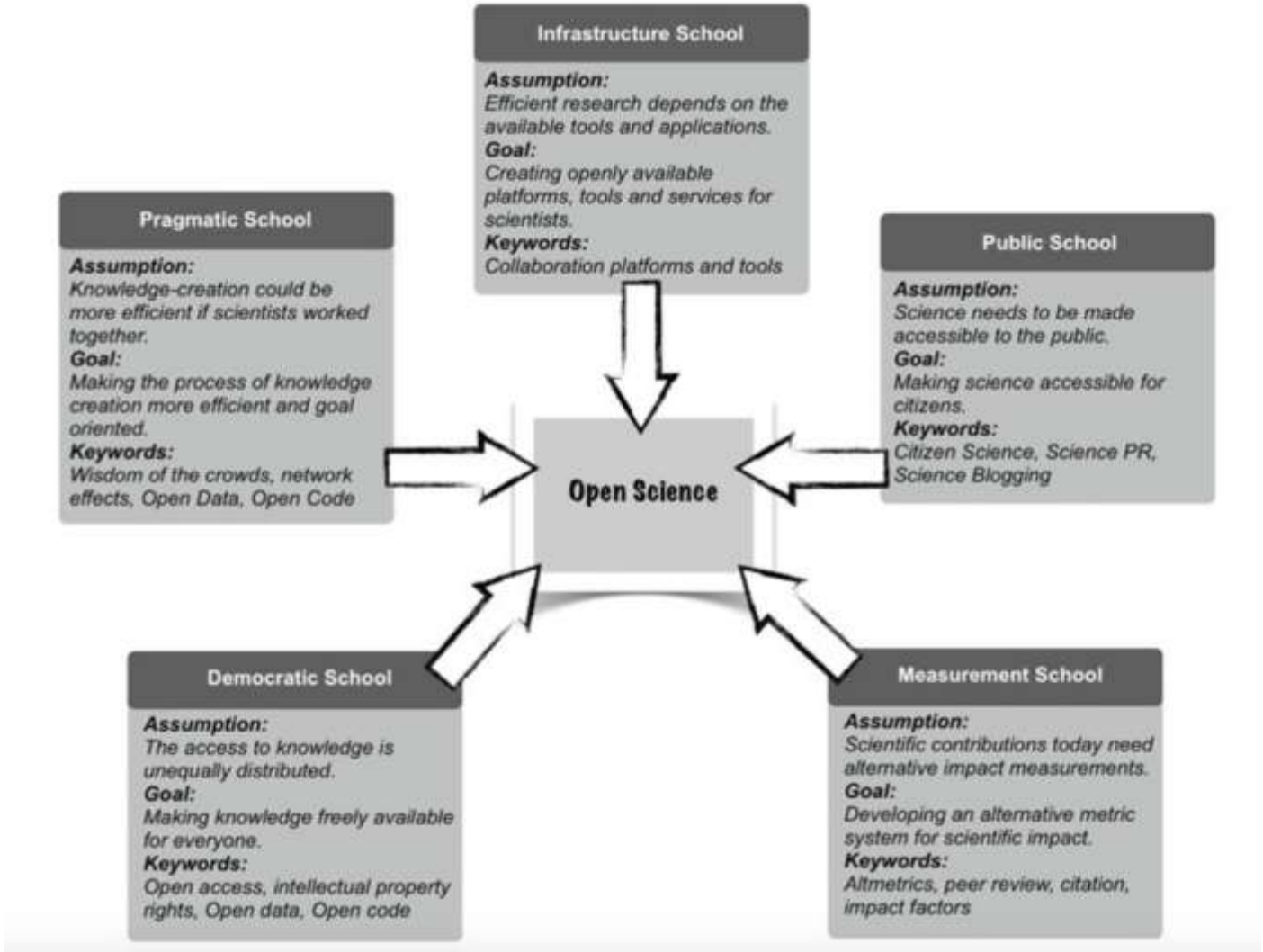
“历史的进程”也很重要：开放科学的兴起



“历史的进程”也很重要：开放科学的兴起

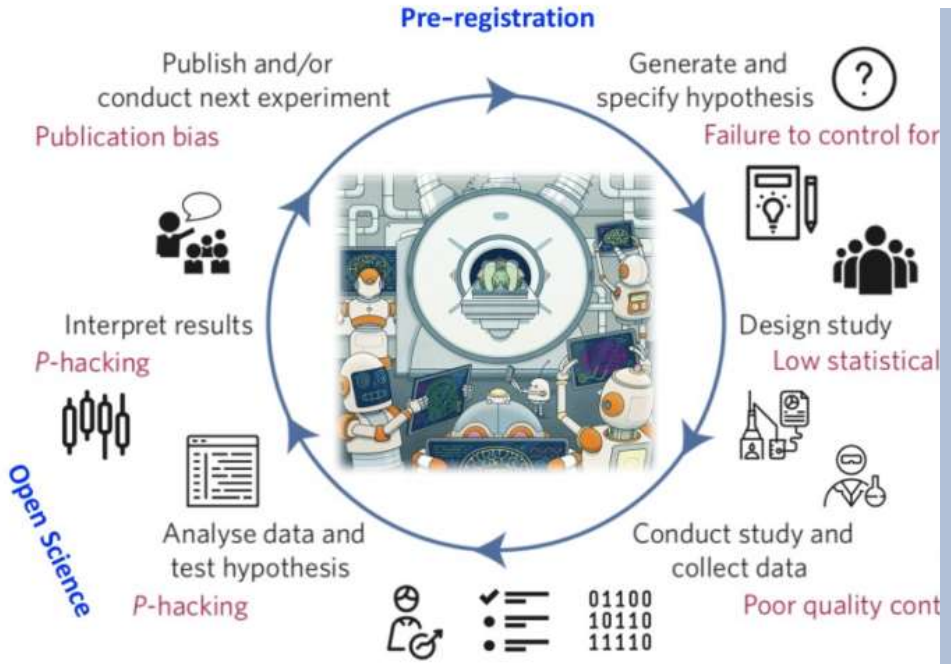


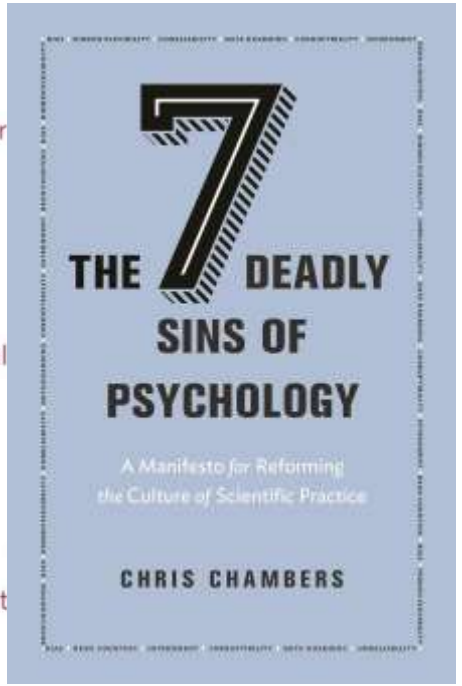
Fecher, B., & Friesike, S. (2014). https://doi.org/10.1007/978-3-319-00026-8_2



Fecher, B., & Friesike, S. (2014). https://doi.org/10.1007/978-3-319-00026-8_2

The Sixth School of Open Science: Reproducibility





Nosek et al (2017, *Nat. Hum. Behav*)

The Sixth School of Open Science: Reproducibility

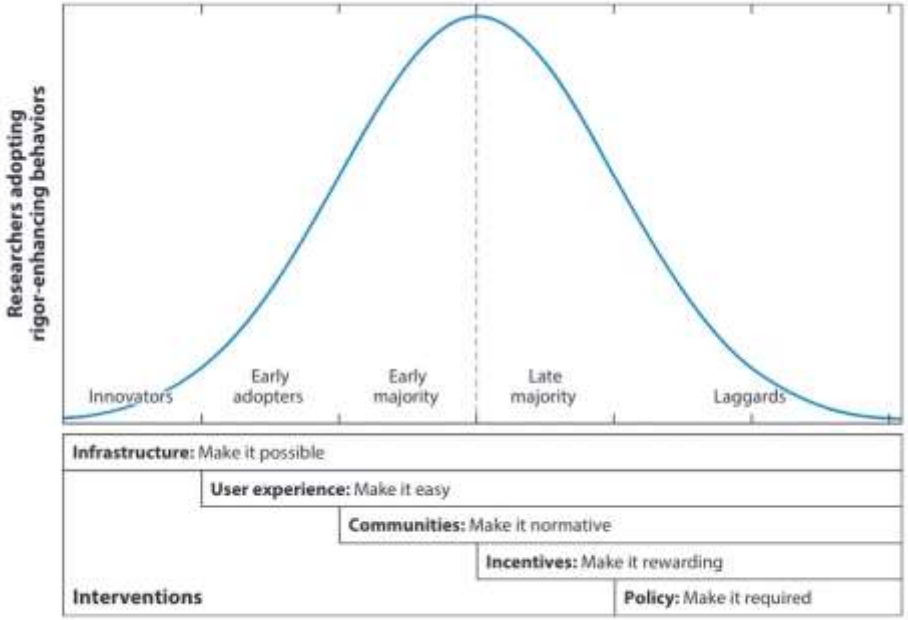


Figure 3

Interdependent interventions for effective culture change extending Rogers's (2003) diffusion model.

Nosek et al., 2022, Ann Rev Psych

为什么(心理)科学积极拥抱开放科学？

心理学研究中的开放实践如何？

开放科学走向何方？

研究全过程的开放与透明: 加速发展

- 基础设施：OSF、scidb.cn、gitee
- 与用户的交互：R、Python、JASP
- 文化共同体：SIPS、PSA
- 政策：DORA、TOP

研究全过程的开放与透明: 加速发展

- 基础设施：OSF、scidb.cn
- 与用户的交互：R、Python、JASP、docker
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研究全过程的开放与透明: 加速发展

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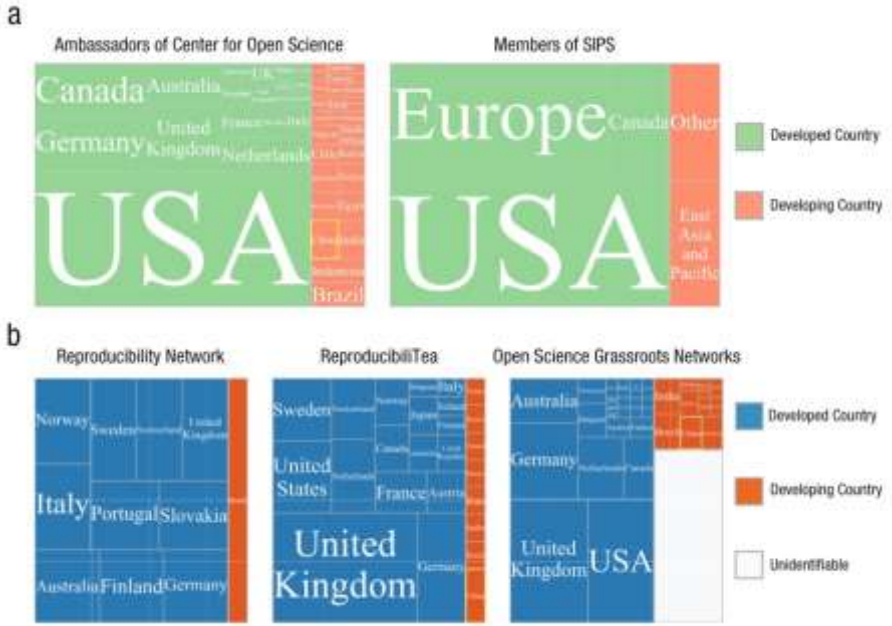
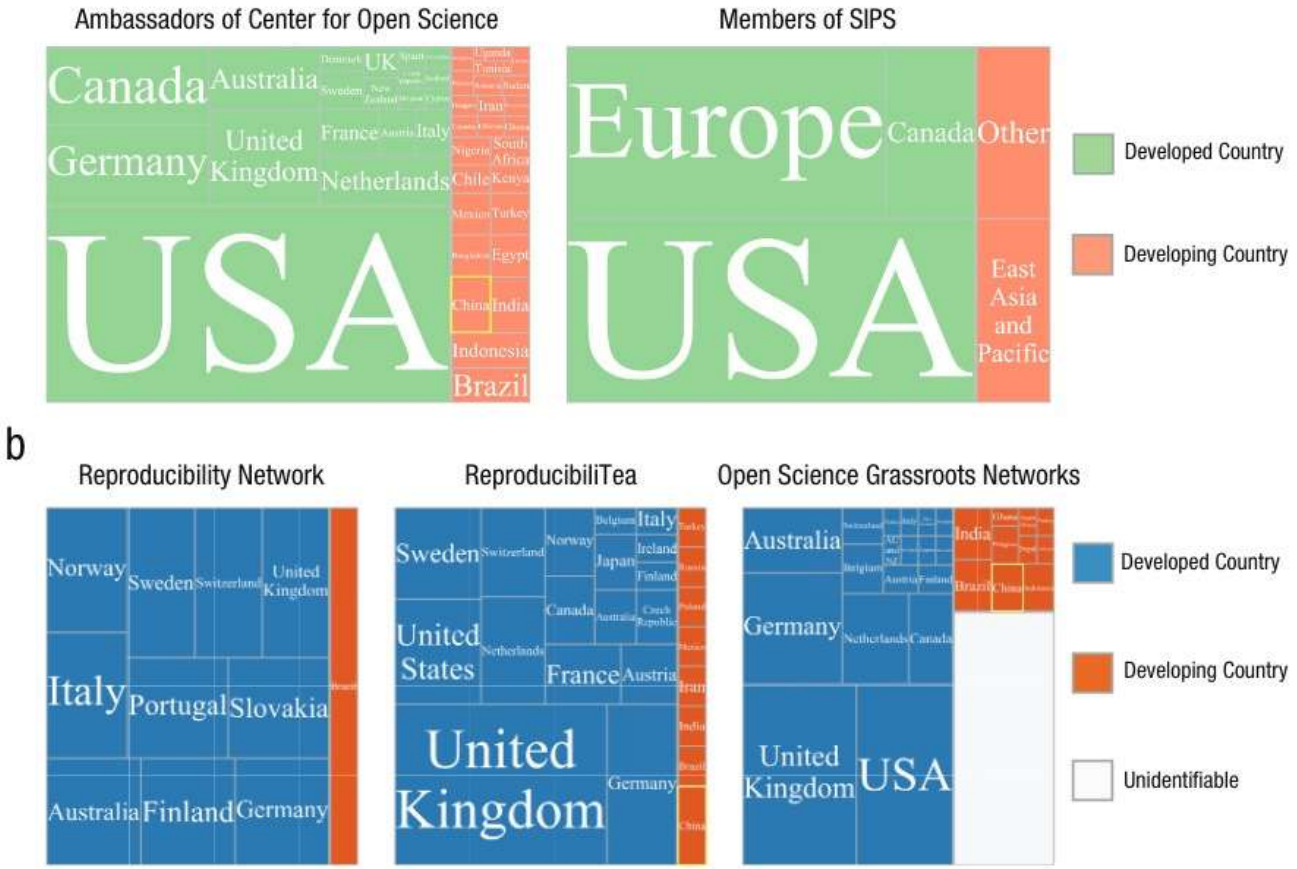


研究

- 基础
- 与用
- 文化
- 政策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United Kingdom
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United States
Netherlands
France
Austria
United Kingdom
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Open Science Grassroots Networks
Australia
India
Germany
Netherlands
Canada
Brazil
United Kingdom
USA
Developed Country
Developing Country
Unidentifiable

研究全过程的开放与透明: 加速发展

- 基础设施：OSF、scidb.cn
- 与用户的交互：R、Python、JASP
- 文化共同体：SIPS、PSA、COSN
- 政策：DORA、TOP

General Article

aps ASSOCIATION FOR PSYCHOLOGICAL SCIENCE

The Chinese Open Science Network (COSN): Building an Open Science Community From Scratch

Advances in Methods and Practices in Psychological Science
January-March 2025, Vol. 8, No. 1, pp. 1–17
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DOI: 10.1177/25152459221149886
www.psychologicalscience.org/AMPPS
SAGE

Haiyang Jin[1], Qing Wang[2,3], Yu-Fang Yang[4], Han Zhang[5], Mengyu (Miranda) Gao[6], Shuxian Jin[7,8], Yanxiu (Sharon) Chen[9], Ting Xu[10], Yuan-Rui Zheng[11,12], Ji Chen[13], Qinyu Xiao[14,15], Jinbiao Yang[16], Xindi Wang[17], Haiyang Geng[18], Jianqiao Ge[19,20], Wei-Wei Wang[21], Xi Chen[22], Lei Zhang[23,24,25], Xi-Nian Zuo[26,27,28], and Hu Chuan-Peng[11]

COSN Chinese Open Science Network

WeChat

Bilibili

研究全过程的开放与透明: 加速发展

- 基础设施：OSF、scidb.cn
- 与用户的交互：R、Python、JASP
- 文化共同体：SIPS、PSA、COSN
- 政策：DORA、TOP、Scientific data

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Comment | Published: 04 March 2019

The life-changing magic of sharing your data

Laurence T. Hunt ✉

Nature Human Behaviour **3**, 312–315(2019) | Cite this article

805 Accesses | **1** Citations | **52** Altmetric | Metrics

The benefits of data sharing to the scientific community are widely agreed upon. But does data sharing also benefit individual scientists? I argue that data sharing may carry tangible benefits to one's own research that can outweigh any potential associated costs.

研究全过程的开放与透明: 加速发展

心理学开放科学苏州倡议

2023年8月12日, 由中国心理学会出版工作委员会主办, 苏州大学教育学院和苏州大学期刊中心承办的全国心理学学术期刊高质量发展联席会议暨《苏州大学学报(教育科学版)》创刊十周年纪念会在苏州召开。

与会者一致认识到, 开放科学所倡导的"可得" "共享" "透明" "再利用" "与社会互动"等理念将有助于提高中国心理学研究的质量、结论的可再现性和成果的影响力, 对更好地服务国家科学决策与增进民众对心理学的认识和信任具有重要帮助。为推动中国心理学事业进一步发展, 与会者经过讨论, 在多个核心提议上达成共识, 并向中国心理学研究者发出以下倡议:

一、提倡心理学研究者在研究实践中秉持开放科学理念, 实现科学研究全流程的公开透明。

二、支持论文在期刊正式发表前以预印本形式公开交流。

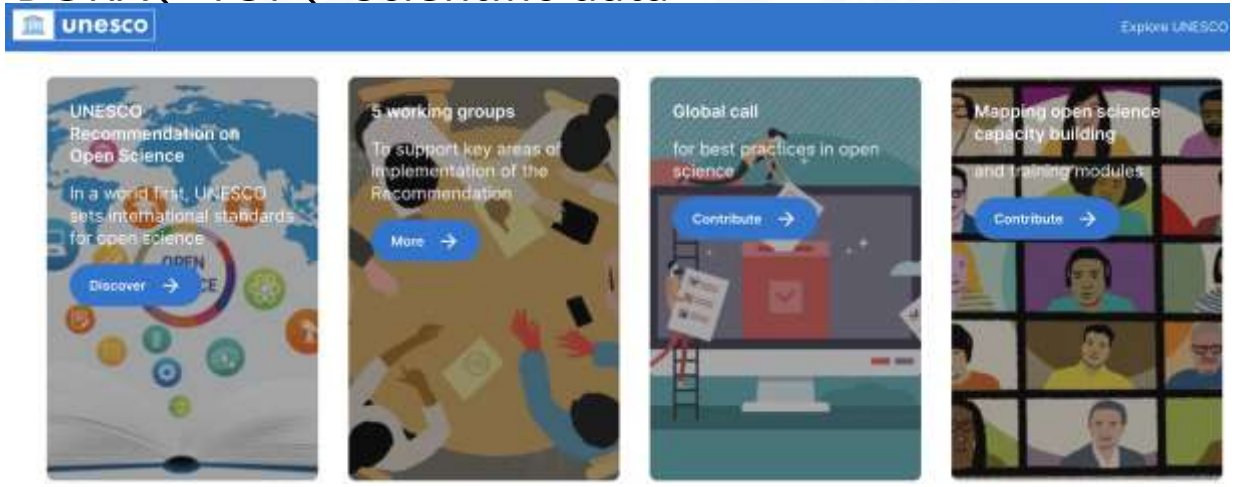
三、倡导在研究开始前进行预注册, 以增加研究透明度。

四、在不违反国家数据相关法律法规的情况下, 强烈建议论文发表的同时, 在符合"可发现" "可访问" "可互操作" "可重用"原则的科学数据平台公开论文关联数据。

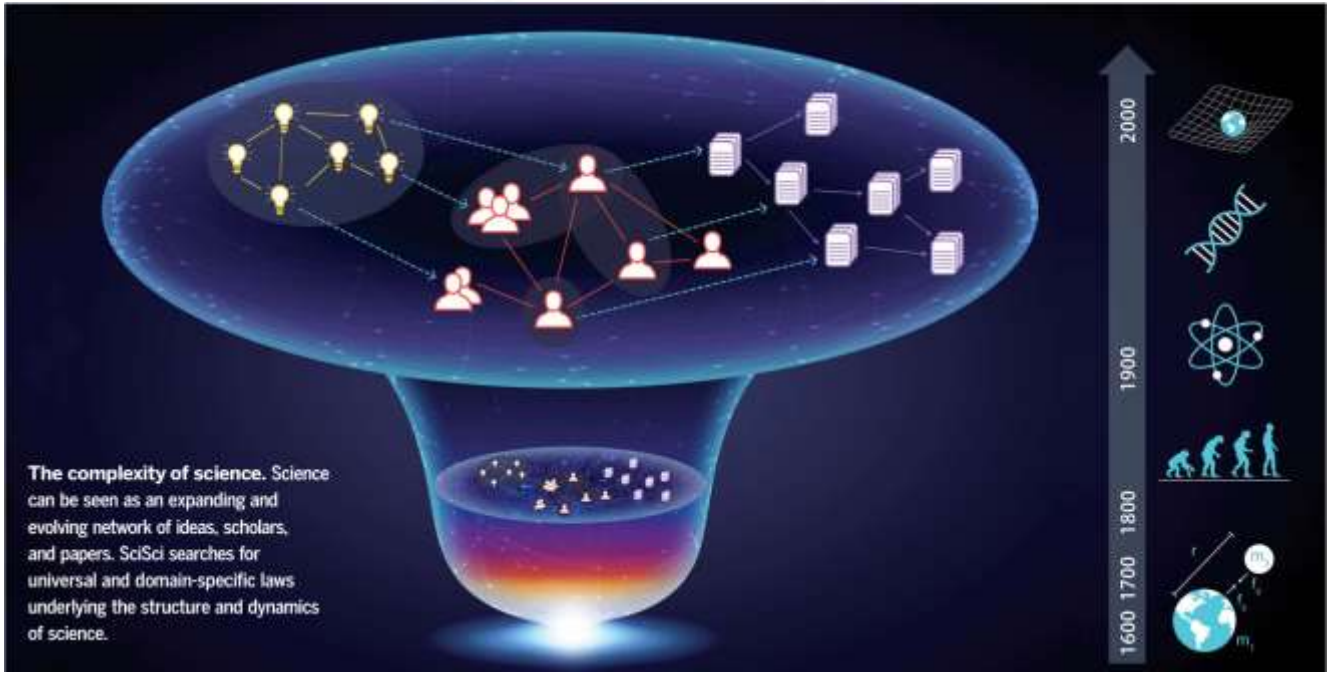
五、积极鼓励将可复现研究过程的关键要素, 如测量工具、实验材料、数据编码、观察记录和程序代码等以论文附件或其他关联形式完全公开。

研究全过程的开放与透明: 加速发展

- 基础设施：OSF、scidb.cn
- 与用户的交互：R、Python、JASP
- 文化共同体：SIPS、PSA、COSN
- 政策：DORA、TOP、Scientific data



- Science of science (Meta-science)



Fortunato et al (2018) *Science*

为什么(心理)科学积极拥抱开放科学？

心理学研究中的开放实践如何？

开放科学走向何方？

当你有无限资源的时候，你最想研究什么问题？

开放科学的趋势与未来

- (基础)研究的初心是什么?
  - 公共资金支持的公共产品?
  - 人类的好奇心?
  - 知识的边界?

开放科学的趋势与未来

- (基础)研究的初心是什么?
  - 公共资金支持的公共产品?
  - 人类的好奇心?
  - 知识的边界?

- 开放科学与(基础)研究的目标完全一致!

开放科学的趋势与未来：走向理想的科研

- 开放科学的接受度持续增加
- 更加深层次渗透于科研、教学与评估
- 更具革命性的科研交流形式正在出现
- 更多支持开放科学的研究机构诞生
- 更加平等与包容的心理学

开放科学的趋势与未来：走向理想的科研

- 开放科学的接受度持续增加
  - Simine Vazire当选为Psych Sci 新主编
  - Nature接收注册报告
  - 开放科学专项基金 (e.g., Einstein Foundation)
  - 导向性政策持续增加

开放科学的趋势与未来：走向理想的科研

- 开放科学的接受度持续增加
- 更加深层次渗透于科研、教学与评估
  - 开放科学相关教学资料日益丰富
  - 招聘与考核时评估开放科学贡献

开放科学的趋势与未来：走向理想的科研

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- 更加深层次渗透于科研、教学与评估
- 更具革命性的科研交流形式正在出现
  - 论文发表形式：PCI-RR、elife、基金会自建平台；
  - Big-Team science；

开放科学的趋势与未来：走向理想的科研

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- 更具革命性的科研交流形式正在出现
- 更多支持开放科学的研究机构诞生
  - Allen Institute

开放科学的趋势与未来：走向理想的科研

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- 更多支持开放科学的研究机构诞生
- 更加平等与包容的心理学
  - 发展中国家的开放科学发展

开放科学的趋势与未来：ECRs

开放科学的趋势与未来：ECRs

愿中国青年都摆脱冷气，
只是向上走，
不必听自暴自弃者流的话。
有一分热，发一分光，
就令萤火一般，
也可以在黑暗里发一点光，
不必等候炬火。

其实地上本没有路，
走的人多了，也便成了路。

https://weibo.com/2803301701/IcbkmfyN2

开放科学的趋势与未来：ECRs

- 观念: 拥抱开放科学、在做中学
- 方法: 学习与传播(新的研究方法、规范)
- 实践: 尝试与突破(新的平台、操作、数据使用等)
- 社区: 参与和贡献(在社区中学习，回馈社区)

开放科学的趋势与未来：ECRs

- 回馈学术社区：
  - 参与国际学术组织（志愿者、领导者）
  - “打杂”（翻译好的开源英文材料、软件等）
  - 参与国际合作进行数据收集（PSA）
  - 改进软件、公开代码等


General Article

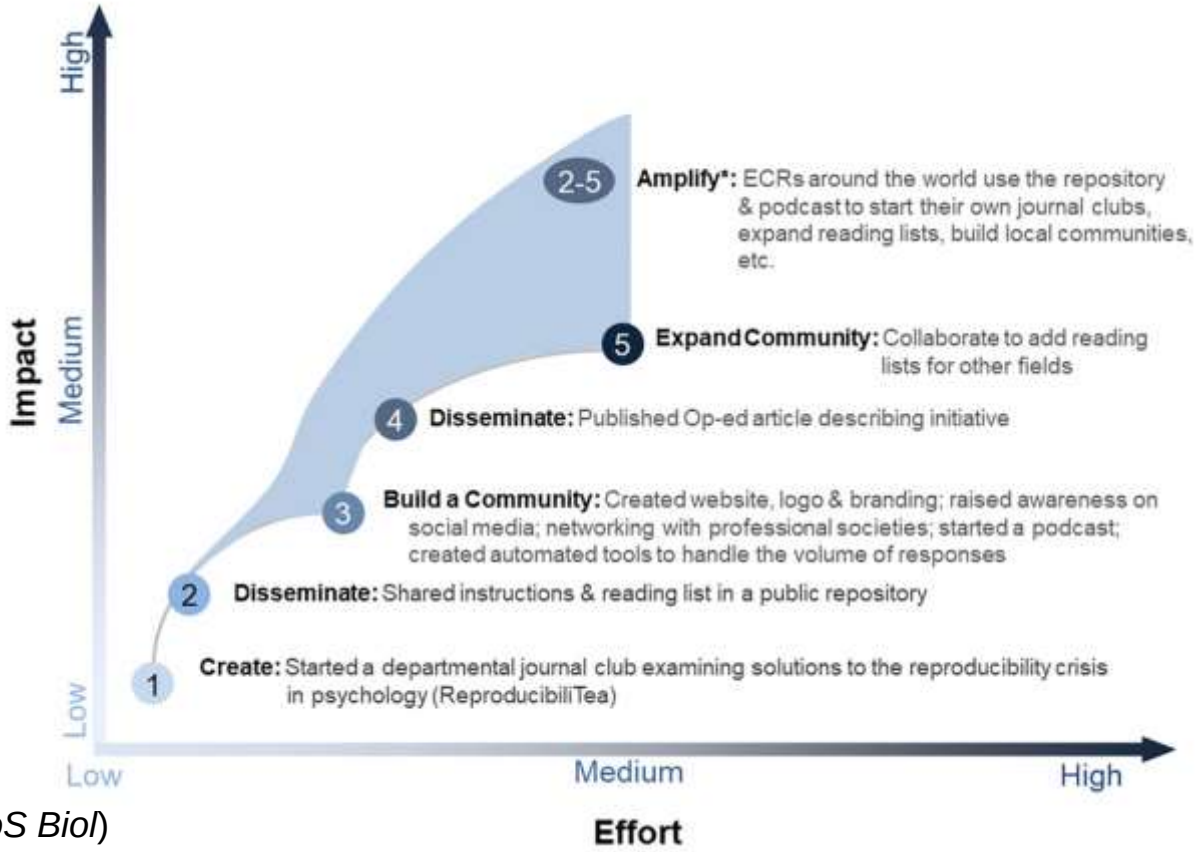
aps ASSOCIATION FOR PSYCHOLOGICAL SCIENCE

The Chinese Open Science Network (COSN): Building an Open Science Community From Scratch

SAGE

Haiyang Jin[1], Qing Wang[2,3], Yu-Fang Yang[4], Han Zhang[5], Mengyu (Miranda) Gao[6], Shuxian Jin[7,8], Yanxiu (Sharon) Chen[9], Ting Xu[10], Yuan-Rui Zheng[11,12], Ji Chen[13], Qinyu Xiao[14,15], Jinbiao Yang[16], Xindi Wang[17], Haiyang Geng[18], Jianqiao Ge[19,20], Wei-Wei Wang[21], Xi Chen[22], Lei Zhang[23,24,25], Xi-Nian Zuo[26,27,28], and Hu Chuan-Peng[1]

开放科学的趋势与未来：ECRs



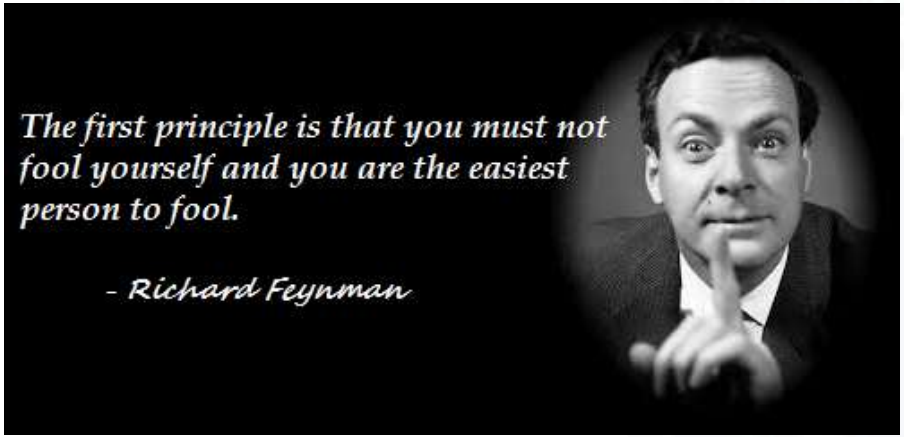
Kent et al (2022, *PloS Biol*)

开放科学的趋势与未来：ECRs

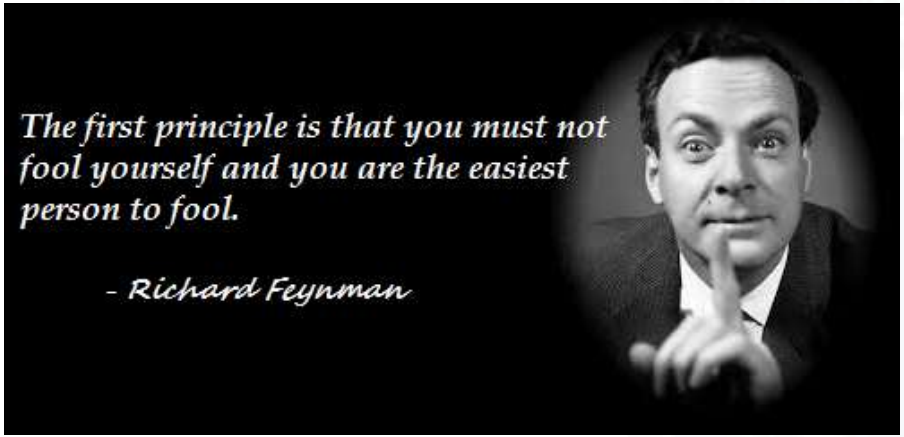
- 观念: 拥抱开放科学、做中学
- 方法: 学习与传播(新的研究方法、规范)
- 实践: 尝试与突破(新的平台、操作、数据使用等)
- 社区: 参与和贡献(在社区中学习，回馈社区)
- **职业规划：将开放科学实践与研究主题深度结合！！！**

https://www.bilibili.com/video/BV1nZ4y1W7Ee?p=26

Take home message



Take home message



致谢

- 感谢南师大心理学院让我在学术界活下来
- 感谢在元研究上与我合作者的同事们:
  - 左西年 教授（北师大）、臧玉峰 教授（杭师大）、甘怡群 教授（北大）、吕小康教授（南开）、王非副教授（清华）、IJzerman教授（法国 Grenoble Alpes）、Forscher博士（肯尼亚 Busara中心）、Sakshi Ghai (Oxford)
  - COSN学术策划小组;
  - COSN编辑/组织团队：王薇薇、胡定之、董海龙、高小小、陈曦、郑元瑞、周诚皓、张译文、李会玲等;
  - 一起撰写方法论文与进行元研究的所有合作者!

Chinese Open Science Network

WeChat

Bilibili

欢迎批评与指正！

Contact:

hcp4715@hotmail.com

被“可重复危机”到关注“可重复性”问题

心理科学进展 2016, Vol. 24, No. 9, 1504–1518
Advances in Psychological Science DOI: 10.3724/SP.J.1042.2016.01504

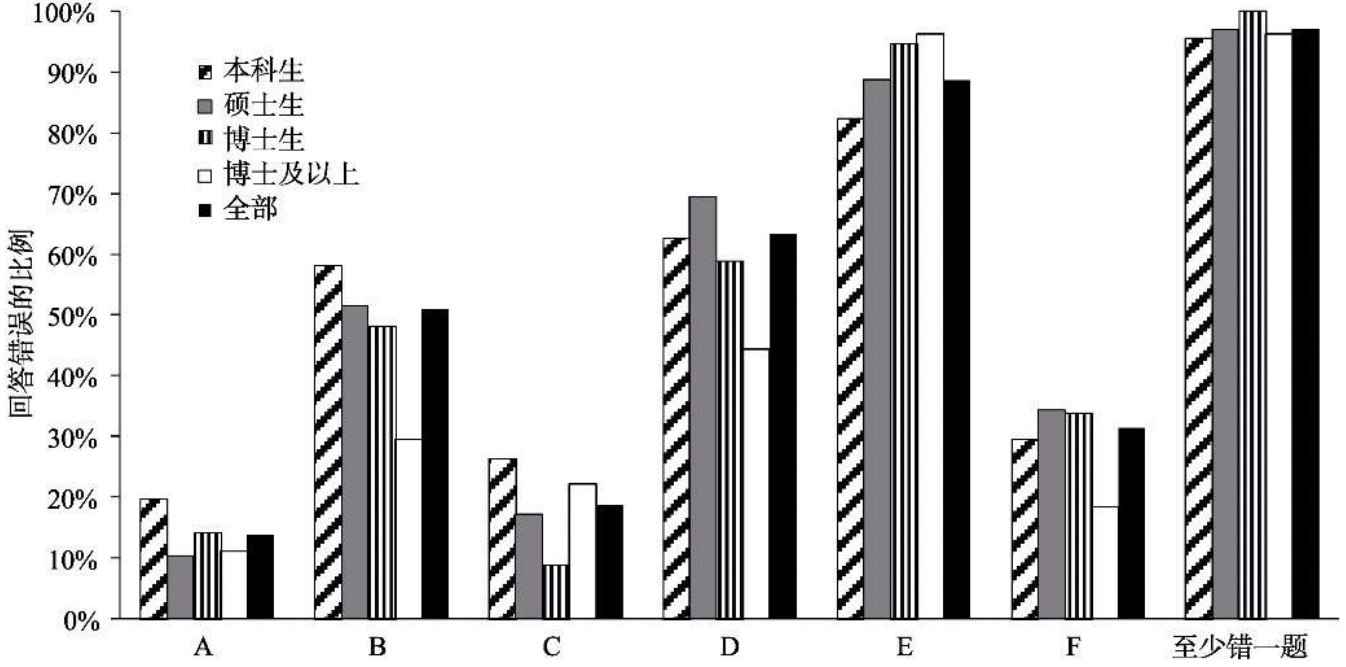
·研究方法(Research Method)·

心理学研究中的可重复性问题：从危机到契机*

胡传鹏[1] 王 非[1] 过继成思[1] 宋梦迪[1] 隋 洁[2] 彭凯平[1]

([1]清华大学心理学系, 北京 100084)
([2] Department of Experimental Psychology, University of Oxford, Oxford, OX1 3UD, UK)

可重复性危机的原因：出版偏见、*p*-hacking、**统计的误用**



胡传鹏等(2016); Z. Lyu et al. (2018)

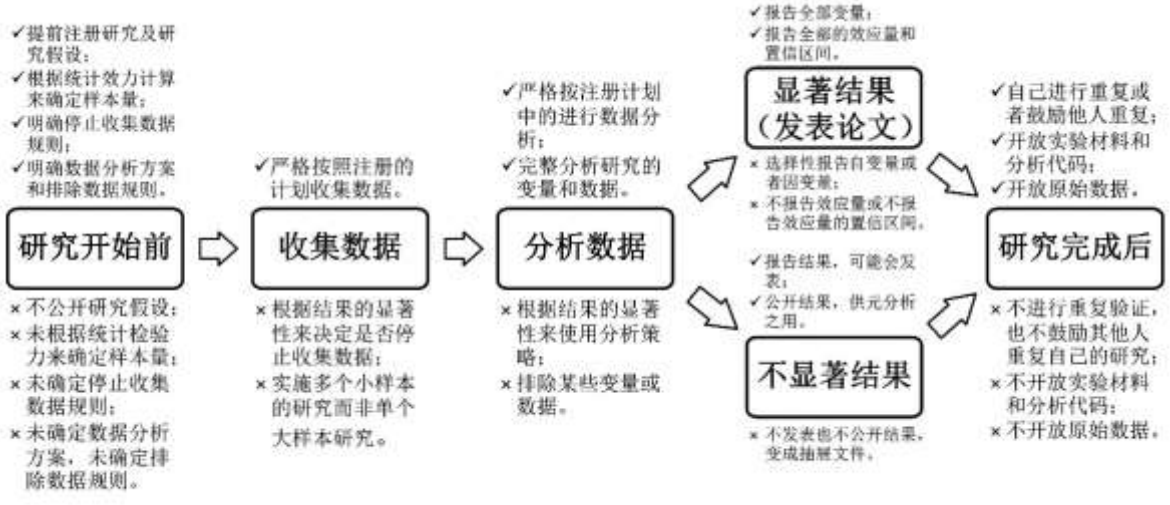


图 3　研究过程中符合公开、透明和开放原则的研究操作(上)以及可疑研究操作(下)。

胡传鹏等(2016

从关注现象到方法学习/传播

- 统计的误用

Journal of Pacific Rim Psychology

www.cambridge.org/prp

Short Report

Beyond psychology: prevalence of *p* value and confidence interval misinterpretation across different fields

Xiao-Kang Lyu[1,#], Yuepei Xu[2,3,#], Xiao-Fan Zhao[1], Xi-Nian Zuo[2] and Chuan-Peng Hu[4,5]

从关注现象到方法学习/传播

- 统计的误用

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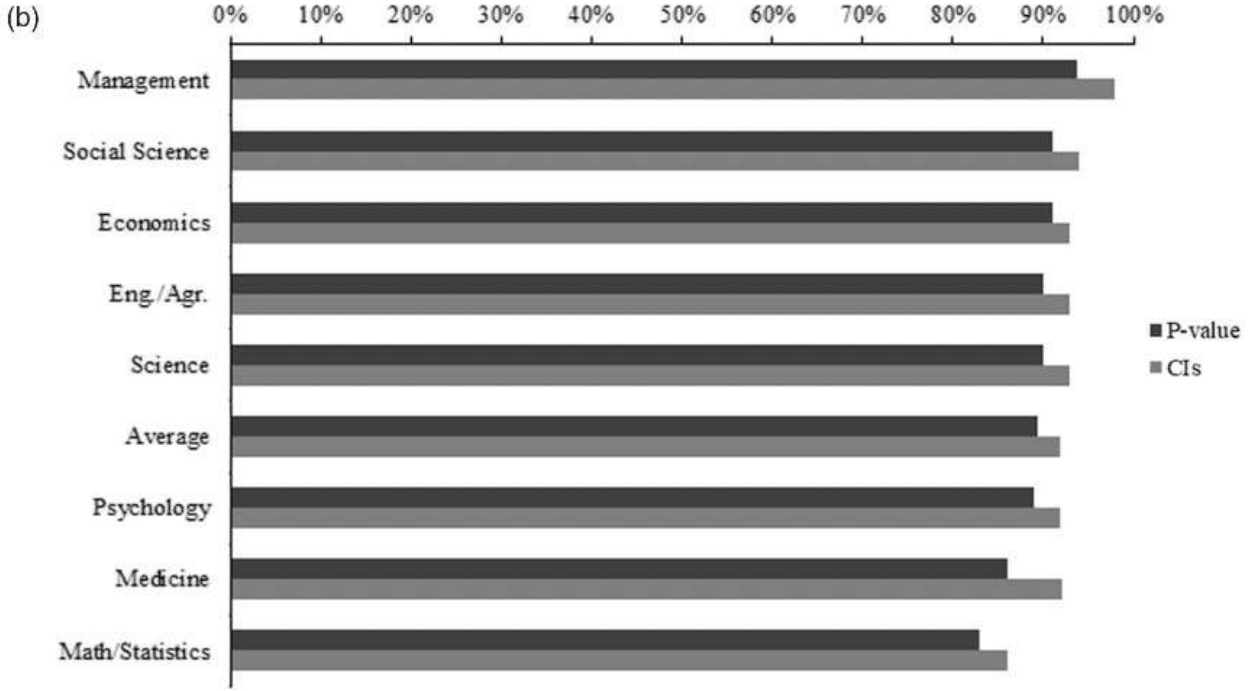

从关注现象到方法学习/传播

- 统计的误用

心理科学进展 2021, Vol. 29, No. 3, 381–393
Advances in Psychological Science

https://dx.doi.org/10.3724/SP.J.1042.2021.00381

·研究方法(Research Method)·

解读不显著结果：基于 500 个实证研究的量化分析

王 珺[1] 宋琼雅[1] 许岳培[2,3] 贾彬彬[4] 陆春雷[5] 陈 璘[6]
戴紫旭[7] 黄之玥[8] 李振江[9] 林景希[10] 罗婉莹[11] 施赛男[12]
张莹莹[13] 臧玉峰[14] 左西年[15] 胡传鹏[16]

([1]中山大学心理学系，广州 510006) ([2]中国科学院行为科学重点实验室（中国科学院心理研究所），北京 100101) ([3]中国科学院大学心理学系，北京 100049) ([4]上海体育学院心理学院，上海 200438) ([5]浙江师范大学教师教育学院，金华 321000) ([6]个人，上海 200122) ([7]华南师范大学心理学院，广州 510631) ([8]Tisch School of the Arts, New York University, New York 11201, the United States) ([9]苏州大学教育学院，苏州 215123) ([10]黑龙江大学教育科学研究院，哈尔滨 150080) ([11]北京大学心理与认知科学学院，北京 100871) ([12]华东师范大学心理与认知科学学院，上海 200063) ([13]西南大学心理学部，重庆 400715) ([14]杭州师范大学认知与脑疾病研究中心，杭州 311121) ([15]北京师范大学认知神经科学与学习国家重点实验室，北京 100875) ([16]Leibniz Institute for Resilience Research, 55131 Mainz, Germany)

从关注现象到方法学习/传播

- 统计的误用

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大团队；
元研究；
年轻人为主；

从关注现象到方法学习/传播

- 统计的误用

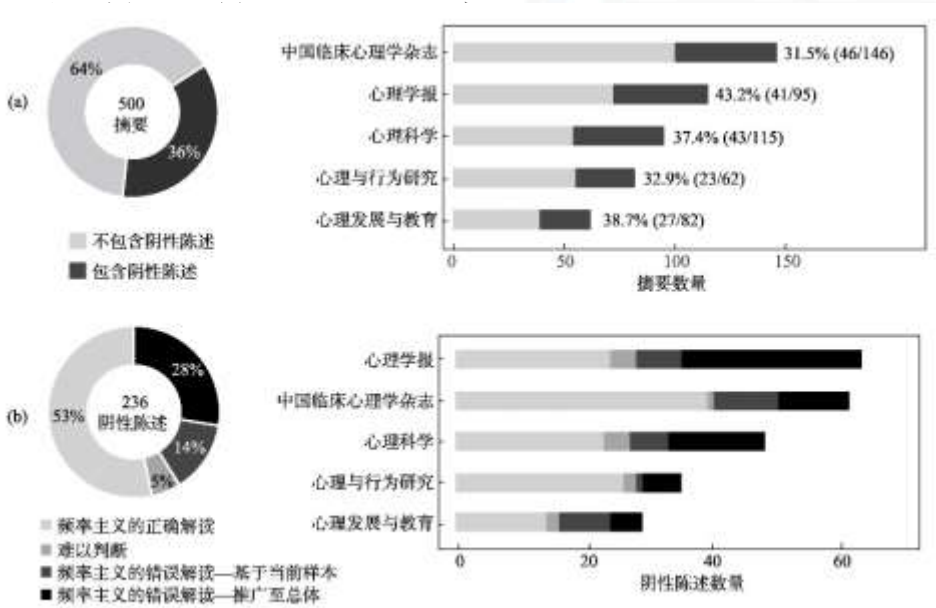

图 2 (a)阴性陈述在不同杂志中的占比; (b)阴性陈述的解读分类在不同杂志中的占比
(注：此分类是基于解读①，见正文关于两种解读的说明)

王珺等2021, 心理科学进

从关注现象到方法学习/传播

- 统计的误用
- 新的（统计）方法
- 规范化使用

应用心理学
2022 年第 28 卷第 3 期，369-384

Chinese Journal of
Applied Psychology
2022. Vol. 28. No. 3, 369-384

评估零效应的三种统计方法

许岳培[1,2]　陆春雷[3]　王　珺[4]　宋琼雅[4]　贾彬彬[5]　胡传鹏[6*]
（1.中国科学院行为科学重点实验室（中国科学院心理研究所），北京 100101；2.中国科学院大学心理学系，北京 100049；3.浙江师范大学心理与脑科学研究院，金华 321004；4.中山大学心理学系，广州 510006；5.上海体育学院心理学院，上海 200438；6.南京师范大学心理学院，南京 210024）

从关注现象到方法学习/传播

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应用心理学
2022 年第 28 卷第 3 期, 369-384

Chinese Journal of
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心理科学进展 2015, Vol. 23, No. 7, 1118–1129
Advances in Psychological Science

DOI: 10.3724/SP.J.1042.2015.01118

• 研究方法(Research Method) •

神经成像数据的元分析*

胡传鹏[1] 邸 新[2] 李佳蔚[1] 隋 洁[1] 彭凯平[1]

([1]清华大学心理学系, 北京 100084)
([2] Department of Biomedical Engineering, New Jersey Institute of Technology, Newark, NJ, USA 07102)

从关注现象到方法学习/传播

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- 规范化使用

应用心理学
2022 年第 28 卷第 3 期, 369-384

心理科学进展 2015, Vol. 23, No. 7, 1118–1129
Advances in Psychological Science

• 研究方法(Research Method) •

神经成像数

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([2] Department of Biomedical Engineering, New Jers

心理科学进展 2018, Vol. 26, No. 6, 951–965
Advances in Psychological Science DOI: 10.3724/SP.J.1042.2018.00951

• 研究方法(Research Method) •

贝叶斯因子及其在 JASP 中的实现

胡传鹏 [1,2] 孔祥祯 [3] Eric-Jan Wagenmakers[4] Alexander Ly[4,5] 彭凯平 [1]

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从关注现象到方法学习/传播

- 统计的误用
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应用心理学
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• 研究方法(Research Method) •

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心理科学进展 2020, Vol. 28, No. 1, 178–190
Advances in Psychological Science DOI: 10.3724/SP.J.1042.2020.00178

• 研究方法(Research Method) •

变量间的网络分析模型及其应用*

蔡玉清 [1] 董书阳 [2] 袁 帅 [3] 胡传鹏 [4,5]

([1] 清华大学人文学院, 北京 100084) ([2] Department of Developmental Psychology, Utrecht University, Utrecht, 3584CS, Netherland) ([3] Department of Methodology and Statistics, Tilburg University, Tilburg, 5037AB, Netherland) ([4] German Resilience Center, Mainz, 55131, Germany) ([5] Neuroimaging Center (NIC), University Medical Centre of the Johannes Gutenberg University, Mainz, 55131, Germany)

51

贝叶斯因子及其在 JASP 中的实现

胡传鹏 [1,2] 孔祥祯 [3] Eric-Jan Wagenmakers [4] Alexander Ly [4,5] 彭凯平 [1]

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从关注现象到方法学习/传播

- 统计的误用
- 新的（统计）方法
- 规范化使用

心理科学进展 2020, Vol. 28, No. 1, 178–190
Advances in Psychological Science DOI: 10.3724/SP.J.1042.2020.00178

·研究方法(Research Method)·

变量间的网络分析模型及其应用*

应用心理学
2022 年第 28 卷第 3 期,
心理技术与应用 2019, Vol.7, No.5, 284–296
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胡传鹏 4,5

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g University, Tilburg, 5037AB, Netherland)
enter (NIC), University Medical Centre of
131, Germany)

·研究方法(F

效应量置信区间的原理及其实现 P 中的实现

王 珺[1] 宋琼雅[1] 许岳培[2] 贾彬彬[3] 胡传鹏[4,5] Alexander Ly[4,5] 彭凯平[1]

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• 研究方法(Research Method) •

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多项式加工树模型在社会心理学中的应用

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([1]武汉大学哲学学院心理学系，武汉，430072）（[2]湖北大学教育学院心理学系，武汉，430062）
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效应量

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开放式荟萃分析的规范化报告

刘宇[1], 陈树铨[2], 樊富珉[1], 邸新[3], 范会勇[4], 封春亮[5], 郭双双[1], 甘怡群[6], 李会杰[7,8], 吕小康[9], 任志洪[10], 徐鹏飞[11], 袁博[12], 左西年[13,14*], 胡传鹏[15*]

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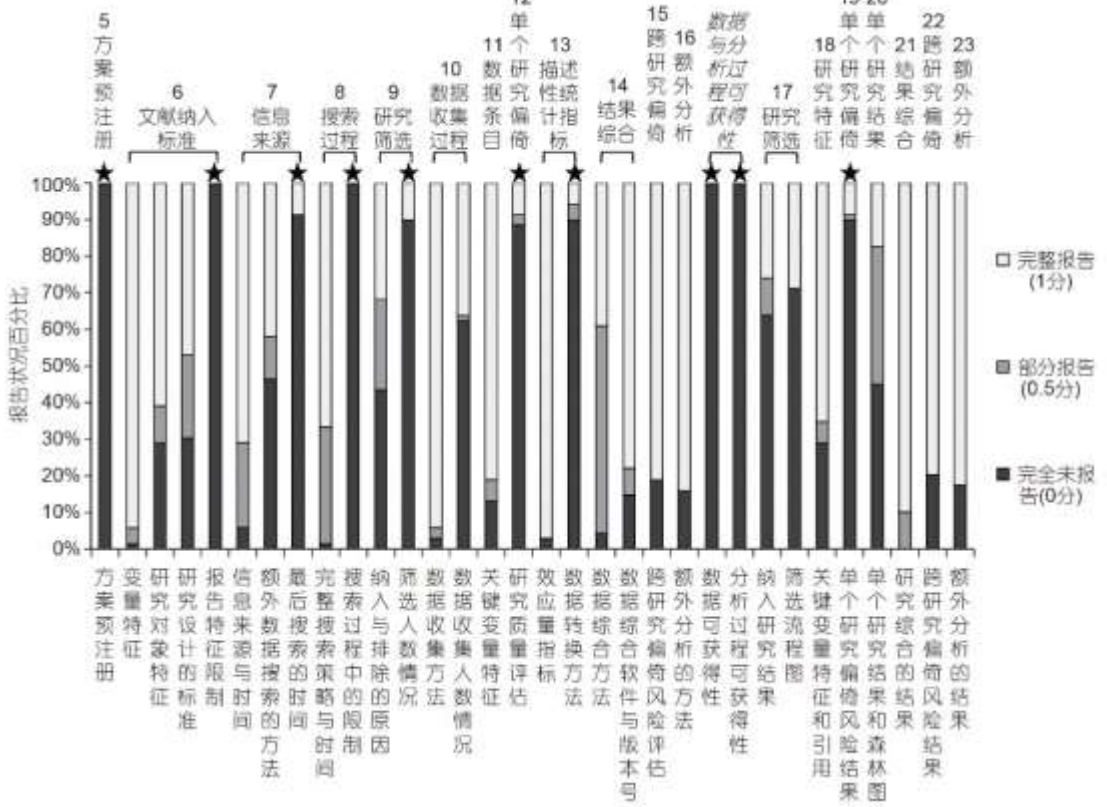

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从方法到关注“理论”

- 理论应该关注什么？
- 理论应该是什么形式？
- 理论是否有不同的层次？
- 理论需要什么样的数据？

从方法到关注“理论”

- 理论应该关注什么？
- 理论应该是什么形式？ → 形式化和数学化（模型）
- 理论是否有不同的层次？
- 理论需要什么样的数据？ → 真实可靠的数据（“扎实的砖头”）

从方法到关注“理论”

- 理论需要什么样的数据？ → 真实可靠的数据（“扎实的砖头”）

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从方法到关注“理论”

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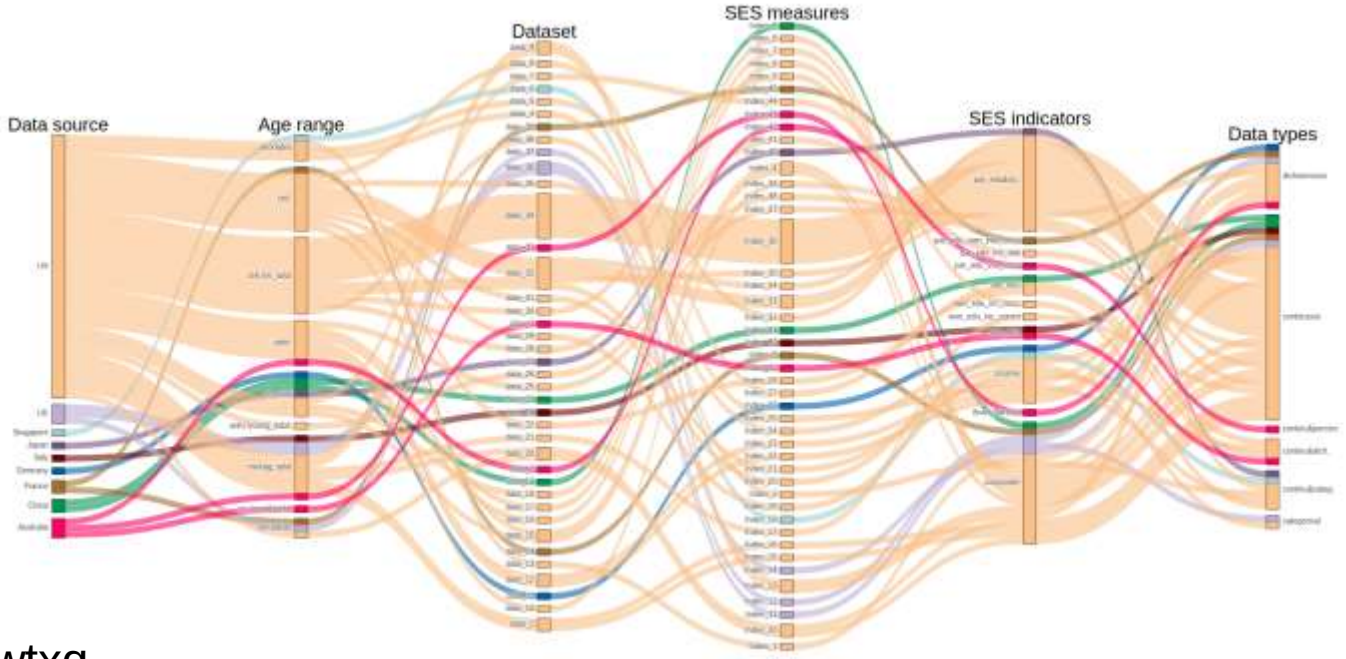

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从方法到关注“理论”

- 理论需要什么样的数据？ → 真实可靠的数据（“扎实的砖头”）

当谈“自我参照”时我们在谈什么：人类神经成像中“自我参照”元研究数据库的初步建构

What are we talking about when we talk about "self-reference": A cognitive ontology database of fMRI-based self-referenc…

作者： 孙淑婷 (1) ; 王楠 (2) ; 温佳慧 (1) ; 胡传鹏 (1) ;

作者单位： 1.南京师范大学心理学院，南京 210024; 2.南京师范大学外国语学院，南京 210024;

提交时间： 2022-07-02

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作者： 孙淑婷 (1) ; 王

作者单位： 1.南京师范

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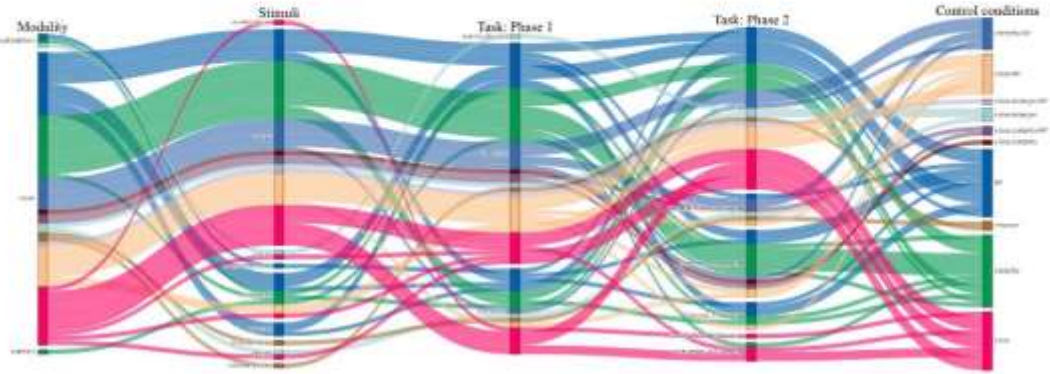

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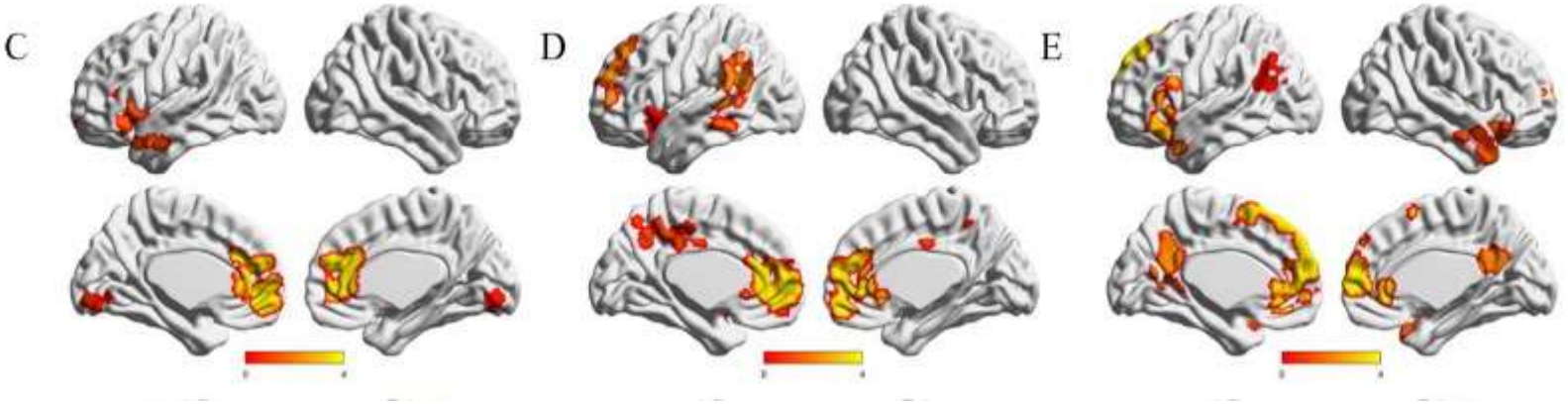

自我 vs. 亲密他人

自我 vs. 名人

自我 vs. 非人物控制条件

从方法到关注“理论”

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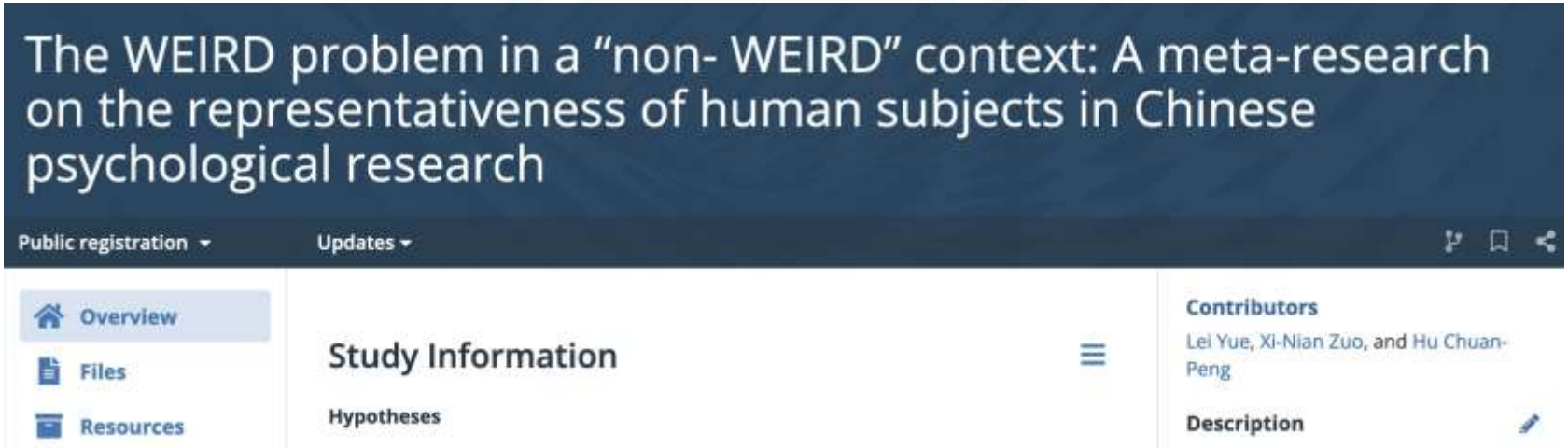

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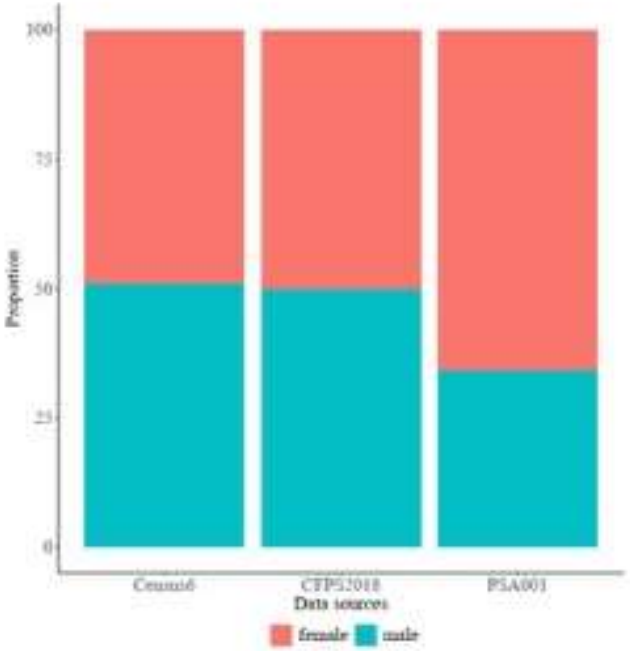

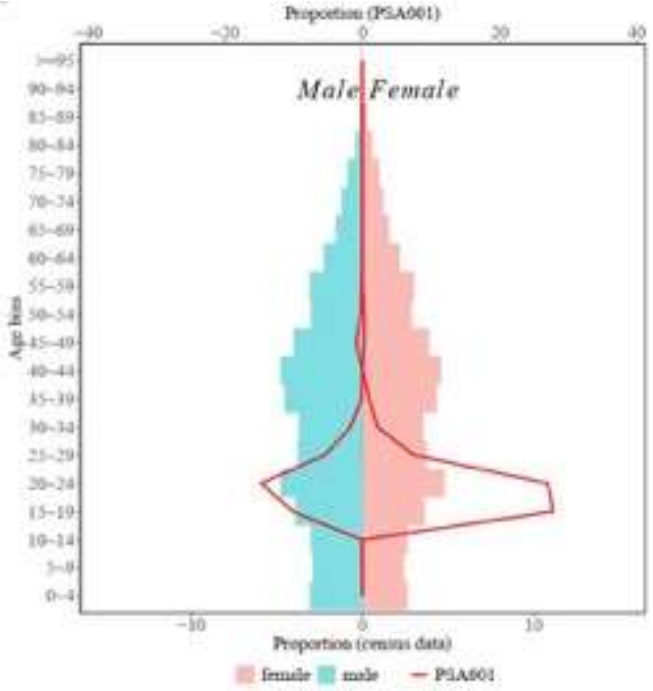

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开放科学：乌托邦还是彻底的数字化？

Scientific Utopia: I. Opening Scientific Communication

Brian A. Nosek & Yoav Bar-Anan

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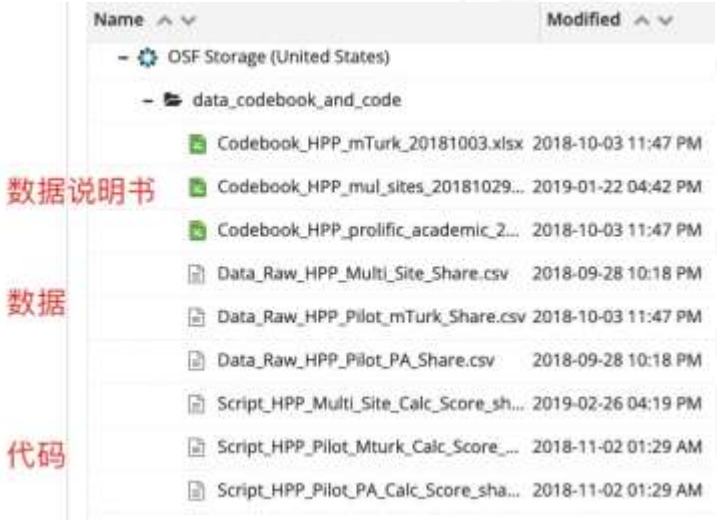

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Science Bulletin

Volume 63, Issue 23, 15 December 2018, Pages 1529-1531

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Commentary

Open science as a better gatekeeper for science and society: a perspective from neurolaw

Chuan-Peng Hu [a], Xiaoming Jiang [b], Ricky Jeffrey [c], Xi-Nian Zuo [d]

数字化+开放/透明

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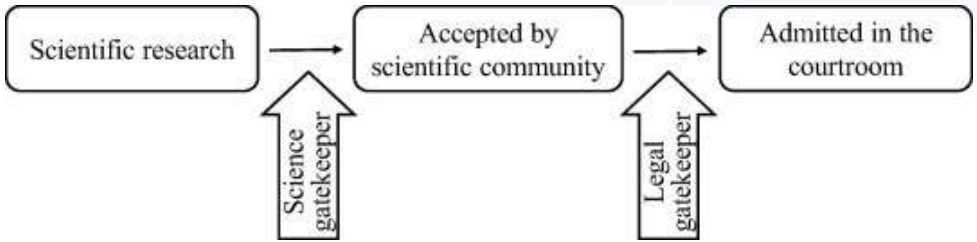

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Any questions?

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