

# Pourquoi faire de la recherche reproductible ?

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Reproductibilité = fiabilité

# Les données de la science sont-elles fiables?

Peut-on les reproduire?

- Psychologie: 100 études, 36% Open Science Collaboration project (2015)
- Economie: 18 études, 66% (Camerer et al. 2016)
- Biologie du cancer: 50 études, 46% (Errington et al., 2021)

(...)

Essay

# Why Most Published Research Findings Are False

John P. A. Ioannidis

## **False-Positive Psychology: Undisclosed Flexibility in Data Collection and Analysis Allows Presenting Anything as Significant**

**Joseph P. Simmons<sup>1</sup>, Leif D. Nelson<sup>2</sup>, and Uri Simonsohn<sup>1</sup>**

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## **Study 2: musical contrast and chronological rejuvenation**

Using the same method as in Study 1, we asked 20 University of Pennsylvania undergraduates to listen to either “When I’m Sixty-Four” by The Beatles or “Kalimba.” Then, in an ostensibly unrelated task, they indicated their birth date (mm/dd/yyyy) and their father’s age. We used father’s age to control for variation in baseline age across participants.

An ANCOVA revealed the predicted effect: According to their birth dates, people were nearly a year-and-a-half younger after listening to “When I’m Sixty-Four” (adjusted  $M = 20.1$  years) rather than to “Kalimba” (adjusted  $M = 21.5$  years),  $F(1, 17) = 4.92, p = .040$ .

**Table 3.** Study 2: Original Report (in Bolded Text) and the Requirement-Compliant Report (With Addition of Gray Text)

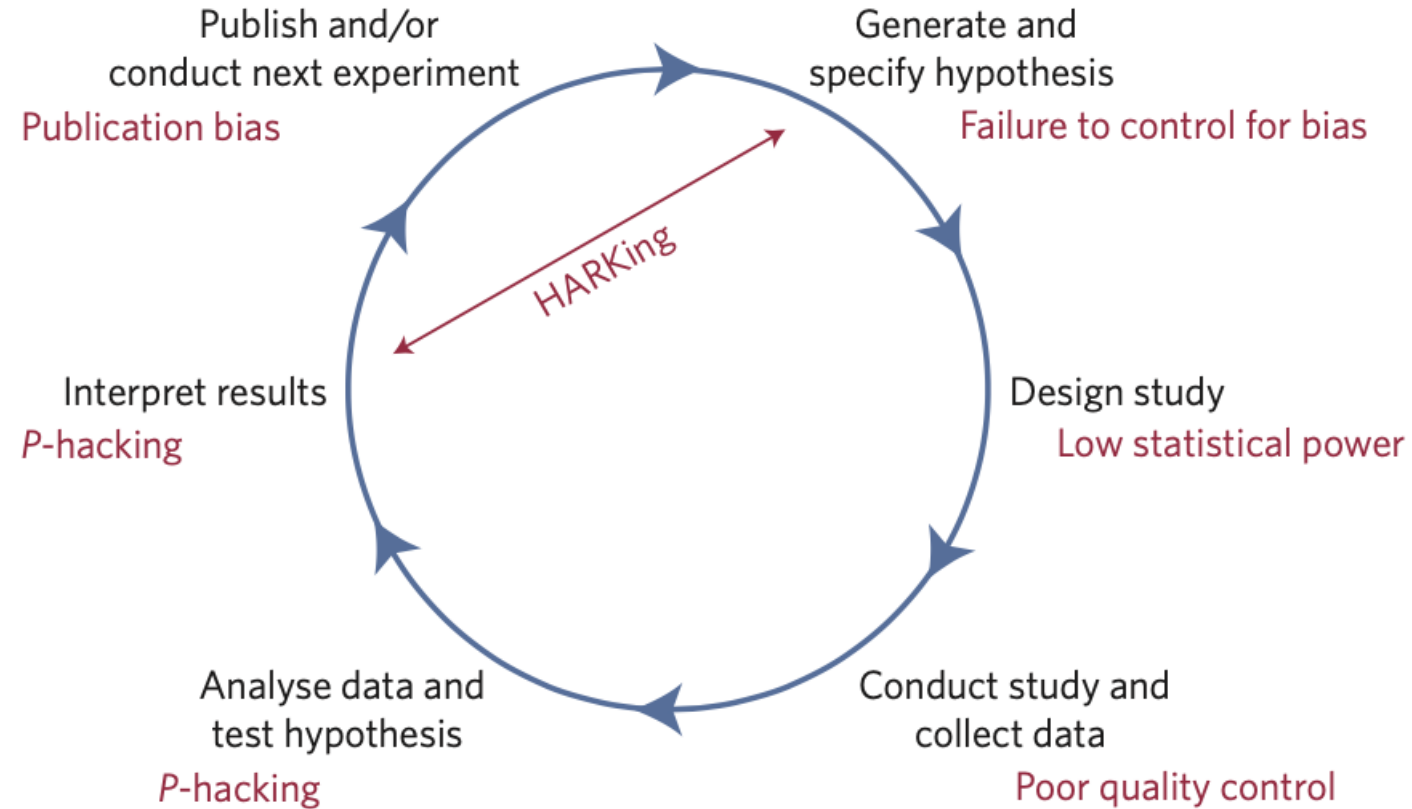
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**Using the same method as in Study 1, we asked 20 34 University of Pennsylvania undergraduates to listen only to either “When I’m Sixty-Four” by The Beatles or “Kalimba” or “Hot Potato” by the Wiggles. We conducted our analyses after every session of approximately 10 participants; we did not decide in advance when to terminate data collection. Then, in an ostensibly unrelated task, they indicated only their birth date (mm/dd/yyyy) and how old they felt, how much they would enjoy eating at a diner, the square root of 100, their agreement with “computers are complicated machines,” their father’s age, their mother’s age, whether they would take advantage of an early-bird special, their political orientation, which of four Canadian quarterbacks they believed won an award, how often they refer to the past as “the good old days,” and their gender. We used father’s age to control for variation in baseline age across participants.**

**An ANCOVA revealed the predicted effect: According to their birth dates, people were nearly a year-and-a-half younger after listening to “When I’m Sixty-Four” (adjusted  $M = 20.1$  years) rather than to “Kalimba” (adjusted  $M = 21.5$  years),  $F(1, 17) = 4.92, p = .040$ .** Without controlling for father’s age, the age difference was smaller and did not reach significance ( $M_s = 20.3$  and  $21.2$ , respectively),  $F(1, 18) = 1.01, p = .33$ .

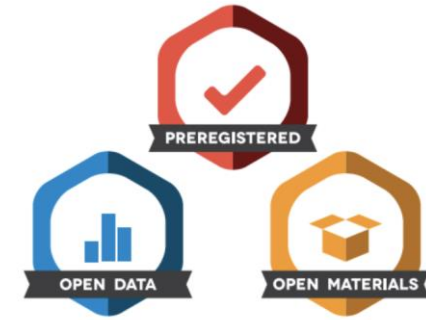
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# Pourquoi?



Munafo et al. (2017)

# Des solutions



- Pré-enregistrement des études
- Détermination des tailles d'échantillons a priori
- Transparence dans procédure (e.g., exclusions)
- Partage du matériel, des données et des scripts d'analyse
- Certification des résultats (CASCAD)

