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How Common is Bad Behavior in Science?

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Description

A short summary of empirical research on the rate of research misconduct and other unacceptable behaviors in science as of July 2016.

Body

This is a summary of recent empirical research on the rate of research misconduct and other unacceptable behaviors in science. This summary includes recent high-profile surveys, but is not comprehensive. Please note that the studies include much more information than is represented here. Please consult the references for more information.

Primarily falsification and fabrication

A. Mail survey of 3,247 (47% response rate) NIH-funded researchers who were asked to report on their own behaviors (Martinson et al. 2005)

1. Dropping data points based on a gut feeling: 15.3%
2. Falsifying or “cooking” research data: 3%
3. Plagiarism: 1.4%

B. Survey of 2,212 (51% response rate) NIH-funded researchers who were asked whether "they had observed or had direct evidence of researchers in their own department committing one or more incidents of suspected research misconduct over the past three academic years" (Titus et al. 2008)

4. 164 (7.4%) reported 201 incidents of misconduct over 3 years – 60% fabrication or falsification, 36% plagiarism only

5. A conservative estimate of 1.5% of the 155,000 NIH-supported researchers (in 2007) yields 2,325 cases of misconduct each year

6. About **24 cases** of research misconduct are reported to the Office of Research Integrity each year (about **0.015%** of researchers, or 1% of the estimated total)

C. Re-analysis of Titus et al. (Swazey 2008)

7. 300 cases/year (about 0.19% of researchers)

D. Meta-analysis of 18 surveys; excludes plagiarism (Fanelli 2009)

8. Self-reported fabrication or falsification: 1.06%

9. Observed fabrication or falsification: 12.34%

10. Self-reported QRP: up to 33.7%

11. Observed QRP: 72%

E. Mail survey of 1,703 (35% response rate) faculty members who were asked to report on their own behaviors (Martinson et al. 2009)

12. Fabrication, falsification, or plagiarism: 8.0%

F. Falsification and fabrication summary, from least incidents to most

[redacted]

Reported to ORI (Titus et al. 2008) ~ 24/year ~ 0.01%/year

Swazey 2008 ~ 300/year ~ 0.19%/year

Titus et al. 2008 ~ 2,300/year ~ 1.5%/year

Martinson et al. 2005 ~ 90 3.0%

Martinson et al. 2009 ~ 136 8.0%

Two items on plagiarism

G. Computer analysis of more than 62,000 Medline abstracts over 12 years for evidence of plagiarism (Errami and Garner 2008)

13. 421 potential duplicates found and human-inspected

14. Duplicates with different authors: 0.04%

15. Duplicates with the same author: 1.35%

16. Approx. 117,500 of 8.7 million abstracts

H. Drop in plagiarism (Reich 2010)

17. “An analysis by Garner in the press at *Urologic Oncology* shows that while the total quantity of biomedical literature has risen steadily since 2000, cases of republication stopped rising after 2003 and fell sharply between 2006 and 2008 (see graph). ‘It actually does look like it’s getting better,’ says Garner. ‘People who would ordinarily step across the line are not doing it.’”

Sources

All links below were verified September 3, 2017.

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Notes

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