Additional file 13. List of 60 misbehaviours with alternative formulations and newly added items from the focus group interviews printed in italics. Newly added and preferred formulations of existing items are printed italic-bold and the former formulation is crossed out.

**Study design**

1. Propose study questions which are clearly irrelevant
2. Choose a clearly inadequate research design or using evidently unsuitable measurement instruments
3. Present grossly misleading information in a grant application
   
   Overpromising future research results in a grant application (knowing it’s impossible to obtain these results)
4. Write no or a clearly inadequate research protocol
5. Ignore substantial safety risks of the study to participants, workers or environment
6. Ignore substantial risks of the expected findings for society or environment
7. Importantly change the research design during the study without disclosure
8. Give insufficient attention to the equipment, skills or expertise which are essential to perform the study
   
   Not keeping up with scientific developments in your field

**Data collection**

9. Collect more data after noticing that the results are almost statistically significant
10. Fabricate data

   Make up data
11. Stop data collection earlier than planned because the results are already statistically significant
12. Not adhere to pertinent laws and regulations
13. Inadequately handle or store data or materials
   *Un-anonymised data storage without consent*

14. Keep inadequate notes of the research process

15. Ignore basic principles of quality assurance

16. *Publish datasets unorganised in an Open Access database that are not usable for interested researchers*

17. **Violating medical ethical guidelines or privacy guidelines**

18. *Inadequate or no power analysis*
   
   *To not conduct a power calculation or sample size calculation, although required*
   
   *Insufficient attention to statistical power in the research design*

   *Change intended sample size after data collection without disclosure*

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**Reporting**

19. *Report on data-driven hypotheses without disclosure*
   
   *Hedging of chances by including more variables (dependent or independent) than the primary study entails in their research protocol*

   *Changing the research question after results are known*

20. *Delete data before performing data analysis without disclosure*

21. *Selectively delete data, modify data or add fabricated data after performing initial data-analytics*
   
   *Sample exclusion or extension to obtain the desired outcome*

   *Searching for a statistical test or statistical package that gives the most significant result*

   *Hiding important information from the data with wrong statistical test*

   *Deleting or removing some part of the data set to get a nice curve or a nice result*

   *Intentional destruction of archaeological or otherwise historical artefacts*
Adjust covariates to get positive results

Selectively including/excluding data without disclosure

Adjust the study’s experimental power until the desired effect can be reported

Intentionally misinterpreting results from a statistical analysis

22. Perform data analyses not stated in the study protocol without disclosure

**Perform post-hoc analyses without disclosure**

23. Report an incorrect downwardly rounded p-value

24. Not report all study protocol-stipulated results

*Failing to disclose all measures collected in a study*

*Selectively choosing primary outcome study*

*Present secondary outcomes as primary if initial primary outcome gives no or little result*

25. Not publish a valid ‘negative’ study

*Only considering to publish a study when the results are negative*

*Not publishing results*

26. Report an unexpected finding as having been hypothesized from the start

27. Conceal results that contradict earlier findings or convictions

28. Not report clearly relevant details of study methods

*Changing the parameters in the method so that other researchers cannot reproduce your results*

*Not sharing all details relevant for reproducing experimental results*

*Not being transparent in reporting*

29. Not report replication problem

**Not reporting of failure to replicate**

30. Selectively cite to enhance own findings or convictions
Intentionally use a selective bibliography

31. Selectively cite to please editors, reviewers or colleagues

Referees that impose citations to their own work

32. Selectively cite or cite own work to improve citation metrics

33. Let own convictions influence the conclusions substantially

Treating an opinion as more valuable than evidence from adequate research.

Lack of doubt or being too convinced about own research to soundly judge its merit

Flexible interpretation of the literature so it fits your hypothesis

34. Insufficiently report study flaws and limitations

35. Spread study results over more papers than needed

Salami slicing: To split one research question/data set into multiple articles to publish more with the same work

Cutting up data and spreading it over as many publications as possible

36. Duplicate publication without disclosure

Submitting/publishing the same material (text) in different journals chapters

37. Re-use parts of own publications without referencing

Self-plagiarism

38. Re-use of previously published data without disclosure

“Double publishing” of similar research more than once

39. Modify the results or conclusions of a study due to pressure of a sponsor or other stakeholder

40. Failure to disclose a sponsor of the study

41. Failure to disclose a relevant financial or intellectual conflict of interest

42. Handle existing conflicts of interest inadequately
43. Communicate results to the general public before a peer reviewed publication is available

44. Deliberately communicate findings inaccurately in the media or during presentations
   
   *Intentionally misrepresenting the scientific literature to the public*

45. Make no clear distinction between personal views and professional comments

46. *Investigating the null hypothesis less thoroughly than the alternative hypothesis*

47. Exaggerate experimental results
   
   *Interpreting results inadequately and present them as spectacular effects with little critical evaluation*

   *Oversell research as more than it is*

48. No critical appraisal of negative aspects of novel methodology

49. Writing a paper too fast without proper and rigorous analysis
   
   *Claiming that something is new or offers a new perspective without proper reading*

50. *Change a manuscript due to pressure from editors or reviewers in a grossly incorrect way in order to get it published*

51. *Overutilization of databases*

52. *Exclusion of outliers without disclosure*
   
   *Deleting or removing some part of the data set to get a nice curve or a nice result*

**Collaboration**

53. Take no full responsibility for the integrity of the research project and its reports

54. Refuse to share data with bona fide colleagues
   
   *Withholding data for reproduction of published work*

   *Treating data as if you “owned” it and other researchers have no rights to use that data*

55. Turn a blind eye to putative breaches of research integrity by others
56. Refuse to respond to an allegation of a breach of research integrity

57. Use unpublished ideas or phrases of others without their permission

   Referees that steal ideas from proposals or manuscripts they need to evaluate
   As a reviewer rejecting a paper and then stealing the ideas from that paper
   Taking PhD students’ or students’ work for publication without
   permission/acknowledgement

58. Use published ideas or phrases of others without referencing

   Steal data or copy findings without consent
   Plagiarism

59. Unfairly review papers, grant applications or colleagues applying for promotion

   Nepotism in grant funding, publication review, promotion, etc.
   To accept papers for conferences or articles for proceedings based on names or
   someone’s status in the field
   Feeling you are obliged to accept a bad paper because it is someone’s PhD student
   Declining or withholding publication from a competitor
   Abuse of referee power

60. Review one’s own submitted manuscripts

61. Demand, accept or offer substantial gifts for doing a favour

62. Insufficiently or inadequately supervise or mentor junior coworkers

   Knowingly supervising a PhD student whilst there is not sufficient knowledge on their
   topic in the research group and failing to direct them elsewhere
   Pressuring junior postdocs and PhDs in “finding” significant effects
   Pressure your PhD student to work on other research projects while PhD student is
   still working on former (PhD) project
Not provide a safe learning environment where they are allowed to learn and make mistakes for more junior researchers

Supervisors writing (part of) chapters for PhD students to guarantee graduation

Intentionally wrong role modelling for junior colleagues to create a culture of fear

63. Gross unfairness to collaborators

Failing to attribute own success to team effort

Not doing your fair share in collaborations

64. Add an author who doesn’t qualify for authorship

Guest authorship

First authorship or co-authorship without doing significant work

65. Demand or accept an authorship without significant contribution

66. Omit a contributor who deserves authorship

Guest writing a paper for someone else

67. Not acknowledge contributors who do not qualify for authorship

68. Not ask permission from contributors for the wording of the acknowledgement

69. Not share reviewers’ comments with all co-authors

70. Submit or resubmit a paper or grant application without consent from all authors

71. Misuse of research grants for unintended purposes