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| **Major and minor misbehavior items (**Developed by Bouter LM, Tijdink J, Axelsen N, Martinson BC, ter Riet G. Ranking major and minor research misbehaviors: results from a survey among participants of four World Conferences on Research Integrity. Research integrity and peer review. 2016;1(1):17. doi:10.1186/s41073-016-0024-5) |
| **Study design** |
| 1. Propose study questions which are clearly irrelevant [including questions that have already been or could be answered adequately by a systematic review of the literature] |
| 2. Choose a clearly inadequate research design or using evidently unsuitable measurement instruments [which will not lead to a valid, reproducible and efficient answer to the main study question, taking into account the state‐of‐the‐art in the field at issue] |
| 3. Present grossly misleading information in a grant application |
| 4. Write no or a clearly inadequate research protocol [in which essential details are lacking] |
| 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 [or – if applicable‐ without permission of sponsor, Institutional Review Board or Institutional Animal Care and Use Committee] |
| 8. Give insufficient attention to the equipment, skills or expertise which are essential to perform the  Study |
| **Data collection** |
| 9. Collect more data after noticing that the results are almost statistically significant [unless specified in a predefined adequate plan for interim analysis – also called ‘peeking’] |
| 10. Fabricate data |
| 11. Stop data collection earlier than planned because the results are already statistically significant  [unless predefined stopping rules are implemented appropriately ‐ also called ‘peeking’] |
| 12. Not adhere to pertinent laws and regulations [including the laws and regulations for human and animal studies, safety regulations, good clinical practice, good laboratory practice etc.] |
| 13. Inadequately handle or store data or (bio)materials [including archiving for an appropriate period] |
| 14. Keep inadequate notes of the research process [with (digital) lab journals or its equivalent in other types of research] |
| 15. Ignore basic principles of quality assurance |
| **Reporting**  16. Report on data‐driven hypotheses without disclosure [‘HARKing’ ‐ Hypothesizing After Results are Known ‐ typically with a view to make results to appear more spectacular (‘Chrysalis effect’)] |
| 17. Delete data before performing data analysis without disclosure |
| 18. Selectively delete data, modify data or add fabricated data after performing initial data‐analyses  [in other words: falsification or fabrication of data] |
| 19. Perform data‐analyses not stated in the study protocol without disclosure  [or in predefined data‐analysis plan – also called ‘Significance chasing’, ‘P‐hacking’, ‘data dredging’, ‘fishing expedition’ or explorative subgroup analyses]  20. Report an incorrect downwardly rounded p‐value  [e.g. by reporting a p value of .054 as being less than .05] |
| 21. Not report all study protocol‐stipulated results  [in the aggregate of all published reports on the study at issue]  22. Not publish a valid ‘negative’ study  [in a form that is publicly available or accessible behind a paywall (article, report, website etc.)] |
| 23. Report an unexpected finding as having been hypothesized from the start |
| 24. Conceal results that contradict your earlier findings or convictions |
| 25. Not report clearly relevant details of study methods |
| 26. Not report replication problems |
| 27. Selectively cite to enhance your own findings or convictions |
| 28. Selectively cite to please editors, reviewers or colleagues |
| 29. Selectively cite or cite your own work to improve citation metrics [e.g. Impact Factor, H‐index] |
| 30. Let your convictions influence the conclusions substantially  31. Insufficiently report study flaws and limitations |
| 32. Spread study results over more papers than need [‘salami slicing’] |
| 33. Duplicate publication without disclosure |
| 34. Re‐use of previously published data without disclosure |
| [which may lead to double counting in meta‐analyses] |
| 35. Modify the results or conclusions of a study due to pressure of a sponsor  [commercial or not‐for‐profit funder of the study] |
| 36. Failure to disclose a sponsor of the study |
| 37. Failure to disclose a relevant financial or intellectual conflict of interest  [in publications, when reviewing grant proposals, or evaluating persons or institutions] |
| 38. Handle existing conflicts of interest inadequately |
| 39. Communicate results to the general public before a peer reviewed publication is available |
| 40. Deliberately communicate findings inaccurately in the media or during presentations |
| 41. Make no clear distinction between personal views and professional comments  **Collaboration** |
| 42. Take no full responsibility for the integrity of the research project and its reports |
| 43. Refuse to share data with bona fide colleagues |
| 44. Turn a blind eye to putative breaches of research integrity by others |
| 45. Refuse to respond to an allegation of a breach of research integrity |
| 46. Use unpublished ideas or phrases of others without their permission [e.g. from reviewing manuscripts or grant applications, or from conference presentations ‐ this is one of the forms plagiarism can take] |
| 47. Use published ideas or phrases of others without referencing [this is one of the forms plagiarism can take] |
| 48. Re‐use parts of your own publications without referencing [‘self‐plagiarism’] |
| 49. Unfairly review papers, grant applications or colleagues applying for promotion |
| 50. Review your own papers |
| 51. Demand, accept or offer substantial gifts for doing a favor [e.g. authorship, promotion, access to data, favorable review or recommendation] |
| 52. Insufficiently supervise or mentor junior coworkers  53. Be grossly unfair to your collaborators [e.g. in terms of a just balance of benefits and burdens, including giving those who deserve the opportunity to qualify as author] |
| 54. Add an author who doesn’t qualify for authorship |
| [‘honorary or gift authorship’] |
| 55. Demand or accept an authorship for which you don’t qualify [‘honorary or gift authorship’] |
| 56. Omit a contributor who deserves authorship [‘ghost authorship’] |
| 57. Not acknowledge contributors who do not qualify for authorship |
| 58. Not ask permission from contributors for the wording of the acknowledgement |
| 59. Not share reviewers’ comments with all co‐authors |
| 60. Submit or resubmit a paper or grant application without consent from all authors |