

1 Easystats: A Collaborative, Open, Innovative and User-friendly Collection of Tools for
2 Data Science

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Abstract

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20 *Keywords:* R, easystats, statistics, best practices, open science

21 Word count: 9999

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23 Data Science

24 There was a time when most of applied researchers - psychologists, sociologists or
25 political scientists, progressed through their career by happily using the few statistical
26 procedures at their disposal, such as correlations, t -tests or ANOVAs). But such time is
27 over.

28 The explosion of computational power, accompanied by theoretical breakthroughs
29 for instance in machine learning or probabilistic computing, has deeply transfigured the
30 field of statistics. As a result, the amount of cutting-edge statistical algorithms has never
31 been so large and most importantly, so available. Indeed, most of these complex techniques
32 are at one copy-pasting away, being implemented in free and open-source software such as
33 R (R Core Team, 2019) and Python.

34 On top of that accessibility explosion, the recent reproducibility crisis has recently
35 shattered the quality standards and practices, pressuring researchers to adopt new tools
36 and methodologies. Unfortunately, most of the them lack training in statistics and
37 computer science to fully take advantage of this new landscape. As a consequence, many
38 scientists find themselves crushed between these two antagonistic forces of availability and
39 demand. For the first time, a part of science is becoming limited by the expertise rather
40 than the tools.

41 Understandably, this “methodological availability/demand” paradox can contribute
42 to the negative feelings (reported for instance by students and young researchers)
43 surrounding the methodological and statistical aspects of a scientific study. Moreover, this
44 conflict can also become a threat to the academic publishing system, as finding expert (or
45 just competent enough) reviewers for all the methods becomes a dilemma for editors
46 (adding up to the already existing problem inherent to the current peer-review model). In
47 turn, misused methods (and thus misinterpreted results) can pervade academic literature,

48 aggravating in turn the crisis of trust toward science.

49 Thus, what could be done to ease and facilitate the transition or teaching of
50 researchers into the post open science revolution world? It is in this multidimensional
51 context that the *easystats* project attempts to make a small contribution to the answers.

52 Purpose

53 Why esystats and what does it bring to the table.

54 Philosophy

55 the pillars such as openness & colaborativeness, but also intuitiveness, easiness of use
56 etc.

57 Design

- 58 • Lightweight (limit dependencies).
- 59 • Full function names (and clusterable)

60 an example of how for instance `report(1m)` builds on all the other packages,
61 integrating many functions to provide this high-level, user-friendly output.

62 Features

63 description and aim of each package

64 **insight**

65 **bayestestR**

66 **performance**

67 **parameters**

68 **estimate**

69 **correlation**

70 Useful for network models, a new methodological field on the rise in psychological
71 science (Epkamp etc.).

72 **report**

73 **see**

74

Future Directions

75 Take over the world.

76

References

- 77 R Core Team. (2019). *R: A language and environment for statistical computing*. Vienna,
78 Austria: R Foundation for Statistical Computing. Retrieved from
79 <https://www.R-project.org/>