

## Questionable research practices, low statistical power, publication bias, and the current replicability crisis

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Seminar Room A, Department of Education, 15 Norham Gardens, Oxford OX2 6PY

In recent years, there is a growing understanding that empirical sciences are in a state of crisis: the replicability crises. In diverse areas, such as cancer research, neuroscience or social psychology, systematic attempts at replicating pivotal research findings fail in the majority of cases. In this talk, I will present the scope of this problem and then attempt to map its causes. These include data fabrication, as well as honest errors in data analysis and reporting; "Questionable Research Practices" (QRP, techniques that allow to reach the Holy Grail of  $p < .05$ ), especially HARKing (Hypothesizing After Results are Known); and thoughtless application of the dominant Null Hypothesis Statistical Testing (NHST) approach. Then I will review several practices intended to improve the quality of reported research that currently gain in popularity: using larger samples; pre-registration of research hypotheses, methods, and analyses; formal statements assuring the full report of all relevant information in a publication; detailed method description in on-line supplements; public data sharing; and having statisticians involved in all the stages of research planning and implementation. The change in existing practices is slow, but it is confidently spreading to more and more scientific disciplines.

### Bio note

Ilan Roziner is a lecturer in the Communication Disorders Department at Tel Aviv University, Israel, where he also earned his Ph.D. in Social Psychology. His interests focus on practices of assessment and evaluation, research methodology, and advanced statistical applications, such as Structural Equation Modeling and Random Coefficient Modeling. In the past, Ilan served as a head of the Organizational Surveys Sector in Government and was a co-founder and director of a private applied research service. He consults government agencies, non-profit organizations, and academic researchers in the methodology of assessment and evaluation of programs in social welfare, education, and public health. He is a happy father of two, drinks craft ales, and shoots recurve bow.