

# Replication validity of initial association studies: a comparison between psychiatry, neurology and four somatic diseases.

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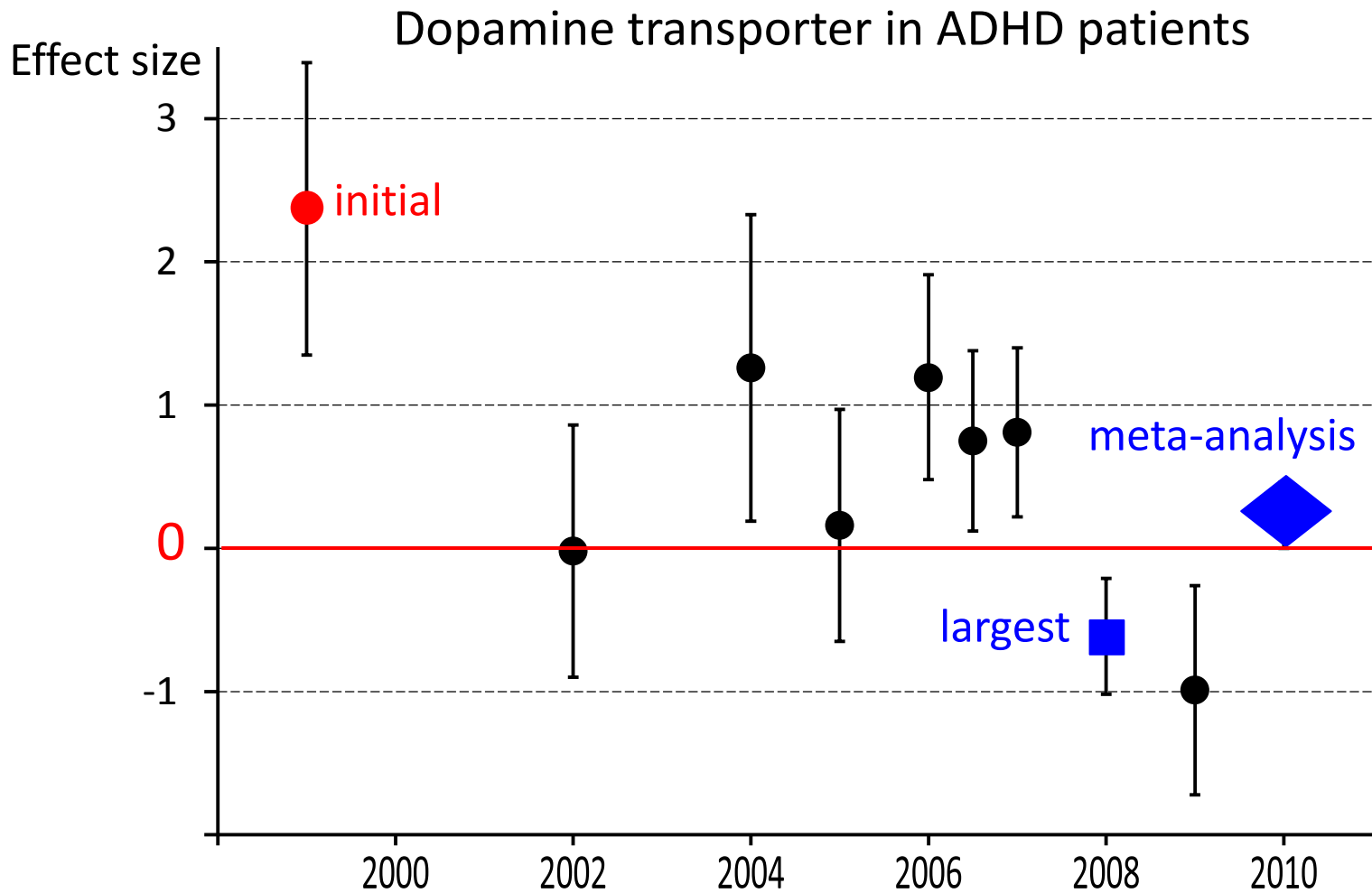
Thomas Boraud (*University of Bordeaux*)

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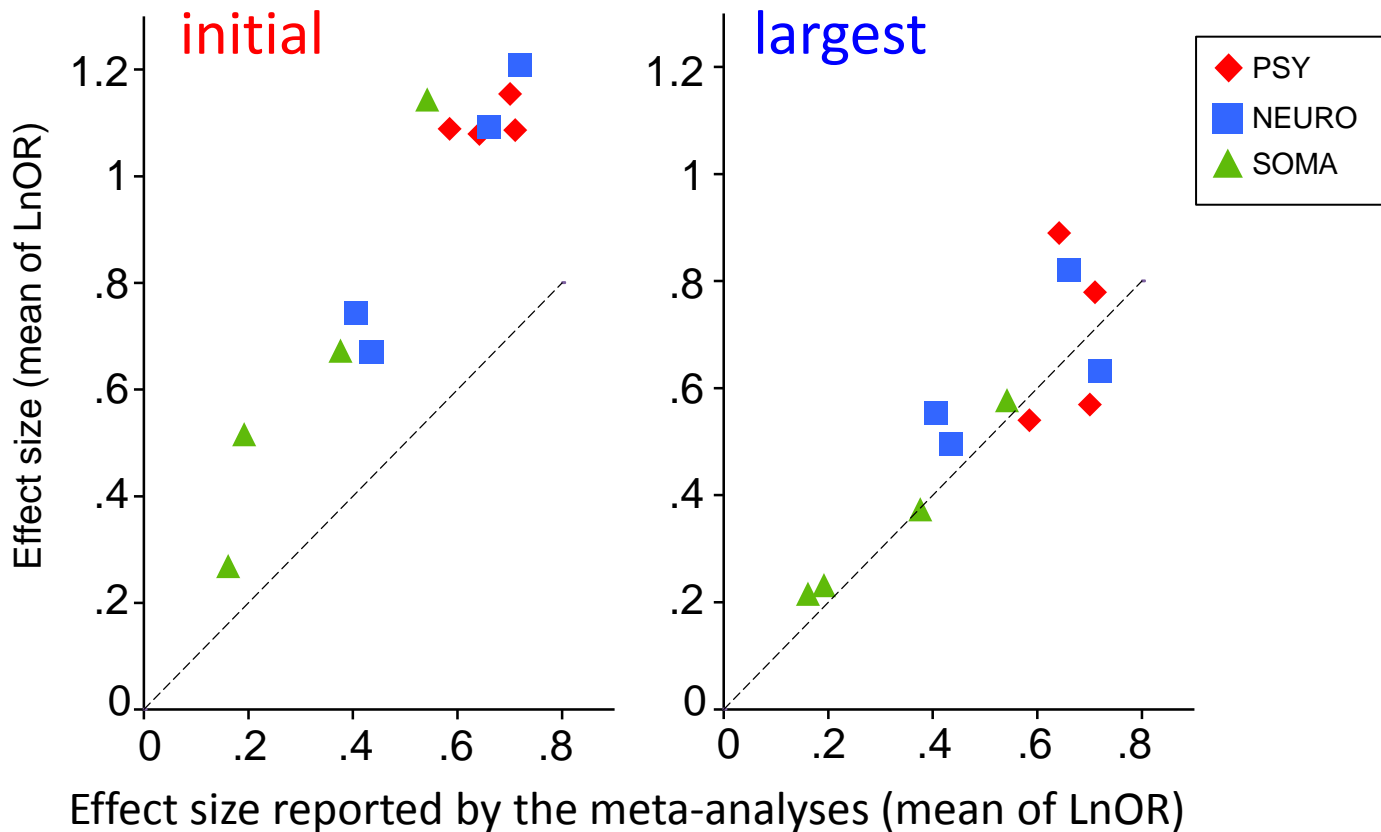
François Gonon (*University of Bordeaux*)

Dumas-Mallet, E., Button, K., Boraud, T., Munafo, M., & Gonon, F. (2016). Replication Validity of Initial Association Studies: A Comparison between Psychiatry, Neurology and Four Somatic Diseases. *PLoS ONE*, 11(6), e0158064.

# Initial studies are often disconfirmed by subsequent studies

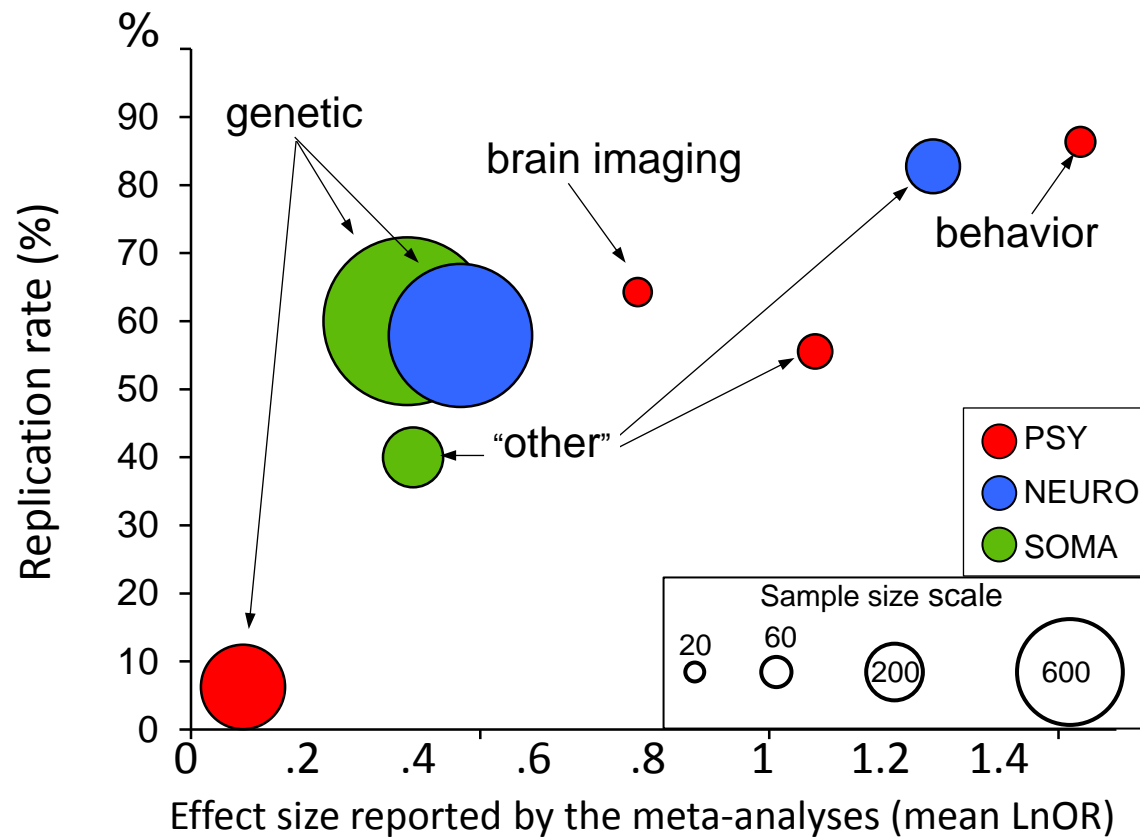


# 663 initial studies and their corresponding meta-analyses



- 1) Effect size reported by most initial studies is inflated compared to the meta-analysis.
- 2) This is not the case regarding largest studies.
- 3) Among the 359 initial studies reporting a significant effect, 56 % were either disconfirmed or strongly attenuated by the meta-analysis.

232 initial studies reporting a significant effect and paired with robust meta-analyses:  
the replication rate increases with the sample sizes and decreases with "true" effect sizes.

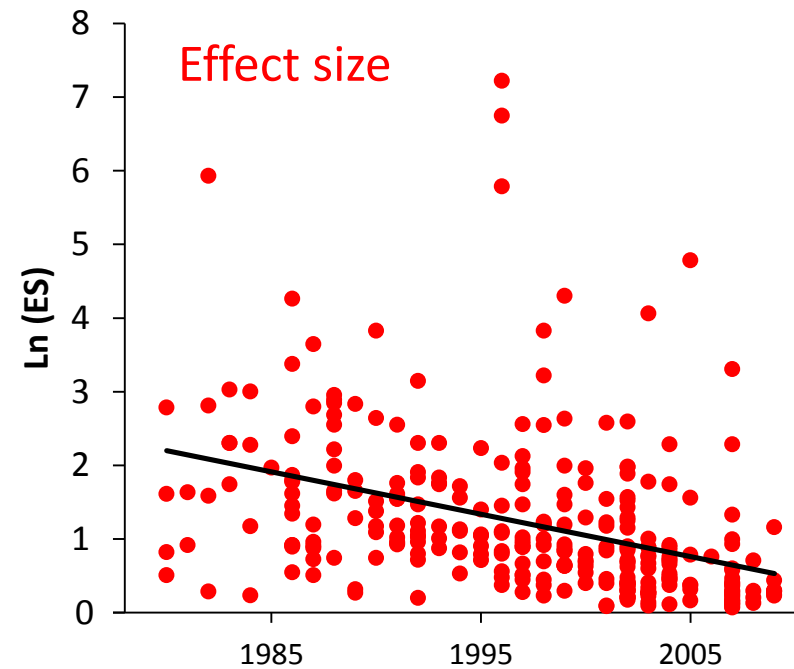
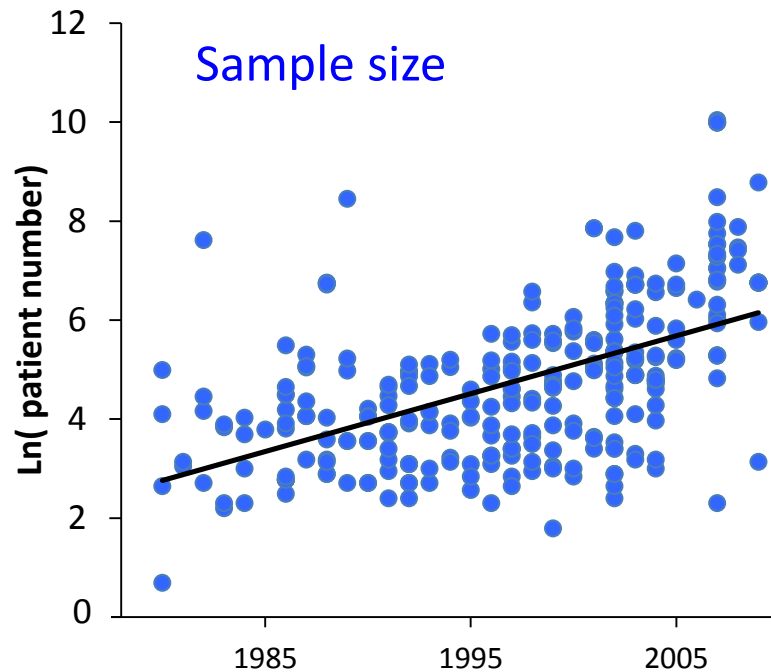


- Replication rate strongly depends on the domain.
- Replication rate is not related to the impact factor.

# Why the replication rate did not change during 3 decades.

296 initial biological studies reporting a significant effect between 1980 and 2009

decade	1980-1989	1990-1999	2000-2009
Replication rate	50 %	35 %	35 %



Larger sample sizes counterbalanced smaller sample sizes (genetic and epidemiological studies).

## Acknowledgements

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Most of these observations have been already published:

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