

**DO RESEARCHERS CONSIDER THE
STATISTICAL SIGNIFICANCE AND QUALITY
OF REPORTING WHEN DECIDING WHICH
ARTICLES TO CITE?**

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CITATION PROCESS

- Citations by other researchers are important in the dissemination of research findings.
- The citation frequency of a publication may serve as a reliable indicator of scientific merit as it measures the further utilization of an article in the scientific community.

SET OF ARTICLES

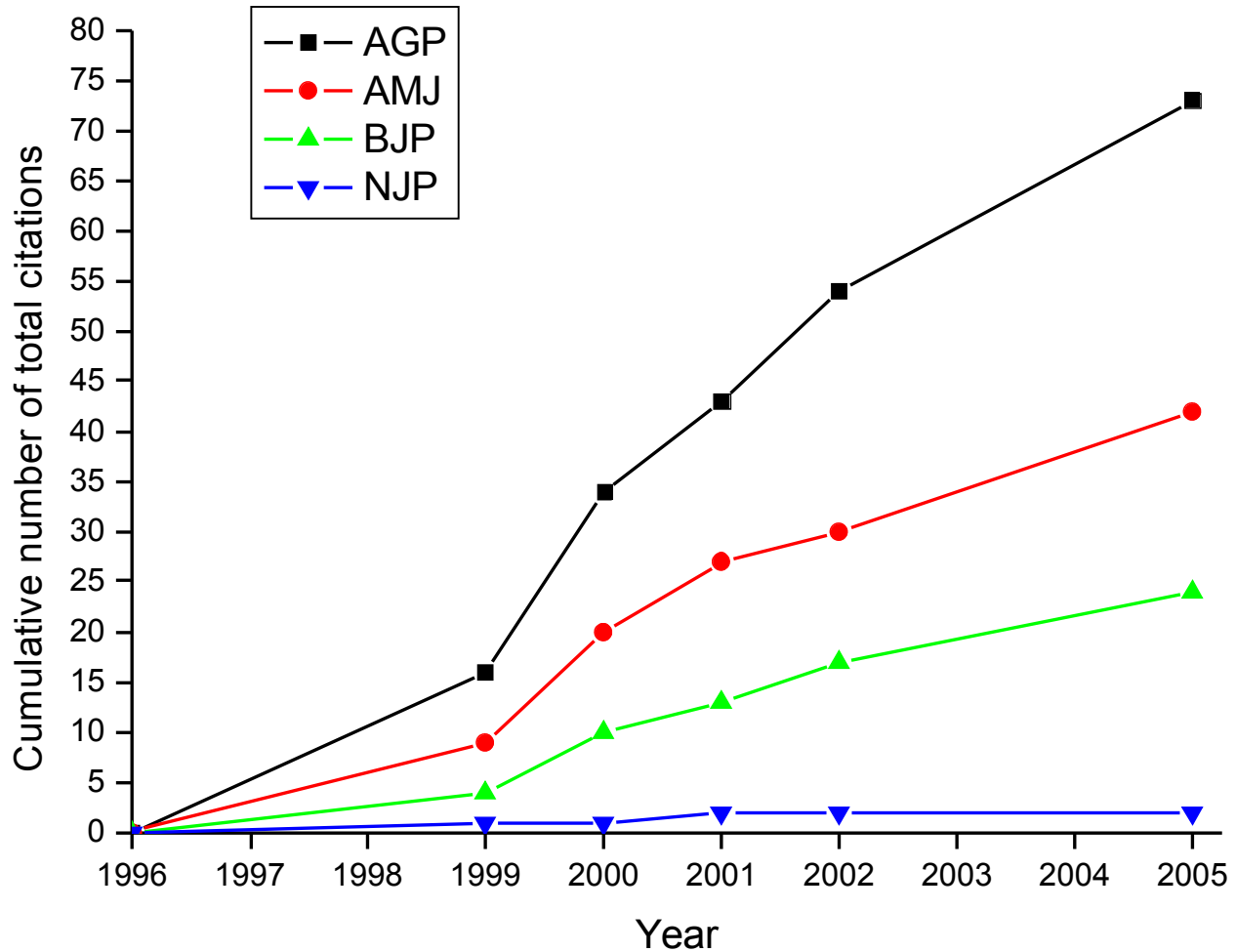
		Number of articles	IF 2005
American Journal of Psychiatry	AJP	185	8.29
Archives of General Psychiatry	AGP	90	12.64
British Journal of Psychiatry	BJP	135	4.96
Nordic Journal of Psychiatry	NJP	39	0.96

Total number of articles: 448

EVALUATION OF THE ARTICLES

- **What was the primary outcome and main response variable(s)?**
- **Was the primary outcome (finding) statistically significant or not-significant?**
- **Quality of reporting**
- **Statistical quality**
- **Number of received citations**

CUMULATIVE NUMBER OF RECEIVED CITATIONS BY JOURNAL

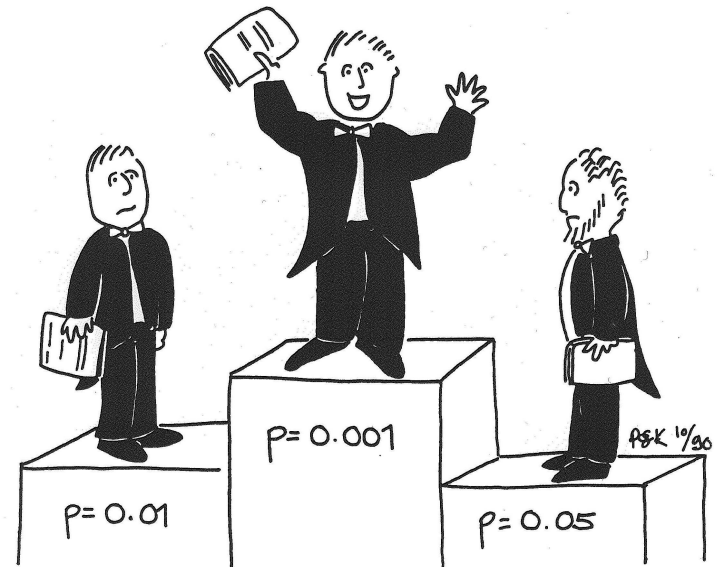


STATISTICAL SIGNIFICANCE OF THE PRIMARY OUTCOME

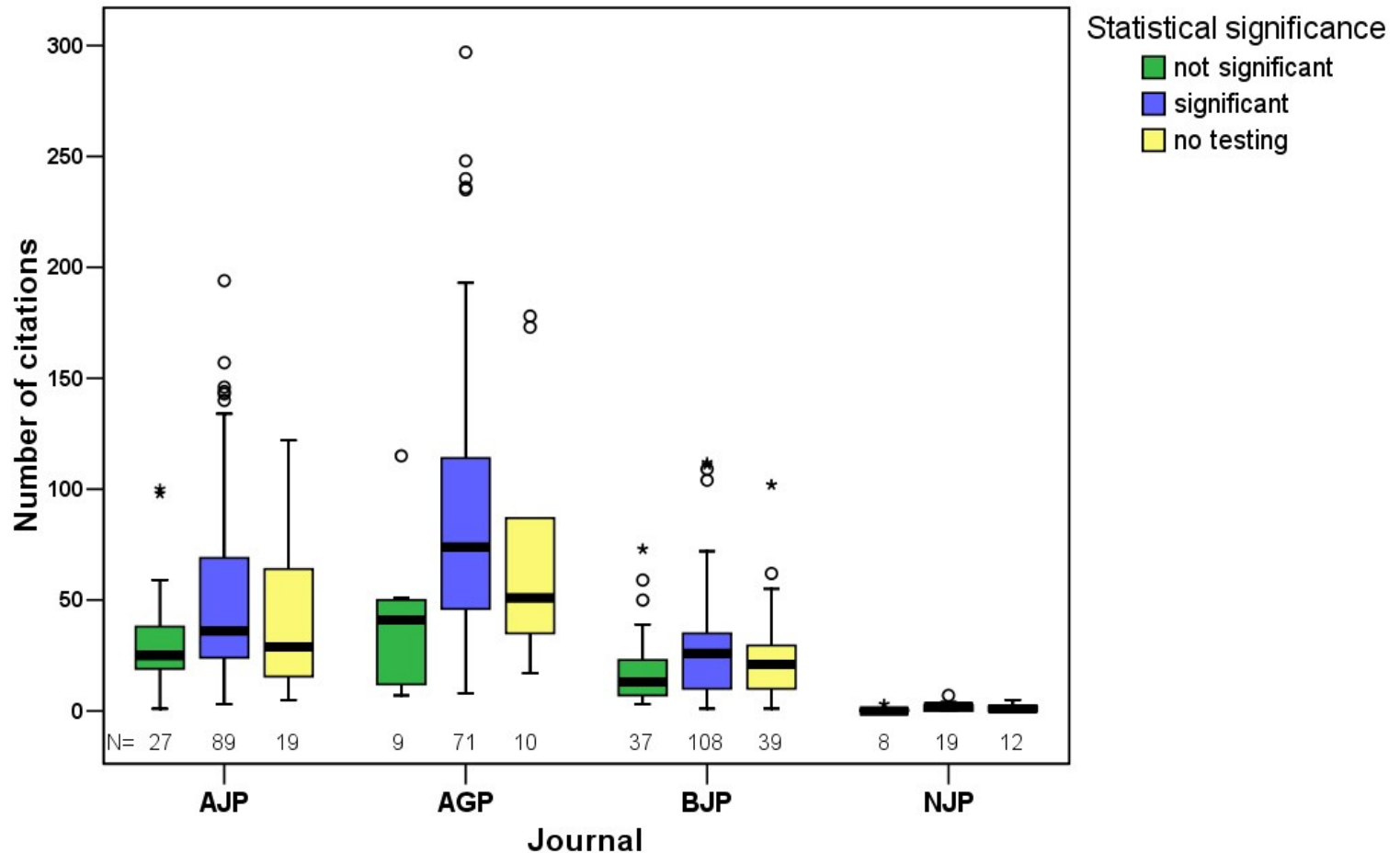
	Significant ($p < 0.05$)	Not significant ($p \geq 0.05$)	No testing	Total
	<u>n (%)</u>	<u>n (%)</u>	<u>n (%)</u>	<u>n (%)</u>
American Journal of Psychiatry	89 (65.9)	27 (20.0)	19 (14.1)	135 (100)
Archives of General Psychiatry	71 (78.9)	9 (10.0)	10 (11.1)	90 (100)
British Journal of Psychiatry	108 (58.7)	37 (20.1)	39 (21.2)	184 (100)
Nordic Journal of Psychiatry	19 (48.7)	8 (20.5)	12 (30.8)	39 (100)
All articles	287 (64.1)	81 (18.1)	80 (17.9)	448

ON THE PODIUM

- Are papers reporting a statistically significant primary outcome cited more often than papers with non-significant findings?



NUMBER OF CITATIONS BY THE STATISTICAL SIGNIFICANCE



STATISTICAL SIGNIFICANCE AND CITATION FREQUENCY

- The median number of citations for papers reporting 'significant' and 'non-significant' results was 33 vs 16.
- After adjustment for journal, study design, reporting quality, whether outcome confirmed previous findings and study size, the ratio of the number of citations per article for articles reporting ' $P < 0.05$ ' on the primary outcome to those reporting ' $P > 0.05$ ' was 1.63 (95% CI 1.32-2.02, $P < 0.001$).

CITATION BIAS

- **Occurs when the chance of a study being cited by others is associated with its results.**
- **This study gives some direct evidence that indicates the existence of citation bias.**
- **Authors cite studies based on their P-value rather than intrinsic scientific merit. This practice skews the research evidence.**

QUALITY OF REPORTING AND STATISTICAL ANALYSIS

	Research question not stated (%)	Incomplete description of procedures (%)	Inappropriate analysis (%)
AGP	20.0	7.8	11.1
AJP	28.1	15.6	14.8
BJP	42.4	35.9	17.9
NJP	53.8	48.7	30.8
All	34.6	25.2	16.7

JOURNAL VISIBILITY AND REPORTING QUALITY

- **Adequate reporting of the primary research question, statistical methods and primary findings were all associated with the journal visibility and prestige.**
- **The journal in which a study is published appears to be as important as the statistical reporting quality in ensuring dissemination of published medical science.**

REPORTING

- **Are statistical reporting and statistical errors in the analysis of the primary outcome associated with the number of citations received?**



REPORTING QUALITY

- **Unclear or inadequate reporting of the research question and primary outcome were not statistically significantly associated with the citation counts.**
- **Extended description of statistical procedures had a positive effect on the number of citations received.**

STATISTICAL QUALITY

- **Inappropriate statistical analysis did not affect the number of citations received.**

REFERENCES

- Nieminen P, Rucker G, Miettunen J, Carpenter J & Schumacher M (2006). Statistically significant papers in psychiatry were cited more often than others. (Accepted for publication in the Journal of Clinical Epidemiology)
- Nieminen P, Carpenter J, Rucker G & Schumacher M (2006). The relationship between quality of research and citation frequency. BMC Medical Research Methodology 6 (42).

