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Publication Bias in Oral Health RCTs. What factors affect statistical significance of effect estimates?

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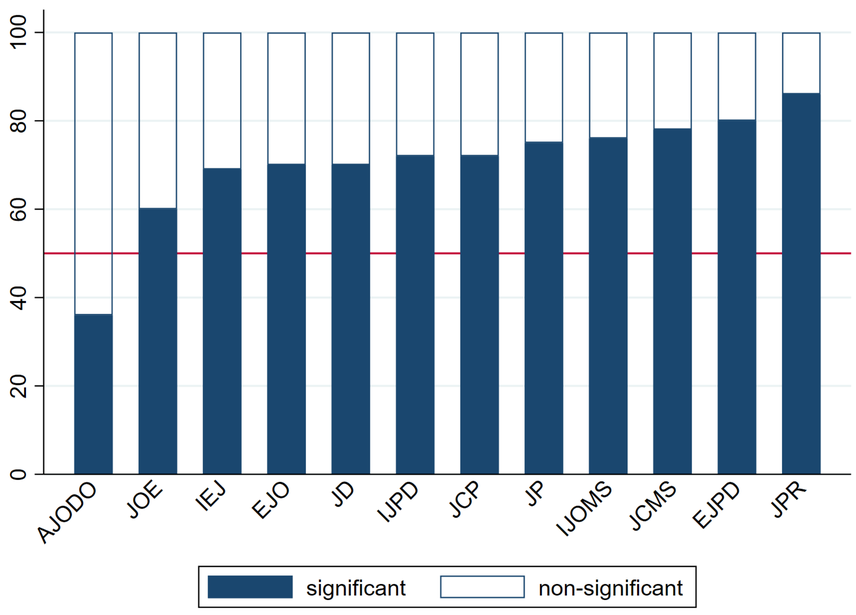
① The study

Preferential publication of "successful" and "positive" findings of clinical trials, for any reason, may impact on the disseminated conclusions of SRs and MAs and also on the clinical decision making.

The aim of the study was to record the proportion of RCTs reporting statistically significant findings across Oral Health domains over a 5- year period and identify potential associations with factors such as year of publication, specialty domain, authorship characteristics, study design, type of outcome, funding, and protocol registration practices.

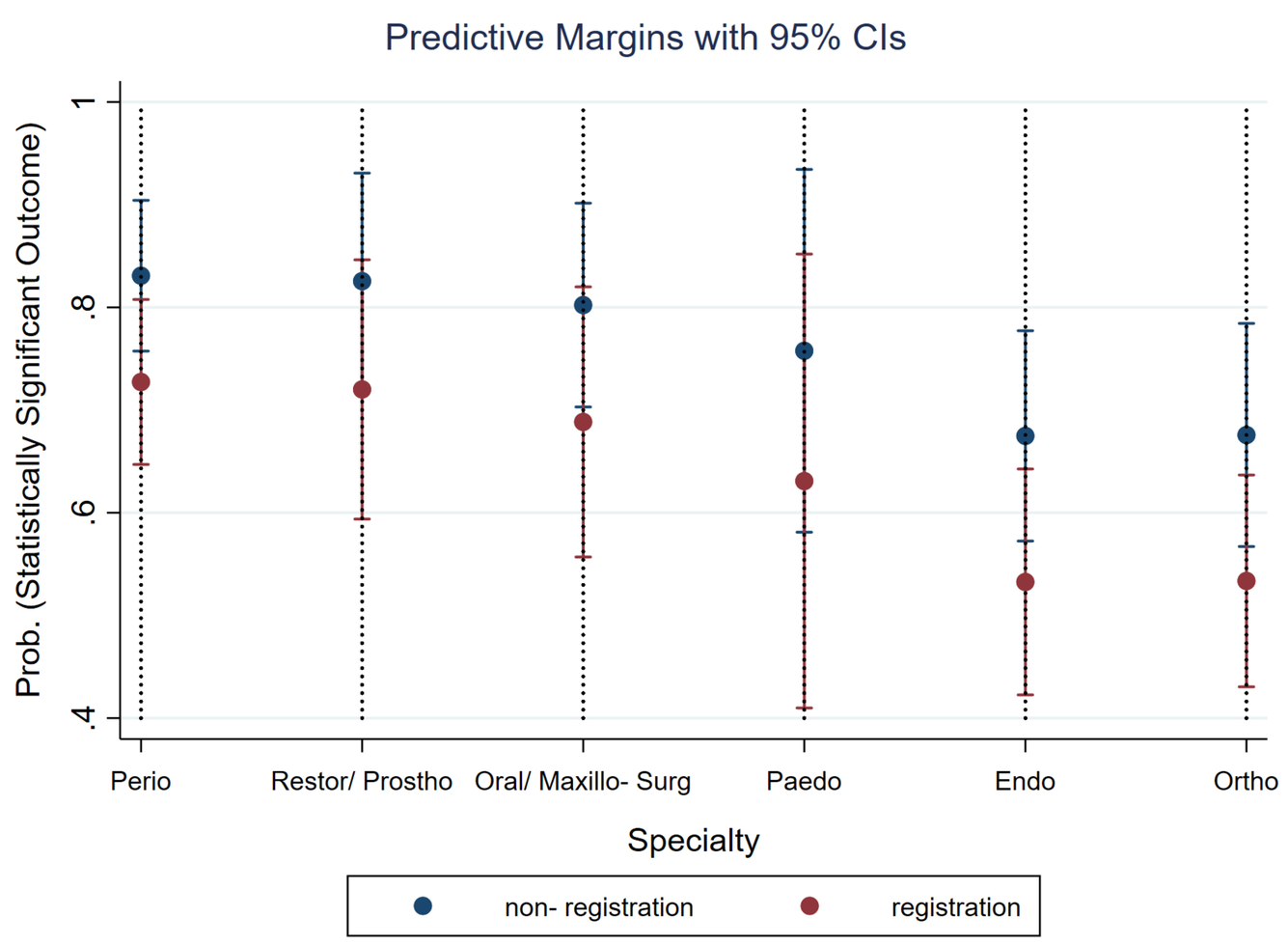
- Electronic contents of 12 journals across 6 dental domains were searched
- Clarivate Analytics 2020 IF was used to select journals
- A five- year period (2017- 2021) was assessed, identifying 474 RCTs
- An array of publication and study characteristics were examined.



② Findings

Predictor Variable	Multivariable Logistic Regression		
	OR	95% CI	p-value
Specialty			0.01
Periodontology	Reference		
Endodontics	0.40	0.22, 0.76	
Restorative Dentistry/ Prosthodontics	0.96	0.45, 2.07	
Orthodontics	0.41	0.23, 0.74	
Paediatric Dentistry	0.63	0.22, 1.83	
Oral/ Maxillofacial Surgery	0.82	0.39, 1.73	
Continent			0.003
America	Reference		
Europe	1.48	0.85, 2.58	
Asia/other	2.49	1.48, 4.21	
Registration			0.004
No	Reference		
Yes	0.52	0.34, 0.81	

year, IF, no. authors, no. centers, type of outcome and funding were not eligible for inclusion in the multivariable model (p≥.10)



③ Research contribution

What is known?

Publication bias has been identified as a form of reporting bias, characterized by the decisions and prejudices of authors/ reviewers/ editors, to pursue/approve publication of a manuscript, based on the direction or strength of findings.

Early evidence from empirical studies in various dental specialties, dated a decade ago has indicated that the proportion of studies reporting statistically significant results was exceptionally large.

Findings in context

Dissemination of research findings acquired from RCTs in Oral Health is likely to follow a path that is potentially affected by the authors', reviewers' and editors' beliefs on what would be regarding as interesting, attractive, of significance and importance (321/474; ~**68%**).

Trial non- registration is still prevalent and associated with reporting of statistically significant effect estimates.

Future perspectives

Prioritization of publication practices based on **transparent** and valid experimental design and methodology should be achieved regardless of the significance of research findings.

Registration of RCTs in openly available repositories has been proposed to mitigate reporting "misconduct" and avoid post- hoc modifications of outcomes to pre- planned methodology.

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