

COMBATING DATA DREDGING IN PEDIATRIC DENTISTRY

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EDITORIAL

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The importance of research in pediatric dentistry is paramount to advancing evidence-based practices which ensures optimal patient outcomes. The easy availability of data and advance statistical tools have resulted in popularity of data dredging among researchers. This puts the research at a risk, leading to manipulation of data analysis until statistically significant results are achieved. This in turn leads to misleading conclusions, giving rise to Type I error—where results appear significant by chance rather than due to a real effect.

Questionable Research Practices (QRPs) like p-hacking, selective reporting, post-hoc hypothesizing, cherry picking, etc. have the potential to produce false conclusions with significant implications. In p-hacking, the researchers alter data or analysis by doing several statistical tests or presenting only the findings of those that are statistically significant. Hypothesizing after the Results are Known (HARKing) increases chances of false positive results. Reporting of only positive results and neglecting the negative ones is called selective reporting and as a result of this, the scientific literature becomes skewed and practitioners may be misled who depend on published data for their clinical judgments.¹

In order to maintain the reliability and validity of any study, strict adherence to scientific methods is essential. Pre-registration, or the specification of research hypotheses and analytic strategies prior to data collection, can help avoid selective reporting and p-hacking. Strong statistical analysis and transparent data reporting are essential, regardless of the outcome. By following these criteria, we ensure the validity and dependability of our research findings. As researchers and clinicians, it is our duty to respect these moral standards.

REFERENCE

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