Evaluation of the Completeness of Dental Patient-reported Outcomes in Periodontitis Treatments

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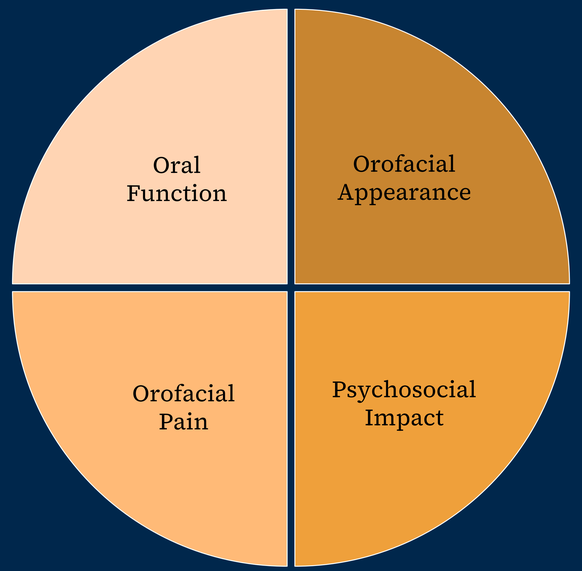
Background

Periodontitis is a highly prevalent inflammatory disease with an impact on oral function, pain, appearance, and psychosocial well-being. Randomized controlled trials (RCTs) guide periodontal treatment decisions; however, clinical outcomes alone do not fully capture treatment success. Dental patient-reported outcomes (dPROs) provide direct insight into patients' self-perception of oral disease and treatments. Despite their importance, inadequate reporting of PROs is a known issue across dental and medical research, potentially limiting interpretation and clinical applicability.

❗ No study has evaluated dPRO reporting quality in periodontitis RCTs

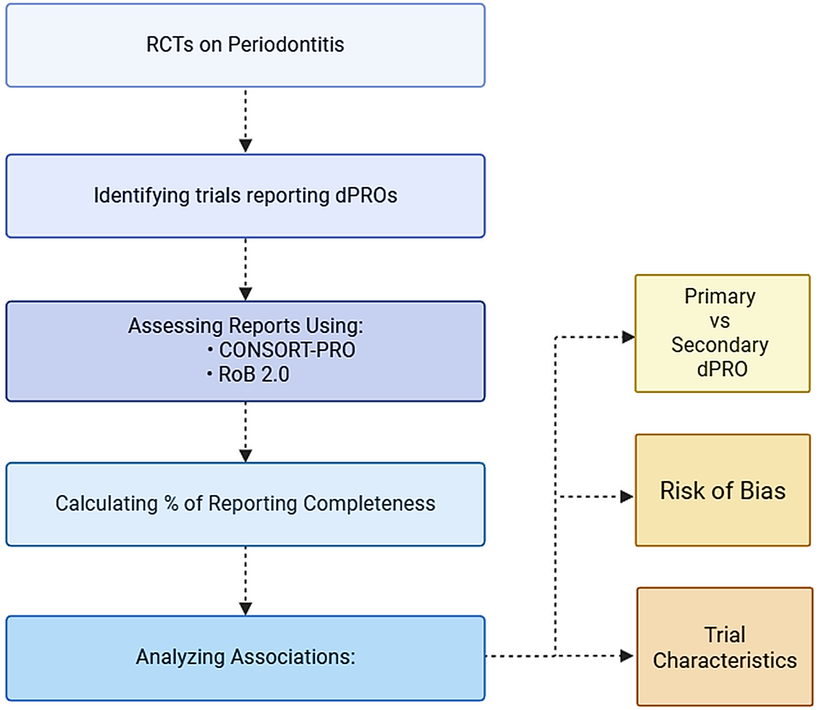
Objective

To evaluate the completeness of dPRO reporting in RCTs assessing periodontitis treatments using an adapted CONSORT-PRO checklist and to examine associations between reporting completeness and trial characteristics.



Core Domains of Dental Patient-Reported Outcomes (dPROs)

Study Design Overview



Methods

Study Design & Selection

We conducted a registered meta-epidemiological study (OSF) following established guidelines for methodological research. A comprehensive search of the Cochrane Central Register of Controlled Trials (CENTRAL) was performed to identify randomized controlled trials (RCTs) published between 2003 and 2023 that evaluated treatments for periodontitis and reported at least one dental patient-reported outcome (dPRO) as a primary or secondary outcome. Study selection was conducted independently and in duplicate using a standardized screening process, with conflicts resolved by consensus or third-reviewer arbitration.

Assessment & Analysis

For each included RCT, pairs of trained reviewers independently extracted data and assessed risk of bias using the Cochrane RoB 2.0 tool. Reporting completeness of dPROs was evaluated using an adapted CONSORT-PRO checklist, generating a percent completeness score for each trial. We summarized reporting completeness across studies and used bivariate regression models to examine associations between reporting quality and trial characteristics, including whether dPROs were primary or secondary outcomes and overall risk of bias.

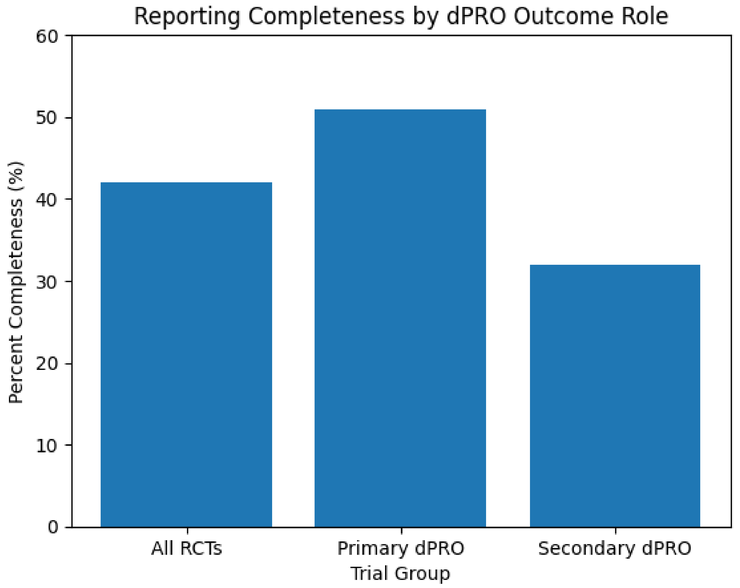
Results

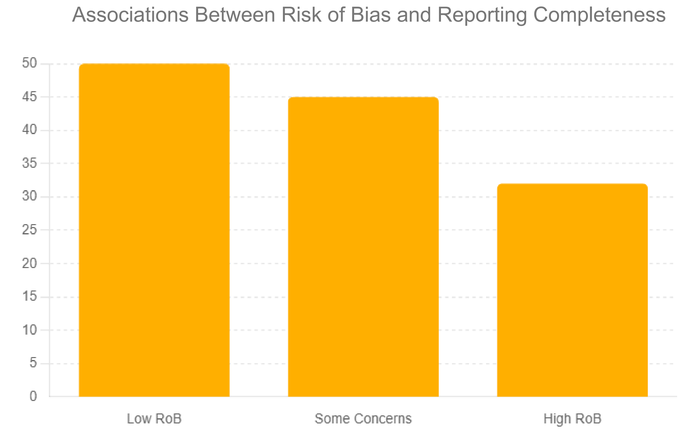
Study Sample & Overall Reporting

From 2,802 records, 49 randomized controlled trials met inclusion criteria. Most studies were published after 2014 (82%), and over half (53%) designated dPROs as primary outcomes. Orofacial pain was the most frequently measured domain (94%). Despite the growing inclusion of dPROs, overall reporting completeness according to the adapted CONSORT-PRO checklist was low, with a mean completion of **42%**. Trials that identified dPROs as primary outcomes demonstrated significantly higher reporting completeness (**51%**) compared with trials where dPROs were secondary outcomes (**32%**, $p < 0.0001$).

Reporting Quality & Bias Associations

Reporting deficiencies were not random. Trials with dPROs as secondary outcomes had **19 percentage points lower** reporting completeness compared to those with primary dPROs. Additionally, studies with high risk of bias showed **18 percentage points lower** reporting completeness than low-risk trials ($p < 0.001$). While nearly all studies reported who completed the dPRO (96%), critical elements were rarely addressed, only **4%** of trials identified dPRO status in the title or abstract, and fewer than 15% reported statistical methods for handling missing data. These findings indicate that poorer methodological quality is associated with weaker patient-reported outcome reporting.





Conclusion

Our Strengths

✓ Standardized CONSORT-PRO and RoB 2.0 assessments
✓ Registered protocol and duplicate, masked screening
✓ First study evaluating dPRO reporting in periodontitis RCTs

Our Limitations

x Limited to periodontitis treatment RCTs
x Search restricted to CENTRAL database
x Evaluated reporting quality, not treatment effectiveness

Key Findings

. dPRO reporting in periodontitis RCTs is suboptimal
. Reporting is worse when dPROs are secondary outcomes
. Poor reporting is associated with higher risk of bias

Implications

Incomplete reporting reduces the interpretability of patient-centered outcomes and limits the clinical value of RCTs.

Recommendations

Researchers should adhere to CONSORT-PRO guidelines, and clinicians should critically evaluate the completeness of dPRO reporting when interpreting trial results.

Take-Home Message

Many periodontal trials measure patient-reported outcomes, but insufficient reporting limits their contribution to patient-centered care. Understanding the potential limitations in how dPROs are reported can help readers make more informed decisions about the applicability and reliability of the trial findings in their settings.

For References and more…

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