

# More patient-centred measures required to evaluate hypodontia care outcomes and drive health service improvements

## Abstracted from

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## Question: Are the outcome measures selected to evaluate hypodontia care rational and consistent?

**Data sources** PubMed, Medline via Ovid (1946 onward), EMBASE via Ovid (1947 onward), Scopus, Web of Science (Scientific Citation Index, Conference Indexes), dissertations and theses databases; Cochrane Collaboration (DARE, CDSR), NICE, SIGN, ClinicalTrials.gov; grey literature searching.

**Study selection** Six electronic databases were searched for terms related to hypodontia and treatment methods, and four further electronic databases searched using terms for hypodontia only. Mixed-method study designs were used with exclusion of case reports, case series with fewer than ten participants and nonsystematic reviews. Quality improvement reports were also included and managed separately. No language restrictions were used.

**Data extraction and synthesis** Data from each study were systematically extracted using a data extraction form modified from the Cochrane Public Health Group template. One reviewer completed data extraction, with a second reviewer checking for accuracy and consistency. Four outcome categories were developed to synthesise the studies using a novel categorisation approach based on the perspective of the study's evaluator; including three subjective outcomes (patient-reported, clinician-reported and lay-reported) and one objective outcome (clinical indicators). No synthesis of efficacy data was planned; therefore, a methodologic quality appraisal of studies was not undertaken.

**Results** The search identified 497 abstracts, from which 106 eligible articles were retrieved in full. Fifty-six studies and eight quality-improvement reports were included. Clinical indicators were reported in 49 studies (88%) including appearance, function, dental health, treatment longevity, treatment success and service delivery. Patient-reported outcomes were given in 22 studies (39%) including oral health-related quality of life, appearance, function, symptoms of temporomandibular dysfunction and patient experience. Clinician-reported and lay-reported outcomes were limited to appearance. Variability was seen in the tools used for measuring outcomes.

**Conclusions** There is a lack of rationale and consistency in the selection of outcome measures used to evaluate hypodontia care. Outcomes are largely clinician and researcher-driven with little evidence of their relevance to patients. Evidence from hypodontia research is clinician-focused and likely to have limited value to support patients during decision-making. There is a need for a core-outcomes set with a patient-centric approach to drive improvements in health services.

## Commentary

Hypodontia is a common dental anomaly defined as the developmental absence of one to five teeth.<sup>1</sup> It excludes third molars and has an overall prevalence of 6.4%.<sup>2,3</sup> Following a meeting of The Organisation for Economic Co-operation and Development (OECD) in Paris, 2017, health ministers from over 40 countries across the globe agreed that time and money should be devoted towards tools to determine whether health systems are delivering outcomes that truly matter to patients.<sup>4</sup> The meeting was centred around the Patient-Reported Indicators Survey (PaRIS) and emphasised the consensus for robust patient-reported experience measures (PREMS) and patient-reported outcome measures (PROMS) in clinical practice.<sup>5</sup>

Previous reviews related to specific presentations of hypodontia or treatment do exist, however, none has analysed the outcomes used to evaluate hypodontia care and there's a lack of consistency in the outcomes used to measure its effectiveness. As a result, the authors encourage the orthodontic community to use consistent outcomes across all types of research and quality improvement projects. Ultimately this should provide the most value to patients, clinicians and stakeholders, and therefore direct health resources effectively.

The review addressed a clearly focused question, with the aim of identifying and appraising outcome measures that have been used to evaluate hypodontia care by identifying the relevant studies, classifying the outcomes and subsequently appraising these outcomes. Specific eligibility criteria for the study's selection was developed and appropriate, with examples of exclusion being syndromic hypodontia cases, non-systematic reviews, single case reports and studies published before 1970. With a rigorous methodology and comprehensive search strategy undertaken across ten electronic databases to alleviate the impact of publication bias, the PRISMA flow diagram of study selection is illustrated by the authors. Fifty-six research records and eight quality-improvement reports were included in the review and 53 observational studies covered the largest proportion. The majority of these studies were based in European universities or hospitals and published in dental journals.

The robust methodology used to cultivate this systematic review highlights its excellent quality. Following the identification of titles, initial screening and verification, retrieval and finally evaluation by two independent reviewers, articles meeting the inclusion criteria were included and those excluded were indexed, with reasons for exclusion recorded. A data extraction form was developed by modifying The Cochrane Public Health Group template, allowing

systematic extraction of data from each study. Including this form in the paper might have helped readers understand the coding used. A novel categorisation approach was used to synthesise the studies and was appropriate for both the review question and combining the studies. A methodological assessment of the quality of the included studies was not undertaken. The authors justify this approach by arguing that the quality of the study and the choice of outcome are not obviously correlated and for the purpose of this review, this is a reasonable assertion.

Clinical indicators were the most popular outcome used in 49 (88%) research studies and all audits, with dental health, treatment longevity and treatment success measured exclusively with clinical indicators. These indicators are popular and steps are being taken to ensure measurement methods used are better defined and standardised in the future. Inconsistencies from studies linked to clinical indicators relate to variability in the definitions of some outcomes, such as implant success; but more uniform measurement tools such as treatment survival were easily defined. Patient-reported outcomes were noted in 22 (39%) research studies, with The Oral Health Impact Profile the most popular measurement tool used. Surprisingly, no studies indicated patient involvement in the development of the patient-reported outcomes used, which included smile attractiveness, dental appearance, masticatory ability and functional disturbances. Finally, clinician-reported and lay-reported outcomes were limited to smile attractiveness and dental appearance, and again, showed a lack of consistency in the measurement tools used.

The dental profession strongly encourages the provision of patient-centred care and shared decision-making; however, this review illustrates the inadequacies in the selection of appropriate outcome measures – and that is largely driven by dental professionals and researchers. A statement made by the authors surrounding its three key implications from this review denote that: the information gained from research might have limited value for patients during decision-making; ultimately it will be challenging translating this into practice as things stand; and the current research findings are unlikely to drive health service improvements. This statement is put into perspective when you consider patients and their families are often committing to long courses of complex treatment, yet there is a lack of evidence using patient-centred outcomes to help them determine the treatment consequences.

Using qualitative methods to gain a deeper understanding of patient experiences will certainly have a positive impact on the

validity of research methods applied directly to hypodontia care and practice. The authors have continued their investigations in this area by undertaking a qualitative study to assess the adequacy of patient information to support the understanding and decision-making for people affected by hypodontia.<sup>6</sup> The content was often incomplete and variation in readability scores indicated high levels of literacy were required. Discussion Access to, and quality of, patient information for hypodontia is inadequate. Current resources are not sufficiently comprehensive to prepare young patients to engage in shared dental care decisions with their parents and/or dental professionals.

## Conclusion

There is a need for improved access to, and provision of, information about hypodontia if dental professionals want to meet best practice guidance and involve patients in shared decision-making.

Overall, this systematic review highlights the significance of identifying patient-centred outcomes not only for hypodontia care but all aspects of patient treatment provided, and the need for more consistent research to determine these outcomes.

## Practice point

- The outcome measures used to evaluate hypodontia care are largely clinician and research-driven with little evidence of their relevance to patients and limited value in promoting shared decision-making
- A patient-centred, core outcomes set is required to drive improvements in dental health services, and more specifically, hypodontia care.

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