Dental Patient-Reported Outcomes (dPROs) Update 2021

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Abstract

Patients’ needs and preferences have long been one of the three essential elements of evidence-based dentistry. However, in most areas of dental research, the voices of dental patients have been overlooked, resulting in findings with limited value for dental practice and a high level of avoidable research waste. Previous studies have shown that the appropriate use of dental patient-reported outcomes (dPROs) is essential for dental research to fully reflect the impact of oral diseases or oral health care on patients and to directly support dentist-patient communication. Therefore, the Journal of Evidence-Based Dental Practice decided to put together this Special Issue, to further promote the wide use of dPROs and to provide novel insights into the measurement and analytical methods for dPROs. This article briefly introduces the manuscripts contained in this issue, which cover a wide range of topics: standardization of dPRO-related methodology; current usage of dPROs in published research; significance and relevance of dPROs usage; identification of dPROs in the evidence; as well as dPROs and value-based oral health care.
Introduction

Patients’ needs and preferences have long been one of the three essential elements of evidence-based dentistry (EBD).\(^1\) However, in most areas of dental research, the voices of dental patients have been overlooked\(^2, 3\), resulting in findings with limited value for dental practice and a high level of avoidable research waste.\(^4\) Previous studies have shown that the appropriate use of dental patient-reported outcomes (dPROs) -- reports of patients’ oral health condition that come directly from the patients,\(^5\) is essential for dental research to fully reflect the impact of oral diseases or oral health care on patients\(^6, 7\) and to directly support dentist-patient communication.\(^8\) Therefore, the Journal of Evidence-Based Dental Practice decided to put together this Special Issue, to further promote the wide use of dPROs by researchers, clinicians, and other stakeholders in all fields of dentistry, and to provide novel insights into the current measurement and analytical methods for dPROs.

Standardization of dPRO-related methodology

This Special Issue starts with two articles focused on the standardization of dPRO-related methodology. In the first article, Lamont and Clarkson\(^9\) introduce the concept of core outcome set (COS) and its association with dPROs. The lack of relevance and consistency among outcomes used in dental trials has been well documented in previous systematic reviews and methodological studies.\(^3\) As a result, in quite a lot areas of dentistry, despite the fact that a large number of relevant trials exist, it has been difficult for systematic reviewers to arrive at a clear, consistent conclusion and for clinicians to practice evidence-based care. To reduce this wasteful heterogeneity, a COS is needed to standardize the outcome selection of trials in each area, and thereby facilitate the synthesis and translation of relevant evidence. Lamont and Clarkson\(^9\) not only provide a brief overview about the history of COS and the methodology of COS development, but also discuss its current application in dentistry and the inclusion of dPROs in existing dental COS projects.

In the second article, John\(^10\) investigates a specific dPRO measure -- the Oral Health Impact Profile (OHIP). He reports a replication study aimed to validate findings that supported the “Recommendations for use and scoring of OHIP versions”.\(^11\) He used independent data to replicate the correlations among OHIP versions and created a hypothetical clinical scenario to investigate OHIP short forms’ utility. Results of this study show that findings from the “Recommendations for use and scoring of OHIP versions” are replicable, which further supports the conclusion that psychometrically solid and practical oral health-related quality of life (OHRQoL) assessment in all settings across all oral health conditions can be achieved with OHIP-5,\(^12, 13\) and that OHIP-5 can be used to replace longer OHIP versions.\(^10, 11\)
Current usage of dPROs in published research

Aside from the above-mentioned articles on methods standardization, this Special Issue also includes two reviews that, from two different perspectives, reflect the current usage of dPROs in published dental research. Liu et al.\(^{14}\) performed a scoping review to identify existing methodological issues and difficulties specific to the meta-analysis (MA) of dPROs. After literature searches and study screening, the author team found 34 articles that met their eligibility criteria. Twenty-two of these articles were systematic reviews that had MA of dPROs and 12 were methodological studies regarding meta-analysis of dPROs. Based on these, Liu et al.\(^{14}\) identified issues from 5 main aspects including synthesizing results from different scales, interpretation of standardized mean differences, MA with few studies, MA of studies with different cut-off values, as well as systematic errors resulted from different instruments. The authors then provided recommendations for future MA of dPROs according to the identified issues.

In the other review, Shayestehpour and colleagues\(^ {15}\) set out to identify all dental patient-reported outcome measures (dPROMs) used in published research for pediatric dental patients, and to map these dPROMs to the four dimensions of OHRQoL – oral function,\(^ {16}\) orofacial pain,\(^ {17}\) orofacial appearance,\(^ {18}\) and psychosocial impact.\(^ {19}\) From 701 records resulted from literature searches, the author team found 12 eligible dPROMs which were all English-language instruments, such as the Pediatric Oral Health-Related Quality of Life (POOL), Child Oral Health Impact Profile (COHIP), and Child Perceptions Questionnaire (CPQ). Results of the mapping exercise suggested that all included questionnaires and their items could be mapped to the four dimensions of OHRQoL, which is in agreement with the findings of previous reviews regarding dPROMs for adult dental patients.\(^ {20,21}\)

Significance and relevance of dPROs usage

The next two articles in this Special Issue present the significance and relevance of patient-reported outcomes (PROs) and dPROs for two areas of dentistry – orofacial pain and dental therapy. In Haggman-Henrikson et al.'s article,\(^ {22}\) the authors start by introducing the unique necessity of using PROs and dPROs in the context of orofacial pain’s characteristics and typical manifestations, and then elaborated on how and what PROs and PROMs can be used in the screening and diagnosis of orofacial pain including temporomandibular disorders and burning mouth syndrome. In addition to these, the authors share their vision and recommendations on relevant areas that need future developments.

Dental therapy is an emerging and important area that requires further research. Following an introduction to the rationale and history of dental therapy in the context of EBD, Chanthavisouk et al.\(^ {23}\) elaborate on the significance of dPRO and dPROM
usage to dental therapists. Then, based on the “level of evidence” concept as well as current research gaps in dental therapy, the author team uses several proposed research projects as examples to show how dPROs can be applied in relevant studies and demonstrate the impact of dental therapists on dental patients. Also, the authors give a series of recommendations on how to improve dPRO assessment in dental therapists’ daily practice, research, and education.

Identification of dPROs in the evidence

Articles reporting studies that used dPROs and dPROMs can benefit not only dental researchers but also clinicians and patients. However, the increasing number of different dPROMs and relevant publications, as well as the lack of standardization in indexing and reporting practices, have made it difficult for these stakeholders to identify and obtain patient-centered evidence from the existing literature. Stellrecht and colleagues emphasize the importance and right approaches of partnering with librarians or information professionals, who are able to help with the aforementioned challenges. For instance, they can assist with dPRO related difficulties in the design and conduct of evidence-based research, as well as relevant barriers to evidence-based practice and patient communication.

DPROs and value-based oral health care

The importance of adequate use of dPROs from the perspective of value-based oral health care (VBOHC) has been discussed before. In the last article of this Special Issue, Jivraj et al use four typical cases from dentistry to present the current challenges in VBOHC implementation, including the measurement of patient-centered outcomes that can capture the information of highest relevance for dental patients. The authors highlight the need to develop consented set of harmonized outcome measures, and then provide insights into the future development of VBOHC.

Conclusion

In this era of evidence-based practice and patient-centered care, where the patients’ views and preferences are valued more than ever, it becomes imperative for dental researchers, clinicians, and other stakeholders to use dPROs and dPROMs and work together to improve the quality and quantity of patient-centered evidence. I would like to take this opportunity to thank the contributors and reviewers for their valuable contributions to this Special Issue, which hopefully can move forward with the further promotion and development of dPROs.
References


14. Liu YC, Shih MC, Tu YK. Using dental patient-reported outcomes (dPROs) in meta-analyses: a scoping review and methodological investigation. *J Evid


