ORIGINAL ARTICLE

HEALTH OUTCOMES REPORTED BY DENTAL PATIENTS

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KEYWORDS
Patient-reported outcomes, Patient-reported outcome measures, Oral health-related quality of life, Self-reported oral health, Perceived oral health, dental patients

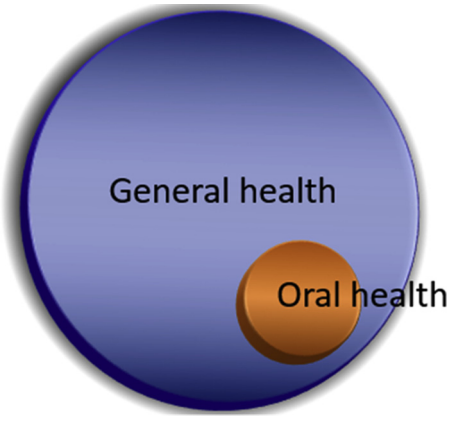
ABSTRACT

To assess the impact of care on patients, patient-reported outcomes (PROs) are essential because they characterize patients' suffering. Patient-reported outcome measures (PROMs) are the instruments to assess PROs. Any report of the patient's oral health condition that comes directly from the patient is a dental patient-reported outcome (dPRO). Similar to oral health being a component of health in general, dPROs are a part of PROs. dPROs target four major areas of patients' suffering because dental patients typically seek care to improve oral function and orofacial appearance as well as to decrease pain and psychosocial impact related to oral conditions. dPROs capture what matters to dental patients. They characterize the specific influences of oral health on patients' lives. Dental patient–reported outcome measures (dPROMs) capture this influence and express it numerically in a score. Consequently, dPROs in general and Oral Function, Orofacial Appearance, Orofacial Pain, as well as Psychosocial Impact (related to oral conditions) in particular are the major targets for dental interventions in clinical practice as well as for oral health research.

ORAL HEALTH AS A COMPONENT OF GENERAL HEALTH

Oral health is an important component of general health (Figure 1). As oral health can be affected by many diseases, it is not a small component.

Figure 1. Oral health is a component of general health (size of the orange circle represents oral health's shared information with general health, according to Reissmann et al.[4]).



J Evid Base Dent Pract 2018: [332-335]
1532-3382/$36.00

doi: https://doi.org/10.1016/j.jebdp.2018.09.001

Counting the number of oral and dental disorders in the *Application of the International Classification of Diseases to Dentistry and Stomatology ICD-DA*,[1] there are 1323 oral conditions (oral diseases represent most of these conditions and I will use this term henceforth). Moreover, many oral diseases are common. In the Global Burden of Disease 2010 Study, "the largest ever systematic effort to describe the global distribution […] of major diseases, injuries, and health risk factors,"[2] untreated caries was the most prevalent condition evaluated for the entire Global Burden of Disease 2010 study.[3]

GENERAL AND ORAL HEALTH HAVE TWO MAJOR FACETS—WHAT CLINICIANS OBSERVE AND WHAT PATIENTS PERCEIVE

The patient is at the center of health care. In oral health care settings, dental professionals focus on dental patients. To understand the impact of a disease on a patient, physical characteristics of the disease—which is what a health professional would objectively observe—need to be accompanied by a description of how the disease is subjectively perceived by the patient, or in other words, how the disease impacts the patient (Figure 2).

The objective and the subjective aspects of a disease are complementary and necessary for characterizing the disease and its impact because the extent of the physical disease is not always proportional to the magnitude of patients' suffering (Figure 2, light blue stars). For example, patients with missing teeth are not necessarily impaired by their condition, but a minimal misalignment of teeth may substantially bother a patient. Consequently, both facets of a patient's health need to be included in a comprehensive assessment.

OUTCOMES OF DISEASE REPORTED BY DENTAL PATIENTS AS A SUBSET OF PATIENT-REPORTED OUTCOMES IN GENERAL

The patient-perceived disease impact is captured by patient-reported outcomes (PROs). A PRO is defined as "any report of the status of a patient's health condition that comes directly from the patient, without interpretation of the patient's response by a clinician or anyone else."[5] In analogy of oral health being a component of health in general, PROs reported by dental patients are a component of PROs reported by all patients (Figure 3).

Dental patients' concerns are narrower in scope than medical patients' concerns. Clinical experience suggests that dental patients typically seek care for (i) dental, oral, and orofacial pain; (ii) functional jaw problems; (iii) impaired dental and orofacial appearance; and (iv) broader psychosocial concerns

Figure 2. A patient's health situation is described by objective and subjective characteristics.

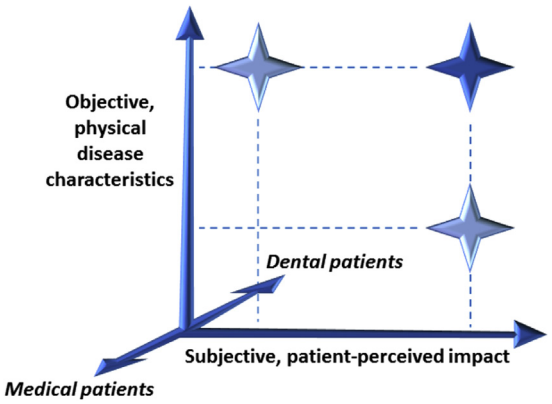
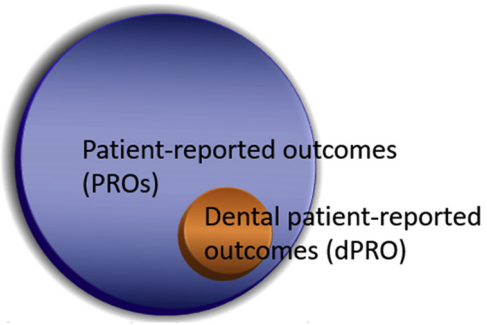


Figure 3. Dental patient–reported outcomes as a subset of patient-reported outcomes.



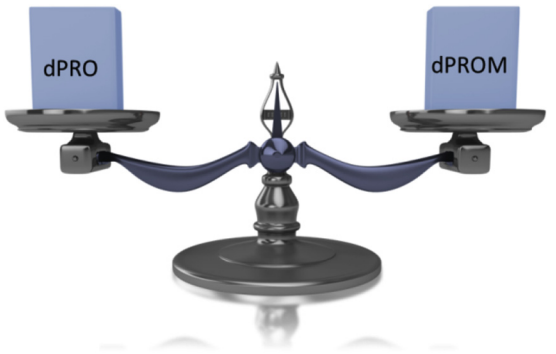
related to oral diseases—four constructs called dimensions of oral health–related quality of life[6,7] (Fig 4).

For the typical dental patient affected by caries or periodontitis, length of life, that is, the outcome of death or mortality, is not a relevant concern. Instead, how oral diseases affect how the patient lives his/her life, that is, the quality of life, becomes the primary concern for dental patients, especially because most dental diseases are chronic in nature. A systematic review supported the importance of oral health–related quality of life dimensions for troubles dental patients can have.[8] In this review, Oral Function, Orofacial Appearance, Orofacial Pain, and Psychosocial Impact were the four overarching themes for 36 identified PROs for adult dental patients.

Because of the particular importance of patient-reported oral health, coining the term dPRO, which stands for "dental patient-reported outcome," seems necessary. The

Figure 4. Dimensions of oral health–related quality of life.

Figure 5. A dental patient–reported outcome (dPRO) is measured by a dental patient–reported outcome measure (dPROM).



definition of dPRO is straightforward because it relates to oral health outcomes typically reported by dental patients. Formally, it can be defined as "any report of the status of a patient's oral health condition that comes directly from the patient, without interpretation of the patient's response by a clinician or anyone else."

DPROS ARE MEASURED BY DENTAL PATIENT–REPORTED OUTCOME MEASURES

A dPRO is a construct. As a mental image, it is subjective. It is not directly observed but is rather inferred from directly measured, observable characteristics. An example of a dPRO would be the construct Orofacial Appearance.[9]

Measurement of a PRO requires a PROM, a patient-reported outcome measure. Typically, this is a multi-item instrument—the patient is asked several questions. The patient's responses are coded numerically for all questions, and then, an overall score is obtained by combining item responses. In analogy to PROMs assessing PROs, dental PROMs assess dental PROs (Figure 5). An example of a dPROM would be the Orofacial Esthetic Scale,[10,11] an eight-item questionnaire measuring the dPRO Orofacial Appearance.

To assess oral diseases' impact on dental patients, both PROMs and dPROMs are potentially suitable. However, questions in PROMs that assess the PRO Physical Function such as "Are you able to do chores such as vacuuming or yard work?" are typically not notably influenced by oral diseases. Research studies support this intuitive statement. When tooth loss, the central physical oral health condition, was treated with dental implants; generic health–related quality of life measures, a widely used PROM type, could not distinguish between the benefits of different forms of dental treatment, whereas oral health–specific measures, that is, dPROMs, could.[12] The challenges PROMs face when confronted with oral diseases as well as the aforementioned narrower PRO spectrum for dental patients point to the need of dPROs within PROs in general. dPROs capture what matters to dental patients. They characterize the specific influences of oral health on patients' lives, and dPROMs capture this influence and express it numerically in a score.

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