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Commentary

Assessing the impact of oral health on the life quality of children: implications for research and practice

Colman McGrath[1], Hillary Broder[2] and Maureen Wilson-Genderson[3]

[1]Periodontology & Public Health, Faculty of Dentistry, University of Hong Kong, Hong Kong SAR, China, [2]Department of Community Health, UMDNJ, New Jersey Dental School, New Jersey, USA, [3]The New York Academy of Medicine, New York, USA

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Abstract – Traditionally, child oral health has been assessed using clinical parameters of disease and deformity. However, there is a growing interest in the psychosocial impact of oral health among children. This commentary outlines the value and need for assessing child oral health-related quality of life (COHQoL). COHQoL has implications for oral health needs assessment (at an individual and population level) and for evaluating outcomes from specific treatments, initiatives and dental services overall. In addition, it could prove to be a useful adjunct tool for evidence-based dentistry research and practice. Theoretical and practical considerations in assessing the complex psychosocial construct of oral health among children are discussed: the use of general versus oral health-specific measures, the development of tools for children, the use of generic versus condition-specific measures, and the measurement of 'positive' oral health. Recommendations for research and practice are presented.

Key words: child oral health assessment; measurement theory; quality of life

Colman McGrath, Periodontology & Dental Public Health, Prince Philip Dental Hospital, University of Hong Kong, 34 Hospital Road, Hong Kong SAR, China
e-mail: mcgrathc@hkucc.hku.hk

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Oral diseases and conditions among children

Despite the dramatic improvements in the prevention and treatment of dental caries over the past few decades, it remains one of the most prevalent diseases of childhood (1–3). Periodontal disease is prevalent with most children exhibiting some form of plaque accumulation, gingival inflammation or calculus (4, 5). Malocclusion is also prevalent among children and most countries have reported an increase in malocclusion or at least an increase in the demand for orthodontic treatment (6, 7). In addition, numerous epidemiological studies have reported that many children experience some form of dental trauma and that there is evidence that the defects of enamel and dental wear are on the increase (8–10).

However, measurement of oral disease and conditions provides little insight into the consequences of oral disease and deformity in children's lives, and thus in many respects traditional measures of oral health ('normative' assessment) represent a limited unidimensional aspect of child oral health (11). This is not to say that clinical parameters are not important, they are of course important, if not essential, to measure oral health; the problem arises when clinical indicators are equated with oral health and treatment need (12). Oral health is the standard of health of the oral and related tissues that enables an individual to eat, speak and socialize without active disease, discomfort and embarrassment, and which contributes to the general well being (13). Oral health goes beyond purely clinical indicators and thus should not be equated with the absence of disease and deformity (14).

Measuring the psychosocial impact of oral health

Oral disease and conditions produce many symptoms among children that give rise to physical, social and psychological effects that influence their day-to-day living or life quality. The social and psychological effects of malocclusion is a longstanding area of research (15–18). Dental pain is highly prevalent among children, even in contemporary populations with historically low levels of caries experience (19). In addition, defects of the enamel have been shown to influence self-rating of oral health, negatively (20). However, there is a lack of appropriate measures to comprehensively assess the physical, social and psychological effects of oral health among children's oral health-related quality of life (COHQoL).

Implications of assessing COHQoL

Assessing the impact of oral health on the life quality of children has implications on many fronts. COHQoL assessments reflect patients' perceptions (children's own feelings) about their oral health and thereby can improve communication between patients, parents and the dental team (21). It provides a greater understanding of the consequences and salience of oral health states in children's lives and the lives of their families (22). Moreover, it provides a measure of outcomes for clinicians to assess the quality of care. For those involved with planning oral health policy and care for children, the assessment of COHQoL can assist in needs assessment, prioritization of care and evaluating outcomes from treatments strategies and initiatives (23). Finally for researchers, COHQoL assessments offer an adjunct measure with which to assess the outcomes of treatments and initiatives and the development of guidelines for evidence-based practice (24).

Assessing COHQoL: theoretical and practical considerations

Assessing abstract phenomenon such as the impact of health status on life quality is challenging. It requires appropriate underlying theoretical and conceptual frameworks to guide the assessment process (25). There are two broad approaches; a *hermeneutic* and a *functionalist* approach, the former relying on qualitative assessments and interpretation and the latter relating to use of batteries of questions or scales (26). The functionalist approach is the more dominant approach in health-related quality of life research and requires rigorous selection of items (questions) and psychometric (validity and reliability) testing of the measures in different settings (27).

In medicine, the assessment of the psychosocial impact of health status is widespread, and the assessment of COHQoL is well developed (28). Numerous general health status measures designed to assess health status across a spectrum of childhood diseases, different mixes of co-morbidity, and different child populations exist (29). The 'Child Health Questionnaire' is the among the most widely used of such measures (30). In addition, numerous disease-specific measures for measuring the effects of specific conditions or diseases on children's quality of life have been developed (31–34).

In dentistry, assessing the impact of oral health on life quality is relatively new, although great advances have been made over the past decade (35). A plethora of oral health-related quality of life instruments for adults exist which have different underlying theoretical frameworks, measure different dimensions and domains, and are of varying length (36). While there is no specific 'gold standard' to measure adult oral health-related quality of life, each having different qualities to suit specific needs, the 'Oral Health Impact Profile' is one of the more sophisticated, comprehensive and widely used measure (37).

The assessment of COHQoL poses a number of challenges. Children are in a sense 'moving targets' not just because childhood is a period with immense changes in psychosocial awareness, but because the children's dental and facial features change rapidly (38). Furthermore, children's cognitive development varies such that the wording of items, specific dimensions and their relevance and meaning to children of similar ages can differ and the changes in a child over time can make repeated measurements difficult to compare (39). Another issue from the quality of life literature at large, but particularly relevant for the assessment of COHQoL, is the use of proxy ratings of quality of life (40). An argument that measurement difficulties encountered because of the nature and amount of change during childhood can be minimized by having a parent or guardian report on quality of life, has been advanced. This approach raises the question of how well proxy reports represent the reality experienced by the child as well as issues such as the depth of

parental awareness and the effect of social desirability.

The assessment of COHQoL also raises the debate over which constructs to measure (41). For example, should we measure the impact of the health condition on the children's function compared with the subjective social implications of the oral health condition. This leads to another key issue, the notion of positive oral health. There have been dramatic improvements in the oral health of children in the past few decades and an increasing number of 'oral healthy' children (1–3). Although quality of life measures are often focused on decrements in health, the measures of disease, disability and deformity alone are limited in capturing the range of experiences (42). Failure to include positive dimensions may not only underestimate the importance of oral health and the psychosocial impact of oral health in the lives of children and their families, but also misrepresent improvements in oral health brought about by effective strategies and health care. Such omissions or misrepresentations can have implications in the resource allocation for oral health activities (43).

Some argue that positive and negative experiences are distinct from each other (44, 45). The absence of a negative does not necessarily imply a positive, and a positive state can co-exist with a negative state. Therefore, it is necessary to query people about the positive aspects, in addition to the negative effects. Even among 'sick' populations, the measurement of positive oral health is important, as measuring disability alone can lead to the assumption that what is important about a person is his or her injury, disease or deficiency, excluding other possibly compensatory factors (46). Resilience, optimism, adjustment, wisdom and/or patience can be developed through the disease/disability experience which can greatly affect an individual's life quality (47–49). If items are not included to tap these positive concepts, they cannot be measured. It is imperative that both the World Health Organization's conceptual frameworks of health (disability (11); functioning and disability (42)) be explored as appropriate theoretical frameworks for guiding the COHQoL assessment.

Recommendations for research and practice

As interest in the psychosocial impact of oral health on children's lives emerges in the literature, there are a number of recommendations for research and practice. First, it is important to define the age group of children under study as various 'cut-off' age points are used in research between adults and children and between children (infants, children, adolescents). Secondly, it is imperative that the performance of general health measures in the setting of pediatric dentistry be evaluated. Wherever possible, it is useful to describe and compare the impact of oral health and oral health care with other health states and health care systems and to use a common language among health professionals (50). Thirdly, a plethora of adult oral health-related quality of life measures exist and some have already been used among child populations (51, 52). However, it is expected that measures designed for assessing adult oral health-related quality of life may not be suitable for children because of face and content validity. It is imperative that the psychometric properties of such measures be empirically tested among child populations of different age groups to verify their reliability and validity and suitability for the particular age group under study. Finally, it is important while assessing the appropriate dimensions and domains of oral health that oral health-related quality of life measures be as brief as possible (36). A measure should contain the minimum number of items (questions) to capture the concept adequately so as to minimize the burden on study participants and the costs of data collection.

A number of international studies have already begun developing measures of COHQoL. INTERQOL, the International Collaborative Planning Group of Oral Health-related Quality of Life research, funded by NICDR, have reported on pilot studies conducted in 11 international sites across the five continents (53). INTERQOL is developing measures that are culturally relevant (by forward and reverse translations and testing relevance across varying cultural groups) and will test and compare these aspects in addition to traditional psychometric properties.

In addition, INTERQOL are taking the lead in exploring the assessment of 'positive' child oral health. The goal is to empirically test the value of assessing this additional dimension when assessing oral health-related quality of life in children. To date, one generic COHQoL measure has been published (54) and will no doubt serve to prompt comparison of its qualities to those measures that will be forthcoming.

It may also be useful to investigate the value of condition-specific oral health measures compared

with generic oral health-specific measures among children. The use of a specific dentofacial deformity measure has been a useful adjunct measure for assessing adult oral health-related quality of life (55).

As the field of COHQoL expands, a number of measures will become available for use. However, what is important for practice is to determine, when and what instrument suits the purpose. Comparing the discriminative ability of the different measures in different circumstances and in different settings is as important as (56) that of comparing the evaluative properties of the instruments in order to assess treatment outcome.

As the prospects seem to be very exciting for assessing the psychosocial impact of oral health among children, we must be aware of the pitfalls and choose our assessment methods wisely to promote evidence-based dentistry and science.

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