

# A Brief Review on Children's Oral Health Related Quality of Life Measures in Dentistry

Anusha Divvi<sup>1</sup>, Shivashankar Kengadaran<sup>2</sup>, Daniel J Caplan<sup>3</sup>, Shyam Sivasamy<sup>4</sup>, Senthil Murugappan<sup>5</sup>

Received on: 08 March 2023; Accepted on: 28 April 2023; Published on: 23 November 2023

## ABSTRACT

Developing measurements for assessing oral health-related quality of life (OHRQoL) in children presents unique challenges. Oral health is greatly influenced by age, resulting in notable differences in OHRQoL between children and adults. While numerous tools exist for measuring adult OHRQoL, this complexity hinders the creation of suitable measurement instruments tailored to children and adolescents. However, developing instruments specifically for these younger populations enables researchers to pinpoint and explore OHRQoL factors unique to them, such as self-image, social acceptance, and the school environment. This paper aims to provide a concise overview of instruments designed to assess the OHRQoL in children.

**Keywords:** Instrument, Oral health, Oral health-related quality of Life.

*Journal of Scientific Dentistry* (2023): 10.5005/jp-journals-10083-1041

## INTRODUCTION

For numerous years, the principal concentration in analyzing oral health status fixated solely on clinical assessments, disregarding the importance of personal attributes when evaluating oral health. However, it was during the late 1970s and early 1980s that researchers began realizing the need for a more comprehensive approach, one that took into account the social and psychological implications of oral health.<sup>1-3</sup> The socio-psychological model looked beyond the physical aspects of oral health and considered the relevant social and factors that impact an individual's ability to maintain good oral health. This progressive approach towards dentistry has helped professionals better understand the patients and address their oral health needs in a more holistic manner, which goes beyond the treatment of certain oral conditions.<sup>4</sup> Numerous studies have verified that inadequate oral health significantly contributes to negative effects on daily performance and overall quality of life.<sup>5-7</sup>

The concept of oral health-related quality of life (OHRQoL) has undergone various interpretations over time. Initially, it was primarily defined as "the impact of oral disease on daily function".<sup>4</sup> However, in a later paper by Locker and colleagues, the definition evolved to encompass "the symptoms and the functional and psychosocial consequences resulting from oral diseases and disorders", with less emphasis on external influencing factors.<sup>8</sup> Alternative interpretations have also portrayed OHRQoL as "the absence of adverse impacts of oral disease on one's social life and a positive sense of dentofacial self-confidence". This aligns with the core dimensions of OHRQoL introduced by Gift and Atchison in 1995, which view it as "an individual's assessment of how functional, psychological, and social factors, as well as experiences of pain or discomfort, influence their overall well-being".<sup>9</sup>

Locker and his colleagues have offered a redefined perspective on OHRQoL, which places a strong emphasis on the intricate interplay between oral health conditions, social and contextual factors, and the overall well-being of the individual.<sup>10</sup> Consequently, OHRQoL is now regarded as a multidimensional measure that encompasses an individual's personal assessment of their oral health, functional

<sup>1,2,5</sup>Department of Public Health Dentistry, Indira Gandhi Institute of Dental Sciences, Sri Balaji Vidyapeeth, Puducherry, India

<sup>3</sup>Preventive and Community Dentistry, College of Dentistry, University of Iowa, United States of America

<sup>4</sup>Department of Public Health Dentistry, Meenakshi Ammal Dental College & Hospital, Chennai, Tamil Nadu, India

**Corresponding Author:** Anusha Divvi, Department of Public Health Dentistry, Indira Gandhi Institute of Dental Sciences, Puducherry, India, Phone: +91 8331849330, e-mail: anushadivvi1991@gmail.com

**How to cite this article:** Divvi A, Kengadaran S, Caplan DJ, Sivasamy S, Murugappan S. A Brief Review on Children's Oral Health Related Quality of Life Measures in Dentistry. *J Sci Den* 2023;13(2):56-58.

**Source of support:** Nil

**Conflict of interest:** None

abilities, and psychosocial state. In this context, OHRQoL is defined as the impact of oral diseases and disorders on various aspects of daily life that an individual holds in high regard. This impact is deemed significant when the frequency, severity, or duration of these oral health issues is substantial enough to influence the person's overall perception and lived experience of life.<sup>11</sup>

## Children's OHRQoL

Over the past decade, there has been a growing interest in evaluating the OHRQoL in children, leading to the development of various measurement tools. These tools vary in terms of their dimensions, the specific age groups they are designed for, and whether they are reported by the children themselves or by proxies. However, they all share a common goal of assessing how oral health impacts various aspects of children's daily lives. Additionally, some of these measurement tools include questions about the potential influence of a child's oral health on their family life. According to a recent research review, the most frequently utilized measure for assessing OHRQoL in children is the child perceptions questionnaire (CPQ).

## Oral Health-related Quality of Life Measures for Children

Child perceptions questionnaire was developed in 2002 by Jokovic et al. It serves as a self-report tool designed to assess the impact of oral and oro-facial conditions on children aged 11–14. The CPQ comprises a total of 37 questions categorized into four domains: oral symptoms, functional limitations, emotional well-being, and social well-being. These questions inquire about the frequency of events related to the child's oral and oro-facial condition over the past three months. Additionally, the CPQ includes global ratings to evaluate the child's oral health and the extent to which oral and facial diseases affect their overall well-being.<sup>12</sup>

Family impact scale (FIS), introduced in 2002 by Locker and Allen aims to assess the effects of OHRQoL and their families. The scale encompasses three dimensions: parental/family activities, parental emotions, and family conflict. Typically, the 14-item FIS is completed by proxy informants, such as the child's mother or father, given that young children may not reliably provide accurate information.<sup>8</sup>

The Michigan oral health-related quality of life scale (MOHRQoL) is an essential tool for evaluating the OHRQoL, developed by Filstrup et al. in 2003. It offers two versions: Child and Parent/Guardian. The Child version, with nine items and a dichotomous response scale of 'yes' or 'no,' assesses the child's oral health-related quality of life based on their self-report. Conversely, the Parent/Guardian version, with ten items and a 5-point Likert scale, evaluates the parent's or guardian's perception of the child's OHRQoL. The MOHRQoL questionnaire has proven valuable not only in clinical practice but also in research studies focused on oral health outcomes, demonstrating excellent reliability and validity as an effective measure of OHRQoL.<sup>13</sup>

Child oral impact on daily performance (C-OIDP) questionnaire, developed by Gherunpong et al. in 2004, is a vital tool for measuring the impact of oral health on children's daily activities. This questionnaire focuses on assessing the impact of oral conditions such as toothache, bleeding gums, and tooth loss on children's quality of life. Dental problems can lead to difficulties in routine activities like eating, speaking, sleeping, cleaning the mouth, smiling, and socializing with peers. The C-OIDP questionnaire helps identify the oral impact on children's daily performance and assists in delivering appropriate treatment and preventive care, enabling healthcare providers to gauge the effectiveness of interventions and oral health programs for children, ultimately ensuring better oral health for children.<sup>14</sup>

Child oral health impact profile (COHIP) is a widely used tool developed by Broder et al. in 2007 to evaluate the oral health-related quality of life among children aged 8–15 years. This 37-item questionnaire assesses the impact of oral health on children across four major dimensions: functional well-being, social-emotional well-being, school environment, and self-image. The functional well-being domain evaluates the child's ability to perform daily activities, such as eating, speaking, and sleeping, without discomfort or pain. The social-emotional well-being domain assesses the impact of oral health on the child's emotional and social well-being, including self-esteem and peer relationships. The school environment domain examines the influence of oral health on a child's academic performance and attendance, while the self-image domain assesses how the child perceives their oral health and its impact on their self-image. Child oral health impact profile provides valuable insights into the various aspects of a child's life affected by oral health, serving as an essential tool for clinicians

and researchers in pediatric dentistry to diagnose, manage, and monitor oral health status among children.<sup>15</sup>

Pediatric oral health-related quality of life (POQL), introduced by Huntington et al. in 2011, is a significant development in the field of oral health research, specifically targeting low-income or minority children. This brief measure of OHRQoL aims to comprehensively assess the impact of oral health on the overall well-being of children from marginalized communities. Comprising 10 items, the POQL questionnaire clusters these items into four dimensions: physical functioning, role functioning, social functioning, and emotional functioning. By capturing the multidimensional effects of oral health issues, the POQL effectively broadens our understanding of the challenges faced by children in these populations, enabling healthcare providers and policymakers to develop targeted interventions to improve their oral health outcomes.<sup>16</sup>

Scale of oral health outcomes (SOHO), developed in 2012 by Tsakos et al., is the first questionnaire to assess the oral health-related quality of life (OHRQoL) of preschoolers. It includes two versions: SOHO-5c completed by children and SOHO-5p completed by parents. SOHO-5c contains seven items that evaluate if the child experiences difficulties in eating, drinking, talking, playing, and sleeping due to their teeth, and if they avoid smiling because of tooth pain or appearance. SOHO-5p comprises seven items aimed at assessing if parents perceive difficulties in their child's eating, speaking, playing, and sleeping due to their teeth, and whether the child's self-confidence is affected by their teeth leading to avoidance of smiling due to pain or appearance.<sup>17</sup>

## Use and Future Direction of Children's Health-related Quality-of-life Measures in Dentistry

The predominant focus on the adverse repercussions of oral health on one's quality of life has significantly driven research efforts. However, this approach tends to overlook the affirmative influence of oral health on overall well-being. Disregarding the positive outcomes resulting from oral health care interventions can lead to an underestimation of the significance of oral health in individuals' lives and the psychosocial implications intertwined with it. Furthermore, in our present-day diverse society, the development of a universally applicable quality-of-life measure poses a formidable challenge. Quality of life assessments pertaining to health, initially conceived within Western, English-speaking contexts, may not be readily transferable to diverse cultural settings. Consequently, it is imperative to engage in comprehensive trans- and cross-cultural research endeavors, aimed at crafting suitable health-related quality-of-life measures that account for linguistic and cultural disparities. This approach is indispensable in facilitating a more comprehensive and rigorous evaluation of health interventions, ensuring their effectiveness across a myriad of distinct settings and cultural backgrounds.

## ORCID

Anusha Divvi  <https://orcid.org/0000-0001-7024-4594>

Shivashankar Kengadaran  <https://orcid.org/0000-0002-6868-9639>

## REFERENCES

1. Cohen LK, Jago JD. Toward the formulation of socio-dental indicators. *Int J Health Serv* 1976;6(4):681–698. DOI: 10.2190/LE7A-UGBW-J3NR-Q992.

2. Sheiham A, Croog SH. The psychosocial impact of dental diseases on individuals and communities. *J Behav Med* 1981;4(3):257–272. DOI: 10.1007/BF00844251.
3. Locker D. Measuring oral health: A conceptual framework. *Community Dent Health* 1988;5(1):3–18. PMID: 3285972.
4. Slade GD. Assessing change in quality of life using the oral health impact profile. *Community Dent Oral Epidemiol* 1998;26(1):52–61. DOI: 10.1111/j.1600-0528.1998.tb02084.x.
5. Barbosa TS, Tureli MC, Gavião MB. Validity and reliability of the child perceptions questionnaires applied in Brazilian children. *BMC Oral Health* 2009;9:13. DOI: 10.1186/1472-6831-9-13.
6. Goursand D, Paiva SM, Zarzar PM, Ramos-Jorge ML, Cornacchia GM, Pordeus IA, et al. Cross-cultural adaptation of the child perceptions questionnaire 11-14 (CPQ11-14) for the Brazilian Portuguese language. *Health Qual Life Outcomes* 2008;6:2. DOI: 10.1186/1477-7525-6-2.
7. Locker D. Disparities in oral health-related quality of life in a population of Canadian children. *Community Dent Oral Epidemiol* 2007;35(5):348–356. DOI: 10.1111/j.1600-0528.2006.00323.x.
8. Locker D, Allen PF. Developing short-form measures of oral health-related quality of life. *J Public Health Dent* 2002;62(1):13–20. DOI: 10.1111/j.1752-7325.2002.tb03415.x.
9. Gift HC, Atchison KA. Oral health, health, and health-related quality of life. *Med Care* 1995;33(11 Suppl):NS57–77. DOI: 10.1097/00005650-199511001-00008.
10. Locker D, Jokovic A, Tompson B. Health-related quality of life of children aged 11 to 14 years with orofacial conditions. *Cleft Palate Craniofac J* 2005;42(3):260–266. DOI: 10.1597/03-077.1.
11. Locker D, Allen F. What do measures of 'oral health-related quality of life' measure? *Community Dent Oral Epidemiol* 2007;35(6):401–411. DOI: 10.1111/j.1600-0528.2007.00418.x.
12. Jokovic A, Locker D, Stephens M, Kenny D, Tompson B, Guyatt G. Validity and reliability of a questionnaire for measuring child oral-health-related quality of life. *J Dent Res* 2002;81(7):459–463. DOI: 10.1177/154405910208100705.
13. Filstrup SL, Briskie D, da Fonseca M, Lawrence L, Wandera A, Inglehart MR. Early childhood caries and quality of life: Child and parent perspectives. *Pediatr Dent* 2003;25(5):431–440. PMID: 14649606.
14. Gherunpong S, Tsakos G, Sheiham A. Developing and evaluating an oral health-related quality of life index for children; the CHILD-OIDP. *Community Dent Health* 2004;21(2):161–169. PMID: 15228206.
15. Broder HL, McGrath C, Cisneros GJ. Questionnaire development: Face validity and item impact testing of the Child Oral Health Impact Profile. *Community Dent Oral Epidemiol* 2007;35(Suppl 1):8–19. DOI: 10.1111/j.1600-0528.2007.00401.x.
16. Huntington NL, Spetter D, Jones JA, Rich SE, Garcia RI, Spiro A 3rd. Development and validation of a measure of pediatric oral health-related quality of life: The POQL. *J Public Health Dent* 2011;71(3):185–193. PMID: 21972458.
17. Tsakos G, Blair YI, Yusuf H, Wright W, Watt RG, Macpherson LM. Developing a new self-reported scale of oral health outcomes for 5-year-old children (SOHO-5). *Health Qual Life Outcomes* 2012;10:62. DOI: 10.1186/1477-7525-10-62.