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REVIEW

A review of the instruments for measuring Oral Health-Related Quality of Life in children.

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ABSTRACT

The introduction of the measurement of Oral Health-Related Quality of Life (OHRQoL) into a comprehensive assessment is highly significant, since it provides essential information by considering the treatment needs of each individual and population from their own perspective. Likewise, it is an important tool for the assessment of interventions, services and public health programs, especially those aimed at children and adolescents, since they are one of the main objective groups of the dental services. The aim of this paper is to review the main available instruments for measuring OHRQoL, especially in children. Measuring quality of life according to the oral health status is subjective, since it is influenced by different factors that cannot be observed in a direct manner. These instruments were developed for that purpose and represent dimensions that seek to value the personal psychosocial perception of each individual. Several health problems affect the QoL of children and adolescents, including: DDQ, Michigan OH, OH-ECQOL, SOHO-5, ECOHIS, Child-DPQ, Child-OHIP, Child-OIDP, CPQ8-10, CPQ11-14, DFTO, IFAQ, MIQ, P-CPQ, PedsQ1 OH, POQL, among others.

Keywords: *children; quality of life; oral health; oral health related quality of life.*

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INTRODUCTION

Quality of Life *(QoL)* is a concept that was first used shortly after the Second World War. Since then, it has been used excessively although few definitions of it have been offered *(Ebrahim, 1998)*. In spite of the interest in QoL, there isn't a single definition of it *(Bohart, 1992)*. Generally, it is based on the person's feelings and values, it varies through time and can be related to physical-social, psychological and spiritual aspects, which makes it dynamic *(Vásquez, 2006)*. Its extended use began during the 1960s when social scientists conducted research on QoL by collecting objective information and data, such as socioeconomic status, educational level or type of housing. These indicators were often insufficient, i.e., they were only able to explain 15% of the variance.

The concept of Health-Related Quality of Life *(HRQoL)* suggests that the patients' well-being is an important aspect that must be considered in their treatment as well as in their livelihood *(Kobau et al., 2010)*. Since its introduction as a measurement of people's health conditions, it has been one of the most used concepts in the health area. While some authors identify HRQoL as a part of general quality of life, others suggest that its use is often interchangeable with QoL. The evidence suggests that its use might be beneficial in everyday clinical practice, efficiency and effectiveness studies, risk studies or as an indicator of the quality of care *(Urzúa, 2010)*.

Oral health is defined as a multidimensional state, which favors factors, such as the absence of a disease and its symptoms, emotional functioning related to smiling, social functioning, perception of good health, satisfaction with own oral condition and absence of social disadvantages as a product of this *(Cardona & De la Hoz, 2017)*. Oral conditions represent a severe public health issue worldwide, becoming one of the most common chronic diseases, which require costly treatments that exceed the financial capacity of vulnerable populations *(Caballero et al., 2017)*. The introduction of the measurement of Oral Health-Related Quality of Life *(OHRQoL)* into a comprehen-

sive assessment is highly significant, since it provides essential information by considering the treatment needs of each individual and population from their own perspective. Likewise, it is an important tool for the assessment of interventions, services and public health programs, especially those aimed at children and adolescents, since they are one of the main objective groups of the dental services *(Matamala et al., 2019)*.

The aim of this paper is to review the main available instruments for measuring OHRQoL, especially in children.

GENERAL INSTRUMENTS FOR MEASURING OHRQoL

Measuring QoL according to the oral health status is subjective, since it is influenced by different factors that cannot be observed in a direct manner. These instruments were developed for that purpose and represent dimensions that seek to value the personal psychosocial perception of each individual *(Diaz-Reissner et al., 2017)*.

a) OHIP

The Oral Health Impact Profile, also known as OHIP, is one of the most used instruments for assessing the patients' perception of oral health and its impact on everyday quality of life. The extended version is composed of 49 items, assessed with a Likert-type scale, which were developed on the basis of a theoretical model from the WHO, which later was adapted by Locker. This instrument covers the following dimensions: functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability and handicap.

b) OHQoL-UK

Instrument based on a Likert-type scale. It measures positive and negative aspects of the impact of oral health on quality of life and it covers 4 dimensions: symptoms, physical aspects, psychological aspects and social aspects.

c) OHRQL

Instrument based on a Likert-type scale. It measures positive and negative aspects regarding OHRQL. It covers the following dimensions: pain, dry mouth, eating/chewing function, speech function, social function, psychological function and oral health perception.

d) OIDP

Instrument based on a Likert-type scale It measures the negative impact on daily performance during the past 6 months. These activities are: eating, speaking, cleaning teeth, doing activity, going out, relaxing, sleeping, smiling, occupational activities, emotional state and social relations.

e) CS-OIDP

This instrument is a variation of the OIDP, it evaluates a specific cause related to the impact produced by OHRQoL.

f) GOHAI

Instrument based on a Likert-type scale. It measures the positive and negative impact of problems related to oral health during the past three months. It covers the following dimensions: functional limitation, pain and discomfort, psychological impact and behavioral impacts.

INSTRUMENTS FOR MEASURING OHRQoL IN CHILDREN

Several health problems affect the QoL of children and adolescents *(Hettiarachchi et al., 2019)*. Most of the instruments are designed for adults, leaving aside an important and vulnerable population: children *(Aldaz, 2017)*. Despite this, there are different instruments available to be used on this population.

1) 0 to 5-year-old Preschoolers

a) DDQ *(Dental Discomfort Questionnaire)*

The Dental Discomfort Questionnaire is an instrument used to evaluate dental pain and discomfort in children between the ages of two and five. It comprises 7 questions that parents/guardians have to answer within the following range: "Never", "Sometimes", "Always". A score of 0 is given to "Never", 1 point for "Sometimes" and 2 points for "Always". The final result can, therefore, vary from 0 to 14 points *(Kochani et al., 2017)*.

b) Michigan OH *(Michigan Oral Health-Related QoL scale)*

This scale was developed mainly as a multidimensional measure for oral management of quality of life in 4-year-old children. This tool is composed originally of 7 elements and covers 3 dimensions: pain, discomfort and psychological aspects *(Filstrup et al., 2003)*.

c) OH-ECQOL *(Oral Health-Related Early Childhood Quality of Life tool)*

This scale is applied on children with oral conditions between the ages of 2 and 5. It evaluates Child Impact and Family Impact with a three-point Likert scale and the final score may vary from 16 to 48 points.

d) SOHO-5 *(Scale of Oral Health Outcomes for 5-year-old children)*

The SOHO-5 Scale is aimed at 5-year-old children with oral diseases. It comprises a section for the child and one for the parent, both measured with a three-point Likert scale. The total score may vary from 0 to 14 points in the child's section and from 0 to 28 points in the parent's version *(Zaror et al., 2018)*.

e) ECOHIS *(Early Childhood Oral Health Impact Scale)*

This instrument was developed in the United States *(Pahel et al., 2013)* in order to assess the negative impact of oral con-

ditions on the quality of life of preschool aged children. It is composed of a Child Impact Section *(CIS)* and a Family Impact Section *(FIS)*.

2) Schoolchildren and adolescents aged 6 to 18 years

a) Child-DPQ *(Child Dental Pain Questionnaire)*

This questionnaire is aimed at assessing pain on children between the ages of 8 and 9. It is self-administered and is composed of three dimensions: Prevalence, severity and impact. There might be different responses according to the patient with a total score that varies from 0 to 15 points.

b) Child-OHIP *(Child Oral Health Impact Profile)*

This instrument is aimed at children with oral conditions between the ages of 8 and 15. It is self-administered and is composed of 5 dimensions: functional, social-emotional, well-being, school environment and self-image. Responses adhere to a 5-point Likert scale. The total score varies from 34 to 170 points.

c) Child-OIDP *(Child Oral Impact on Daily Performance Index)*

This instrument is designed for children with oral conditions between the ages of 11 and 15. It is self-administered and is composed of 2 dimensions: physical and psychological-social. Responses adhere to a 3-point Likert scale. The total score varies from 0 to 100 points *(Zaror et al., 2018)*.

d) CPQ8-10 *(Child Perceptions Questionnaire 8–10)*

This scale was developed for children with oral conditions between the ages of 8 and 10. It is self-administered and is composed of 4 dimensions: oral symptoms, functional limitations, emotional well-being and social well-being. The total score is based on a 5-point Likert scale and varies from 1 to 55 *(Zaror et al., 2018)*.

e) CPQ11-14 *(Child Perceptions Questionnaire 11–14)*

It is designed for children with oral diseases between the ages of 11 and 14. It is self-administered and telephone-based. It comprises 4 dimensions: oral symptoms, functional limitations, emotional well-being and social well-being. The total score is based on a 5-point Likert scale and varies from 1 to 80 *(Zaror et al., 2018)*.

f) DFTO *(Dental Freetime Trade-Off Scale)*

This instrument is designed for assessing utility of dental free time in children between the ages of 14 and 19. It is self-administered, unidimensional and responses may be diverse. The total score is measured in time *(minutes) (Zaror et al., 2018)*.

g) IFAQ *(Impact of Fixed Appliances Questionnaire)*

This questionnaire is designed for children with orthodontic fixed appliances between the ages of 10 and 18. It is self-administered and responses are measured with a 5-point Likert scale *(Zaror et al., 2018)*.

h) MIQ *(Malocclusion Impact Questionnaire)*

This instrument is designed for children with malocclusion between the ages of 10 and 16. It is self-administered and is composed of 4 dimensions: appearance of teeth, effect on social interactions, oral health/function and overall function. It uses a 3-point Likert scale *(Zaror et al., 2018)*.

i) OHRQoL Hypodontia *(Oral Health-Related Quality of Life for Patients with Hypodontia)*

This instrument is focused on children with Hypodontia-Anodontia. It is self-administered *(Zaror et al., 2018)*.

3) Children and adolescents

a) P-CPQ *(Parental-Caregiver Perceptions Questionnaire)*

This instrument is designed for children with oral conditions between the ages of 2 and 14. It assesses 3 dimensions: functional limitations, emotional well-being and social well-being *(Zaror et al., 2018)*.

b) PedsQ1 OH *(Pediatric Quality of Life Inventory™ Oral Health Scale™)*

This questionnaire was designed for children with oral conditions between the ages of 2 and 18. It covers one dimension and responses adhere to a 5-point Likert scale. The total score varies from 0 to 100 points.

c) POQL *(Pediatric Oral Health-Related Quality of Life)*

This questionnaire was designed for children with oral conditions between the ages of 2 and 16. It covers 5 dimensions: physical functioning, role functioning, social and emotional impact, and overall environment. It adheres to a 4-point and 5-point Likert scale. The total score varies from 0 to 100 points.

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