Review Article

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Early Childhood Oral Health Impact Scale (ECOHIS) and the Scale of Oral Health Outcomes-5 (SOHO-5) in Assessment of Oral Health Related Quality of Life (OHRQoL): An Overview

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Quality of life (QoL) is the general measure of human well-being and is an indication of the heath of the society. It is recognized that health contributes to quality of life (QoL) known as health related quality of life (HRQoL) which is now acquainted as a significant parameter for patient assessment in healthcare. Early assessment of childhood oral health is very important and can impact their quality of life. Several instruments have been developed to detect the impact of oral health on children´s quality of life. With the evolution of such tools comes the concept of Oral Health-Related Quality of Life (OHRQoL). Of the many scales for quality of life in children, two scales that have been developed exclusively for children below the age of 6 years are the Early Childhood Oral Health Impact Scale (ECOHIS) and the Scale of Oral health Outcomes -5 (SOHO-5). The aim of this paper was to provide an overview on ECOHIS and SOHO-5 in assessment of OHRQoL.

Keywords: Quality of life, Oral health, Children

INTRODUCTION

Early assessment of childhood oral health is very important and can impact their quality of life later on (1). In fact, many studies reported that children who are not assessed early and have untreated dental caries will suffer from difficulty in chewing, socializing, and sleeping which generally reduce their quality of life (2, 3). One of the most important ways to mitigate oral risks and to limit their impact on quality of life is to conduct an early diagnosis and complete an impact scale assessment (3). Over the past decade, several instruments have been developed to detect the impact of oral health on children´s quality of life.

Of the many scales for quality of life in children, two scales that have been developed exclusively for children below the age of 6 years are the Early Childhood Oral Health Impact Scale (ECOHIS) and the Scale of Oral health Outcomes -5 (SOHO-5). While the ECOHIS was developed in the United States (4), the SOHO-5 was developed in the United Kingdom (5).The ECOHIS is limited to the perceptions of parents/guardians (6), on the other hand the SOHO-5 was developed to evaluate the Oral Health Related Quality of Life (OHRQoL) of 5-year-old children through both self-reports as well as proxy reports by parents/guardian (7). The aim of this paper was to provide an overview on ECOHIS and SOHO-5 in assessment of OHRQoL.

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Quality of Life (QoL)

The World Health Organization (WHO) in 1952 defined Quality of Life (QoL) as "an individual's perception of their position in life in the context of the cultural and value systems in which they live and in relation to their goals, expectations, standards and concerns" (8). QoL) is the general measure of human well-being and hence is an indication of the heath of the society. The measure takes into account many factors, although health is the most important of them, other factors include emotional well-being, safety, financial stability, and social relationships.

Gift and Atchison (1995) were among the first to examine the implications and role of oral health in quality of life measures. In general, the authors stated that health-related quality of life relates to various broad domains such as the opportunity, health perception, functional states, diseases

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prevalence, and duration of life. The existing OHRQoL measures benefit clinical practice as they help clinicians and dental specialist in choosing the correct way of treatment and mitigate oral health risks in patients. Moreover, researchers and oral health investigators can use quality of life measures to estimate oral health and oral infection risks while tracking prevalence and causes. Besides, policy makers will also be able to establish programs that deal with oral health risks based on the underlying quality of life measures (9).

Health Related Quality of Life (HRQoL)

It is recognized that health contributes to quality of life (QoL) known as health related quality of life (HRQoL) which is now acquainted as a significant parameter for patient assessment in nearly every field of physical and mental healthcare (10, 11). One of the existing definitions consider HRQoL as "the subjective assessment of the influence of health status, health care, and health promotion on an individual's ability to maintain a level of functioning that allows him to perform activities that are important and affect overall welfare" (12).

Interest in HRQoL in early childhood began in the late 1990s with research into scales to quantifying HEQoL. One of the first scales for the measurement of HRQoL in early childhood was developed in the Netherlands. The TNO-AZL Children Quality of Life Questionnaire was developed by Vogel and co-workers (1999) and was designed to measure HRQoL in children and adolescents (13). Over the past few decades, various measures have been developed to gauge the impact of oral health issues on individuals physical and well-being. The impact is anticipated to influence the individual's mental, social, and psychological well-being. Such instruments and health assessment apparatus usually take into account the previous health experiences and history of the individuals as well as their overall health and disease vulnerability (14).

Oral Health-Related Quality of Life (OHRQoL)

With the evolution of tools comes the concept of OHRQoL. This concept was first focused on adults and seniors but was later renewed to include children as well. Several tools were therefore used to gauge this measure. For instance, Canadian researchers and clinicians used the Child Oral Health Quality of Life (COHQoL) questionnaire which integrates the Parental-Caregiver Perceptions Questionnaires (P-CPQ). Later, the ECOHIS was developed for the specific applications to children (pre-school age children from age of 3 to 5 years old). It was purposed designed to be simple and short so that it can be completed by children's parents quickly and accurately (15).

OHRQoL was defined as a "self-report specifically pertaining to oral health–capturing both the functional, social, and psychological impacts of oral disease" (16). Another definition that conceptualizes OHRQoL as "the absence of negative impacts of oral conditions on social life and a positive sense of dentofacial self-confidence" (17). By measuring the OHRQoL, patients will have an active role in evaluating the treatment provided to them (18). It will also help the clinicians to identify what the patients suffer throughout the treatment and to integrate these factors when recommending treatment options (19). The patients adherence can improve if they have expectations that are more realistic (20). Furthermore, proper explanation to the patient and managing their expectations is important in obtaining the informed consent. Several factors may affect the quality of life perception by the patient such as age, gender, socioeconomic status, and culture (18, 21). In the published literature, OHRQoL has been identified as a multidimensional construct containing physical, social, and psychological domains (22).

The Early Childhood Oral Health Impact Scale (ECOHIS)

ECOHIS was designed to evaluate OHRQoL of children of preschool age and younger. The ECOHIS consists of 13 questions relevant to preschool-age children. The ECOHIS examines two areas: impact on children (usually 9 items) and impact on families (usually 4 items). The children section asks about child's symptoms, functions, psychology, and self-image. The family/parent section asks about parental distress and function. Therefore, questions may include asking the frequency of certain practices and behaviors of children and record scores accordingly. The test has been extensively validated for the intended student age and was implemented in various settings and conditions.

The survey questionnaire relies on parental ratings of the 13 items grouped in two main parts: the child impact section and the family impact section. The child impact section covers four domains: child symptoms (1 item), child functions (4 items), child psychology (2 items), and child self-image and social interaction (2 items). The family impact section covers two domains: Parental distress (2 items) and family function (2 items). Each question asks about the frequency of an oral health-related problem and is scored on a scale from 0-5, as follows: Never (score 0), hardly ever (score 1), occasionally (score 2), often (score 3), very often (score 4), don't know (score 5) (6).

Scale of Oral Health Outcomes (SOHO)

As dental caries is a chronic disease that can affect children from a very young age, it is important to measure its impacts on quality of life as they may affect the psychological, social, and educational development of the first self-reported OHRQoL measure among 5 year-old children. All inter-item correlations were positive and none was very high

and all item-total correlation coefficients were above the recommended level of 0.2 and Cronbach's alpha was 0.74. Despite the positive initial results, the assessment of this questionnaire should be an on-going process, by extending psychometric testing to properties not evaluated so far and assessing its applicability and performance in other populations (23).

SOHO is an important and useful tool in clinical studies and public health programs. The tool has been used over the decades and was validated in many settings. Tsakos *et al*. (2012) developed a new version of the self-reported scale for 5 year children and named it SOHO-5. The authors stated that most tools including the traditional SOHO depend on parental reports and hence suggested a more accurate report based on self-reported measures. The proposed tool was developed and validated in the UK (5). Studies involving the SOHO-5 that evaluate the perception of parents/guardians and children have demonstrated that five-year-old children are capable of providing their own perceptions regarding their OHRQoL (1, 23-26).

DISCUSSION

The first study to develop and validate a self-reported OHRQoL measure for 5-year-old children reported that the initial reliability and validity findings were very satisfactory. The study concluded that SOHO-5 can be a useful tool in clinical studies and public health programs (7). In a comparative study, both the ECOHIS and SOHO-5p (parent version) demonstrated similar capacity for the evaluation of OHRQoL among preschool children. Both questionnaires proved capable of distinguishing between children with severe caries and those with no caries experience or caries in the less advanced stages. However, the reports of children differed from the reports of their parents/caregivers and the SOHO-5c (child version) was unable to discriminate children with and without caries (27).

Higher SOHO-5 and ECOHIS scores indicate worse quality of life for groups reporting worse perception and having worse oral health. Caries and abscess were associated with bad SOHO-5 and ECOHIS scores. This shows that caries may play an important role in the overall perception of OHRQoL in very young children (28, 29). Studies on children aged around 5 years have mostly used OHRQoL measures based on parental information (30, 31). Oral diseases have considerable negative effects on children's daily lives and parentally reported smile of children with poor oral health is affected (32). Even at a young age, oral diseases can impact not only on the functional but also the psychosocial aspects of life. Dental caries affecting children may affect the psychological, social, and educational development and hence it is important to measure its impact on the quality of life of children (30, 33, 34).

CONCLUSION

By using the SOHO-5 and ECOHIS to measure the QHRQoL it will assist the oral healthcare professionals, researchers, and public and private health agencies understand the quality of life of young children and their families. This will help to plan oral interventions, promote and implement oral health care among the population.

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