

Oral health-related quality of life evaluation

Cristina Nuca¹, Corneliu Amariei², Daniela-Laura Rusu³,
Cristina Arendt⁴

Constanta, Romania

Summary

Assessment of oral health-related quality of life is made by subjective indicators providing information upon the impact of oral conditions on the individual's quality of life along with the self-perceived need for medical dental care.

The quantitative methods for measuring oral health-related quality of life comprise the global self-evaluation method and completion of a multiple question questionnaire. The first method is intuitive, based on the individual's answer to one single question. The answers are simple, and the method can be applied to all sorts of social categories, on a large scale, and also for validation of multiple-item questionnaires. The second method uses the multiple-item questionnaire or socio-dental indicators. These indicators have certain common features (as the evaluated domains) and also differences in their technical characteristics. Some of these specific instruments developed to assess the impact of oral disorders on quality of life are described in the article in brief.

The tools used for measuring the oral health-related quality of life have multiple applications, the most important being the evaluation of the health needs of a population and planning of public oral health services.

Key words: quality of life, oral health, subjective indicators, global self-evaluation, multiple question questionnaires.

Quality of life has multiple definitions and a variety of meaning for different individuals. These definitions start from vague concepts such as “whatever the individual defines it to be” and “ability to lead a normal life” to more concerning the goals of the individual's life: “the individuals’ perceptions 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” (W.H.O.) [1].

Oral health-related quality of life is defined as “a multifaceted concept that attempts to simultaneously assess how long and how well people live”. This concept portrays health as „a part of everyday living, an essential dimension of the quality of our lives, a resource which gives people the ability to manage and even to change their surroundings” [2].

Oral health-related quality of life is also defined as a “self-report specifically pertaining to oral health – capturing both the func-

¹ Assoc. Prof., DMD, PhD, Department of Preventive Dentistry, Faculty of Dental Medicine, “Ovidius” University of Constanta, Romania

² Professor, DMD, PhD, Department of Oral Health and Dental Management, Faculty of Dental Medicine, “Ovidius” University of Constanta, Romania

³ Assist. Prof., DMD, Department of Prosthetics, Faculty of Dental Medicine, “Ovidius” University of Constanta, Romania

⁴ Assist. Prof., DMD, Department of Oral Health, Faculty of Dental Medicine, “Ovidius” University of Constanta, Romania

tional, social and psychological impacts of oral disease” (Gift H.C.) [3,4].

Oral disease itself is a common problem affecting many people throughout the world, it being rarely life threatening. For a long period this resulted into the fact that governments and health policy makers tended to give oral health relatively low priority.

Socio-dental indicators have been used since the 70ies by oral health researchers and by policy-makers who „needed a method for assessing the impact of chronic diseases that went beyond the limited measures of mortality and morbidity indicators”. Starting with the 80ies concrete data concerning social and psychological impact on oral disorders became systematized [5].

Evaluation of oral health-related quality of life brings together the dimension of social impact and clinical indicators, measures the extent to which health status disrupts normal functionality and social roles and produces major changes of behavior, such as inability to work, attend school, undertake parental or household duties (D. Locker) [6,7,8].

This evaluation is made by subjective indicators, complementary to those clinical, and they offer information on the impact of the oral conditions and also about the self-perceived need for medical dental care.

The quantitative methods for oral health-related quality of life evaluation include two main methods: the global self-evaluation method and completion of a multiple question questionnaire – the socio-dental indicators.

These methods that can be applied to large population groups are at the same time used and are related to clinical examination indicators, patient satisfaction measuring and to quality measures used in monitoring medical services supply.

Oral health-related quality of life evaluation by **global self-evaluation method** is an intuitive assessing method, based on individual’s answer to one single question. [9]

The answers are simple, and this type of evaluation can be applied to all sorts of social categories and can be included within more detailed questionnaires.

For instance, subjects are asked: „How would you rate the health of your teeth, gums and mouth?”.

The answers are made in general terms, on a five-point ordinal scale ranging from excellent to unsatisfactory (1 - excellent; 2 - very good; 3 - good; 4 - satisfactory; 5 - unsatisfactory).

Another question addressed in this kind of evaluations is „In which category can you frame your own oral health?”, with five general answer scores, from excellent to unsatisfactory. In these studies the attention is kept especially to the last two categories of answers.

Classified in this way, the answers are variable because the standards are different for each person: an individual can self-evaluate his own oral health state as excellent due to lack of pain, and another person can evaluate his oral health in the same way based on the lack of extractions. [10]

This fact is not unfavorable but can be a real advantage because it allows to each individual to decide which one of his oral health experiences is more consequential on his life quality.

The utility of such an evaluation consists in examining factors associated to oral health self-perception and also gives „positive” alternatives to answers (as excellent), thus measuring not only the negative impact of the oral health status, but also the positive one [9].

It is important that these questionnaires have as objective the assessment of oral health-related quality of life and not of the real oral health, which needs objective evaluation.

Because the single-item global ratings represent the simplest method of assessing oral health-related quality of life, it can be applied on a large scale, even in national surveys, in order to start epidemiological

studies by objective indicators and community oral health programs and also for validation of the multiple-item questionnaires.

A second quantitative evaluation method for assessing oral health-related quality of life is the use of **multiple-item questionnaire** or **socio-dental indicators**.

Socio-dental indicators are defined as „evaluation of the level where the oral health status disturbs the functioning social role and gives major behavior changes, such as incapacity of work, attending school or undertaking parental or household duties” [7,8].

Generally, their theoretical frame shows the multidimensional character of oral health, including both bio-medical concepts, as well as socio-medical, and represents personal physical, psychological, functional and social characteristics.

These socio-dental indicators assess the relation between the quality of life and the oral health by the answers to specific and multiple-item questions, organized in questionnaires.

For example, certain questions are based on function, others on pain and discomfort, and others evaluate the self-estimated image of an individual and his social contacts.

This approach tries to describe specific experiences and to comprise the entire definition of the oral health-related quality of life concept.

The tools created to assess the oral health-related quality of life comprise some common features as the evaluated domains (functional, psychological, social) and also differences in their technical characteristics (subscales, administration methods, the answer possibilities and the final scoring) [11].

Some of the specific instruments developed to assess the impact of oral disorders on quality of life are as follows:

1. **Sociodental Scale** – authors: Cushing, Sheilam & Maizels, 1986 [12];

- questionnaire with 14 questions from the following domains: chewing, talking, smiling, laughing, pain, appearance;

- type of question: “Are there any types of foods you have difficulties chewing?”;

- the answers are simple, with “yes” or “no”.

2. **RAND Dental Health Index** – authors: Dolan et al. 1991 [13];

- questionnaire with 3 questions from the following domains: pain, worry and conversation;

- type of question: „How much pain have your gums and teeth caused you?”;

- four categories of answers, from „not at all” to „a great deal”.

3. **General (Geriatric) Oral Health Assessment Index (GOHAI)** – authors: Atchison & Dolan 1990 [14];

- questionnaire with 12 questions from the following domains: chewing, eating, speaking, social contacts, appearance, pain, worry, self-consciousness, swallowing;

- type of question: „How often did you limit the kinds or amounts of food you eat because of problems with your teeth or dentures?”;

- six categories of answers, from „always” to „never”.

4. **Dental Impact Profile** – authors: Strauss & Hunt, 1993 [15];

- questionnaire with 25 questions from the following domains: appearance, eating, speaking, confidence, happiness, social life, relationships;

- type of question: „Do you think your teeth or dentures have a good effect, bad effect (negative) or no effect on your feeling comfortable?”;

- three categories of answers: „good effect”, „bad effect”, „no effect”.

5. **Subjective Oral Health Status Indicators** – authors: Locker & Miller 1994 [16];

- questionnaire with 42 questions from the following domains: chewing, speaking, symptoms, eating, communication, social relations;

- type of question: „During the last year how often did the dental problems cause you sleep disorders?”;

- the answers are various, depending on question format.

6. Oral Health Impact Profile (OHIP)

- authors: Slade & Spencer, 1994 [17];
- questionnaire with 49 questions (or 14 questions the short type – OHIP-14) organized in seven sub-scales by the evaluated domain: functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability, handicap;
- type of question: „Have you had difficulty chewing foods because of problems of your teeth, mouth or dentures?“;
- five categories of answers, from „very often“ to „never“.

7. Oral Health Quality of Life Inventory – authors: Cornell et al., 1997 [18];

- questionnaire with 56 questions from the following domains: oral health, nutrition, self-rated oral health, overall quality of life;
- questions organized in two sections: A - „How important is for you to speak clearly?“ and B - „How happy are you with your ability to speak clearly?“;
- the answers are also organized in two parts: A – four categories ranging from „not at all important“ to „very important“ and B – also four categories ranging from „unhappy“ to „happy“.

8. Oral Impacts on Daily Performances (OIDP) – authors: Adulyanon et al. 1996 [19];

- questionnaire with 9 questions from the following domains: performance in eating, speaking, oral hygiene, sleeping, appearance, emotions, social contacts;
- questions organised in sections: „In the last 6 months have dental problems caused you any difficulty in eating?“; „During the last 6 months how often have you had this difficulty?“;
- various types of answers, depending on the question.

9. Oral Health-Related Quality of Life – authors: Kressin et al. 1996 [18];

- questionnaire with 3 questions from

daily activities, social activities and conversation;

- type of question: „Have problems with your teeth or gums affected your daily activities such as work or hobbies?“;
- six categories of answers ranging from „all of the time“ to „none of the time“.

10. Dental Impact on Daily Living – autori: Leao & Sheiham 1996 [20];

- questionnaire with 36 questions from the following domains: comfort, appearance, pain, daily activities, eating;
- type of question: „How satisfied have you been, on the whole, with your teeth in the last three months?“;
- various types of answers, depending on the question.

11. Child Oral Health-Related Quality of Life (COHRQoL) - authors: Aleksandra Jokovic & David Locker, 2002 [21,18];

- has two questionnaires:
- a) *Child Perceptions Questionnaire (CPQ)*:
 - there are three types, depending on the age of children in which will be applied: 6-7 years, 8-10 years and 11-14 years old;
 - is used to assess the impact of oral disorders on the children's quality of life;
 - is filled by children;
 - has 36 questions from four domains: symptoms, functional limitation, emotional status, social well-being;
 - recall time is four weeks.

b) *Parental Perceptions Questionnaire (PPQ)*:

- is used to assess the impact of the children's oral disorders on their quality of life from parental point of view;
- is filled by the parents;
- has 31 questions;
- recall time is 3 months.

12. Child Oral Health Impact Profile (Child – OHIP) [22];

- was created by an international study and was simultaneously validated in the U.S.A., Great Britain, Spain, Portugal, China, France and Holland;

- questionnaire with 54 questions;
- the answers are scaled on five levels;
- it can be applied to children between 10 and 14 years old;
- it allows international cross-sectional studies for the assessment of the oral health-related quality of life in children depending on the cultural characteristics of each country.

These methods of measuring oral health-related quality of life are applied for measuring the efficiency and effectiveness of medical interventions, assessing the quality of medical care, estimating health needs of a population, improving clinical decisions and understanding the causes and consequences of differences in health [23].

About D. Locker, the use of these tools for measuring the oral health-related quality

of life is important for political reasons (the resources allocation) and also for theoretical and practical reasons (for research, public oral health and clinical practice) [24].

Until now these indicators were used in epidemiological cross-sectional studies and interventional studies, but their major importance is the possibility to assess the needs for dental care of a population, because the clinical indicators “are essential for measuring the disease but not for health and treatment need” [12].

Consequently the measurement of the treatment needs based on subjective indicators becomes essential for planning public oral health services, estimating the costs and planning strategies for dental care services.

References

1. <http://www.nursingsociety.org>
2. Georgios Tsakos, Dept. of Epidemiology and Public Health, University College London: *Oral Health-Related Quality of Life*. EADPH 11th Annual Conference, Prague, September 2006.
3. Gift HC. Research directions in oral health promotion for older adults. *J. Dent. Educ.* 1992; **56**: 626-631.
4. Gift HC, Atchison KA. Oral health, health, and health-related quality of life. *Medical Care* 1995; **33**: NS57-NS77.
5. Annerose Borutta, W.H.O. Collaborating Center „Prevention of Oral Disease”, Friedrich-Schiller-University of Jena, Germany: „Oral Health-related Quality of Life”, EADPH Congress 2004 Porto.
6. Locker D. Measuring oral health: a conceptual framework. *Community Dental Health* 1988; **5**: 3-18.
7. Locker D. An Introduction to Behavioural Science and Dentistry. London: Routledge, 1989.
8. Locker D. Applications of self-reported assessments of oral health outcomes. *Journal of Dental Education* 1996; **60**: 494-500.
9. Rohr Inglehart M, Bagramian RA. Oral Health-Related Quality of Life. Quintessence Publishing Co., Inc. 2002.
10. Gift HC, Atchison KA, Drury TF. Perceptions of the natural dentition in the context of multiple variables. *J. Dent. Res.* 1998; **77**: 1529-1538.
11. Georgios Tsakos, Dept. of Epidemiology and Public Health, University College London: *Questionnaire development and use in planning*. Global Forum for Health Research, Geneva, December 4, 2003.
12. Cushing AM, Sheilam A, Maizels J. Developing socio-dental indicators: The social impact of dental disease. *Community Dent. Health* 1986; **3**: 3-17.
13. Dolan TA, Gooch BF. Associations of self-reported dental health and general health measures in the Rand Health Insurance Experiment. *Community Dent. Oral Epidemiol.* 1991; **19**: 1-8.
14. Atchison KA, Dolan TA. Development of the Geriatric Oral Health Assessment Index. *J. Dent. Educ.* 1990; **54**: 680-687.
15. Strauss RP, Hunt RJ. Understanding the value of teeth to older adults: Influences on quality of life. *Journal of Am. Dent. Assoc.* 1993; **124**: 105-110.
16. Locker D, Miller Y. Evaluation of subjective oral health status indicators. *Journal of Dent. Public Health* 1994; **54**: 167-176.
17. Slade GD, Spencer AJ. Development and evaluation of the oral health impact profile. *Community Dent. Health* 1994; **11**: 3-11.
18. Skaret E, Nordrehaug Åstrøm A, Hangejorden O. Oral Health Related Quality of Life: Review of existing instruments and suggestions for use in oral health research in Europe. In European Global Oral Health Indicators Development Project, 2003 Report Proceedings. Editors: Denis M. Bourgeois, Juan Carlos Llodra; ISBN 2-912550-31-9, 2004.
19. Adulyanon S, Vourapukjaru J, Sheilam A. Oral impacts affecting daily performance in a low dental disease Thai population. *Community Dent. Oral*

Epidemiol. 1996; **24**: 385-389.

20. Leao AT, Sheilam A. The development of a socio-dental measure of dental impacts on daily living. *Community Dent. Health* 1996; **13**: 22-26.

21. 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. PMID: 12161456 [PubMed - indexed for MEDLINE]

22. Broder H, Jokovic A, Locker D. et al. Developing the Child Oral Health Impact Profile: An

International Study. IADR/AADR/CADR 80th General Session, San Diego, California, March 6-9, 2002.

23. Ware JE, Brook RH, Davies AR, Lohr KN. Choosing measures of health status for individuals in general populations. *American Journal of Public Health* 1981; **71**: 620-625.

24. Locker D. *Concepts of oral health, disease and quality of life*. In: Slade GD: Measuring Oral Health and Quality of Life. Chapel Hill: University of North Carolina – Dental Ecology, 1997; pp 11-24.

Correspondence to: Dr. Cristina Nuca, DMD, PhD, Assoc. Prof., Department of Preventive Dentistry, Faculty of Dental Medicine. Ilarie Voronca no. 7, 900684 Constanta, Romania. E-mail: medcris@yahoo.com