

OVERVIEW OF ORAL HEALTH RELATED QUALITY OF LIFE INDICATORS

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ABSTRACT

The instruments that evaluate the health-related quality of life are extremely useful in the medical practice and research since they allow the full approach of patient's general status. They come in the shape of questionnaires whose usage may be carried out either by creating one's own questionnaire or by translating one from the literature. Regardless of the chosen method, the questionnaire must meet a series of characteristics that may make it easy to understand and use.

In the field of dentistry, indicators falling into several categories have been validated: some of them address the population groups of different ages; others address the evaluation of therapeutic needs while others appreciate the impact determined by the specific oral disorders. Out of the multitude of indicators that may be found in the literature, those that are frequently used in population studies stand out due to their superior psychometric characteristics, limited scales and easy codification possibilities.

A special category is represented by the indicators for the assessment of oncologic patient's life quality, and instruments that explore the diverse facets of this disorder are validated such as post-irradiation sequels, complications of the surgical treatment, and the impact on the general health state.

Another utility of these instruments refer to the possibility of identification of the oral disorders and the therapeutic needs in persons that cannot come to the dental office, such as the disabled and the institutionalized elderly.

Key words: oral health, quality of life, instruments

The health-related quality of life means the physical, psychic and social wellbeing as well as patients' capacity to fulfill normal tasks during their daily life [1]. Quality of life is conditioned both by the health state and by other important aspects of life such as social, psychological, financial, cultural and economic aspects [2,3]. The "quality of life"

(QoL) term was used for the first time by the British economist Arthur Cecil Pigou in 1920, and the first references to the relation between oral health and quality of life may be found ever since 1978 when they discussed for the first time about the relation between the oral cavity and patients' quality of life [4].

Later on, in 1990 the National Institute of Dental and Craniofacial Research introduced the concept of OHRQoL in the scientific community through the funding of two major conferences focused on this term and supporting a significant number of research studies on this topic [5].

Oral health related quality of life (OHRQoL) is a general term used to analyze the impact of oral health on wellbeing from the viewpoint of all aspects, such as pain, discomfort, anxiety, stress, functional modifications, the relationship with one's family, friends and the social life within the community [6] (figure 1).

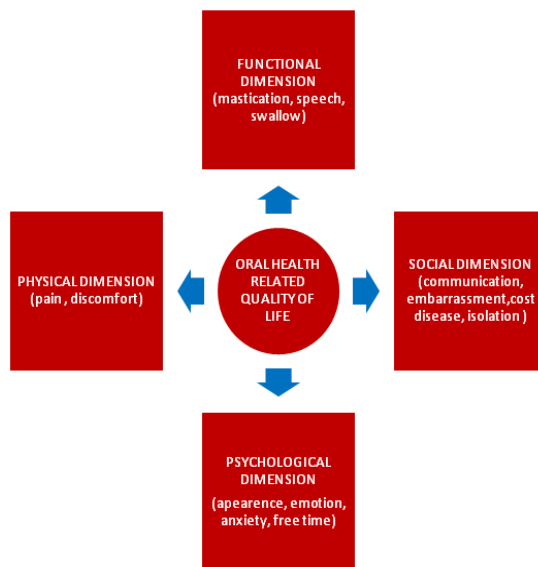


Figure 1- Factors associated with Oral Health Related Quality of Life

The traditional “objective” criteria, such as dental cavities, the periodontal disease or edentulism do not manage to include subjective assessments as well (for instance patient’s satisfaction, the reduction of symptoms and functional and emotional wellbeing) from the patient. That is why taking into account the OHRQoL impact may differentiate the treatment needs and may help prioritize care for the vulnerable populations [7].

Since we have such a vast definition, it is obvious that many assessment instruments have been designed; some of them have been used more frequently while others are meant for certain disorders or population. Sometimes these instruments are used as screening to identify some hidden problems of previous dental treatments.

A review of the main instruments for the assessment of life quality in the medical field shows the existence of more than 800 generic and specific instruments [8]. The goal of using these instruments is first of all to assess the impact of oral disorders on wellbeing, daily activities, nutrition and psycho-social aspects. Some other objectives have also been identified such as the assessment of benefits brought by medical treatments to patients, the monitoring of progress of the treatments applied and the analysis of effects the treatments performed correctly or incorrectly, partially or totally or of iatrogeneses [9,10].

They also help decision makers to elaborate programmes and establish

priorities, strategies and funding. Nowadays, the association between the socio-demographic factors, the dental clinical disorders, oral health behaviours. **The aim of this narrative review** is to underline the characteristics of the main indicators used in the life quality studies in the field of dentistry.

1.Designing and validating a life quality questionnaire

The instruments for the assessment and measurement of life quality at individual level are described in the form of questionnaires.

Any researcher who wishes to conduct a research study on this topic has two possibilities: to use a questionnaire validated in another language than the mother tongue or to create their own questionnaire. Regardless of their choice, both variants involve procedures and criteria necessary so that the final instrument might answer the questions: *What does the test assess? What is the aim of its use? How will be the test results used? Who are the individuals to whom the test was applied?*

The quality of information collected and interpreted depends on the quality of questionnaire. A questionnaire badly designed or containing stupid questions may result in estimation errors of the phenomenon under study, thus triggering an undervaluation or overvaluation of the importance thereof with the invalidation of research conclusions [12]. The importance of correct definition of the terms used in a questionnaire is solved through the assignment of a multidisciplinary group of experts. The questions of the questionnaire must be clearly formulated and without any ambiguities. This means, above all, the

decisions at different levels [11]. and OHRQoL has been analysed for all population groups (teenagers, old people, pregnant women, and adults). avoidance of too general, too complex or too ambiguous phrases.

Thus, a questionnaire must awake patient's interest and their desire to answer the questions; otherwise the patient will fill in the questionnaire incorrectly or will not complete it at all.

In the case of translation of a questionnaire validated for a certain population category into another language, there is the problem of validation for the respective language and for another population that has other social and cultural features.

Regardless of the type of questionnaire used, it must meet a series of validation and design criteria also referred to as psychometric characteristics which refer to validity, reliability and feasibility [13,14].

2. Indicators frequently used in dental research

2.1. Indicators addressing children and teenagers

Table 1 presents the most frequent questionnaires used to evaluate the quality of life correlated to children's and teenagers' oral health. Out of the 10 questionnaires presented in table 1, the most used one is *Child – Oral Impact on Daily Performance* created by Gherunpong, Tsakos and Sheiham in 2008 [15]. The Child-OIDP has two parts and was self-administered. The first part of the questionnaire consisted of a check-box style list of oral pathological conditions that affected the participants during the past three months. The second part of the Child-OIDP questionnaire was used to assess the effects of oral conditions on the eight performances: eating, speech, oral hygiene, sleeping and

resting, feeling emotional, smiling, the ability to show one's teeth without

embarrassment, study, lessons, learning, going to school and socializing [15].

Table 1- OHQoL indicators for children and adolescents (Gendersson, 2013; Duong, 2022)

Indicator	Abbreviation	Year	Nr items	Authors
Child – Oral Impact on Daily Performance	Child-OIDP	2008	8	Gherunpong S, Tsakos G, Sheiham A (15)
Child Perception Questionnaire (11-14)	CPQ 11-14	2002	37	Jokovic A, Locker D, Guyatt G (16)
Child Perception Questionnaire (8-10)	CPQ 8-10	2004	25	Jokovic A, Locker D, Guyatt G (17)
Child Oral Health Impact Profile	COHIP	2007	34	Broder HL, McGrath C, Cisneros GJ (18)
Paediatric Oral Health-related Quality of life Questionnaire	POQL	2011	20	Huntington NL (19)
Family Impact Scale	FIS	2003	14	Locker D, Jokovic A, Stephens M (20)
Early Childhood Oral Health Impact Scale	ECOHIS	2007	13	Pahel BT, Rozier R, Slade G (21)
Orthognathic questionnaire	QOL	2000	33	Cunningham SJ, Garratt AM, Hunt NP (22)
Index of Ortodontic Treatment Need	IOTN	1989	Aesthetic and Dental Components	Brook P, Shaw W (23)
Youth Quality of Life Instrument-Research Version	YQOL-R	2002	49	Patrick D et al (24)

2.2. Indicators addressing adults

The most used instruments to evaluate adults' quality of life in population studies are presented in table no. 2. In this category, the questionnaires that are most frequently

used in practice and research are: **Oral Health Impact Profile (OHIP 49/14)**, **Oral Impact on Daily Performance (OIDP)** and **Geriatric Oral Health Assessment Instrument (GOHAI)**.

Oral Health Impact Profile (OHIP) [25,26]

This is one of the most frequently used instruments to evaluate the quality of life for the adult population, including the elderly, and initially contained 49 questions. Subsequently there were shorter variants containing 20 questions (OHIP-20), 14 questions (OHIP-14) and more recently only 5 questions (OHIP-5). The 14 question-version is the most used instrument to evaluate OHRQoL. It has also been used for

other respondents than those speaking English as it has been translated into other languages, including into Romanian as well [38].

The instrument relies on Locker's theory, and contains 7 fields related to life quality: 1. functional limitation, 2. physical pain, 3. psychological discomfort, 4. physical disability, 5. psychological disability, 6. social disability and 7. handicap.

A variant of this questionnaire has been validated proposed by Allen and Locker in

2002 for the toothless patients who wear mobile prostheses. This questionnaire is also This questionnaire comprises of 19 items grouped under 7 domains as follows: 1-functional limitation (3 items), 2-physical pain (4 items), 3- psychological discomfort (2 items), 4-physical disability (3 items), 5-psychological disability (2 items), 6-social disability (3 items) and 7-handicap (2 items). **Oral Impact on Daily Performance** is used to measure the impact of oral health status on the ability to carry out the daily tasks and contains 8 questions related to the feeling of satisfaction connected to the consumption of food; correct speech; having a correct oral hygiene; sleep and relaxation; smile and laughter; maintaining a normal emotional

known as OHIP-EDENT [28].

tonus without any trace of irritability; the fulfilling of social roles, and the pleasure of having social relations [30].

For the elderly population, the questionnaire created by Atchinson and Dolan in 1990 and entitled **Geriatric Oral Health Assessment Instrument** (GOHAI) is used [31].

This instrument has 12 questions evaluating 3 functional aspects: physical aspects: mastication, phonation, deglutition; psycho-social aspects; pain and discomfort, and the use of medicines to reduce them.

Table 2- OHQoL indicators for adult population (Duong, 2022)

Questionnaire	Abbreviation	Year	Nr items	Authors
Oral Health Impact Profile	OHIP 49	1994	49	Slade GD, Spencer (25)
Oral Health Impact Profile	OHIP 14	1997	14	Slade GD (26)
Oral Health Quality of Life Measure	OHQoLM	1996	3	Kressin (27)
Oral Health Impact Profile-EDENT	OHIP-EDENT	2002	19	Allen F, Locker D (28)
Dental Impact on Daily Living	DIDL	1997	36	Leao A, Sheiham A (29)
Oral Impact on Daily Performance	OIDP	1996	9	Adulyanon A, Sheiham A (30)
Geriatric Oral Health Assessment Index	GOHAI	1990	36	Atchison KA, Dolan TA (31)
Dental Impact Profile	DIP	1993	25	Strauss D (32)
Social Impact of Dental Disease	SIDD	1980	14	Cushing AM, Sheiham A, Maizels J (33)
Oral Health Quality of Life Inventory	OH-QoL inventory	1997	56	Cornell et al (34)
Dental health index	RAND	1997	3	Dolan T, Gooch B (35)
Prosthetic treatment questionnaire	PDQ	2020	31	Mijiritsky E et al (36)
Quality of life with Implant Prostheses	QoLIP-10	2013	10	Preciado A et al. (37)

Apart from the instruments evaluating the quality of life in general, specific

questionnaires for certain disorders or treatments, such as the one for the quality of

life of the patients wearing implants, **Quality of life with Implant Protheses** (QoLIP-10) have been validated [37,39].

Preciado and colaborators designed this instrument of the 10-item scale that gathe information about: oral satisfaction, socio-

2.3. Instruments evaluating the quality of life of the patients with oral cancer

EORTC QLQ-C30

European Organization for Research and Treatment of Cancer core quality of life questionnaire (EORTC QLQ-C30) is a core questionnaire for measuring quality of life in patients with cancer. It consists of 30 items tapping into 6 functioning and a number of symptoms subscales. Scores for each subscale range from 0 to 100 where for the functioning subscales, the higher scores indicate better conditions and for the symptoms it is vice versa [40].

EORTC QLQ-H&N35

European Organization for Research and Treatment of Cancer head and neck cancer-specific quality of life questionnaire-35 items (EORTC QLQ-H&N35) is the early

demographic status, health-behavioural, clinical and prosthetic data. Authors suggest that this indicator may be recommended for detrmning the influence of implant-retained overdentures and hybrid protheses on the well-being of future patients [39].

version of a specific questionnaire for measuring quality of life in head and neck cancer. The questionnaire consists of 35 items measuring a number of symptoms, including pain, swallowing, sense problems, speech problems, trouble with social eating, and trouble with social contact. Scores for each symptoms range from 0 to 100, where the higher scores indicate worse conditions [41].

Table 3 presents the most frequently used instruments for the evaluation of the quality of life of the patients that were subject to surgical, radiotherapy and chemotherapy treatments. These include questionnaires evaluating the quality of life of the patients having sequels such as radiation-induced xerostomia, stomatitis and the general health state [42].

Table 3-Questionnaires used for oral cancer and its complications [42]

Complications	Indicators	Authors
Xerostomia	Xerostomia-Related Quality of Life Scale	Henson , Inglehart,2001
	Xerostomia Questionnaire NIDCR Xerostomia Questionnaire	Henson BS, Inglehart M, 2001
Stomatitis	World Health Organization Stomatitis	WHO
	Byfield Stomatitis	Byfield JE, 1985
	Mucositis Study Group Oral Mucositis Scoring System	Sonis ST, 1999
General Status	Subjective Performance Status Scale	Zeleftsky MJ, 1996
	EORCT Quality of Life Questionnaire	Bjordal K, 1994
	Head and Neck Radiotherapy Questionnaire	Browman GP, 1993
	Quality of Life-Radiation Therapy Instrument (QOL-RT): Head and Neck Companion Module	Trotti A, 1998

	Performance Status Scale for Head and Neck Cancer patients (PSS-HN)	List MA, 1990
	Functional Assessment of Cancer Therapy (FACT)-Head and Neck	Cella DF, 1993

Another category of indicators refers to parents' perception of children's oral health: **Parental-Caregivers Perceptions Questionnaire** with 31 items [43] si **Family Impact Scale** with 14 items [44]. These tools have been validated specifically for children with special needs. A short version (**FIS-8**, comprising 8 questions) was later developed and found to be valid. It has three subscales, representing the domains of parental/family activity - 4 items, parental emotions - 2 items and family conflict - 2 items [45].

We should also mention the questionnaire developed by Klages et al. for the assessment of other psychosocial effects of dental treatment, aimed at the objective evaluation of the impact of aesthetic function on individual well-being: **Psychosocial Impact of Dental Aesthetics Questionnaire (PIDAQ)** [46].

CONCLUSIONS:

- Clinical instruments and those evaluating the quality of life must be integrated into the evaluation strategy.
- Some indicators may also be used as screening instruments to identify oral disorders and the therapeutic needs of the individual who cannot come to the dental rooms (disabled people and institutionalized old people).

This questionnaire consists in 3 components: Dental Self-Confidence (6 items), Social Impact (8 items), Psychological Impact (6 items), Aesthetic Concern (3 items).

Finally, we must mention that OHRQoL is a subjective concept and that it must be evaluated in the life contexts specific to patients, their social-cultural environments, their own experiences and states of mind. Moreover, quality of life comprises many facets, that is why there are so many instruments to evaluate wellbeing from the biological, social, mental and psychological viewpoints.

of oral status at population level with the aim to have an exhaustive approach of the oral health service planning.

- All national epidemiological studies should also include an instrument for the evaluation of life quality in order to know the impact of oral disorders on people's daily life

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