How to make a link between Oral Health-Related Quality of Life and dentin hypersensitivity in the dental office?

Jean-Louis Sixou

Abstract

Objectives Oral Health-Related Quality of Life (OHRQoL) can be considered as the scientific expression of that part of a person’s well-being that is affected by his/her oral health. The aim of this paper was to evaluate how to use the data available in the field of research to make a link between OHRQoL and dentin hypersensitivity (DHS) in the dental office.

Materials and methods Research papers in the field of OHRQoL and DHS and reviews and research papers about OHRQoL were used for analysis in this short review, with a particular insight on the instruments used to evaluate OHRQoL.

Results Various psychometric instruments have been used to measure OHRQoL that are more or less patient- or expert-centred. Some are generic, others are adapted to specific conditions/domains or populations. The impact of DHS or exposed cervical dentin (ECD) on OHRQoL has been assessed in very few studies. It is therefore of the utmost importance that the use of the OHRQoL as a quality control tool be established in robust clinical studies.

Conclusions/clinical relevance Future studies evaluating the impact of the DHS/ECD on OHQoL or evaluating the efficacy of desensitising agents should respect some key points, including study design (randomization, placebo/control group, etc.), validated specific questionnaires and trained calibrated practitioners.

Keywords Oral Health-Related Quality of Life · Dentin hypersensitivity · Exposed cervical dentin

Why is it difficult to evaluate OHRQoL?

OHRQoL deals with conditions that vary in intensity and importance. These conditions may be life-threatening (e.g. oral cancers) or not, progressing (caries, periodontitis, etc.) or not, dealing with aesthetics (staining in anterior teeth such as molar–incisor hypomineralisation (MIH)) or pain
of the set of 49 statements represented one of seven domains: It is mainly expert-centred and constructed to select items according to their fit with a conceptual framework rather than on the basis of their importance to the patients from whom they were derived [4]. A shorter version of OHIP restricted to 14 items (OHIP-14) was later proposed [6]. One major question is to know if we need to use either a generic questionnaire, an adapted form of a generic questionnaire or to construct a new questionnaire specific to the population or condition to be studied. Constructing or using one of these specific questionnaires may lead to many questions, for example, (1) Is it made specifically for the purpose of research or for clinical practice? or (2) How to adapt each questionnaire to local languages and cultures? This may subsequently lead us to consider the impact of dentin hypersensitivity (DHS) or exposed cervical dentin (ECD) on OHRQoL of those individuals being assessed.

DHS/ECD and OHRQoL: what is known and where are the problems?

Very few studies have been devoted to this aspect of DHS/ECD as recently shown [7], with only two papers written in English specifically dedicated to the evaluation of OHQoL in DHS/ECD patients. One paper provided results using a generic questionnaire [8] and the second paper constructed a specific questionnaire to evaluate OHQoL in DHS/ECD patients but provided no epidemiological results [9]. These studies are more extensively described in an accompanying paper [7]. In the future, studies using validated questionnaires specifically constructed to evaluate the impact of the condition on OHQoL should be employed. These questionnaires should be patient-centred and derived from interviews with patients who are expected to complete the questionnaire [4, 10]. Furthermore, if these studies also attempt to evaluate the efficacy of desensitising agents in reducing DHS/ECD and its subsequent impact on OHQoL, then it is imperative that the condition should be clearly diagnosed by trained and calibrated dentists experienced in conducting clinical studies using recognised and accepted clinical criteria for the evaluation of DHS/ECD. Due to the cultural and language differences between countries, there is also a need of norm or reference value(s) for each population to be studied. For example, when constructing a questionnaire for a non-English-speaking population, the questionnaire should be initially written in English, then translated by two people of the designated native (foreign) language and subsequently translated back into English by two native English-

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1 See Tables 1–2 for the meaning of initials.
2 SF-36 stands for Short Form (36) Health Survey, which is a survey of patient health.
3 OHIP-aesthetic is the short form of OHIP for dental aesthetic.
speaking people to identify any potential issues that may have arisen from the translation. Finally, as indicated above, any future study attempting to evaluate the efficacy of a desensitising agent in reducing DHS/ECD and its subsequent impact on OHQoL should be conducted by experienced and calibrated examiners using established guidelines for conducting DHS/ECD clinical studies. Such studies should also be based on a randomised clinical study design and include both placebo or control groups.

Table 1  Conceptual and structural basis of psychometric instruments used in dentistry (adapted from Brondani and McEntee [1])

| Instruments | Acronym | Structural origins | Empirically baseda | Connotation of questions | Number of questionsb |
|-------------|---------|--------------------|-------------------|--------------------------|----------------------|
| Social Impacts of Dental Disease | SIDD | SIP | Yes | N | 14 |
| Oral Health Impact Profile | OHIP | ICIDH | Yes | N | 49 |
| Geriatric (Generic) Oral Health Assessment Index | GOHAI | ICIDH and SIP | Yes | N and P | 12 |
| Oral Health-Related QoL-Instrument | OHRQL | Multiplec | No | N | 36 |
| Oral Impact on Daily Performances | OIDP | ICIDH | No | N | 8 |
| Dental Impact on Daily Living | DIDL | SIP | Yes | N and Nt and P | 36 |
| Dental Impact Profile | DIP | SIP | Yes | N and Nt and P | 25 |
| Oral Health-Related Quality of Life measure | OHQoL | Multipled | No | N | 3 |
| Oral Health Quality of Life Inventory | OH-QoL | SIP | Unclear | P | 15 |
| Rand Dental Questionnaire | Unspecified | SIP | No | N | 3 |
| Oral Health Questionnaire | Unspecified | ICIDH | Unclear | N and Nt and P | 70 |
| Oral Health Quality of life UK | OHQoL-UK | ICIDH2 | Yes | N and P | 16 |
| Subjective Oral Health Status Indicators | SOHSI | Multiple | No | N and Nt | 34 |
| Liverpool Oral Rehabilitation Questionnaire | LORQ | Unclear | No | N | 40 |
| Self-rated Oral health | SROH | ICIDH | No | N and P | 3 |
| DENTAL | DENTAL | Unclear | No | N | 15 |
| Dental Health Status Quality of Life Questionnaire | DS-QoL | Generic QoL Instrument | No | N and P | Unclear |

N ¼ negative, Nt neutral, P positive, SIP Sickness Impact Profile, ICIDH International Classification of Impairments, Disabilities and Handicaps

a Information derived from open-ended interviews
b Some indicators present shorter or extended forms other than the original version
c Health-related models: Natural History of Disease Model and SIP
d Developed from existing measures (RAND, oral facial pain index, etc.).

Table 2  Oral health outcome measures developed before 2007 (adapted from Locker and Allen [4])

Pre-1997 (presented at the 1997 conference [11])
Social Impacts of Dental Disease
General (Geriatric) Oral Health Assessment Index (GOHAI)
Dental Impact Profile (DIP)
Oral Health Impact Profile (OHIP)
Oral Impacts on Daily Performances (OIDP)
Subjective Oral Health Status Indicators (SOHSI)
Oral Health-Related Quality of Life Measure
Dental Impact on Daily Living (DIDLS)
Oral Health Quality of Life Inventory
Rand Dental Questions
Post-1997
OHQoL-UK
Child Oral Health Quality of Life Questionnaire (COHQoL)
Child OIDP
OHRQoL for Dental Hygiene
Orthognathic QOL Questionnaire
Surgical Orthodontic Outcome Questionnaire (SOOQ)

What are the recommendations for daily dental practice?

Patients suffering from DHS/ECD have been reported to have a significantly impaired OHQoL; this may however be improved following treatment with a desensitising agent as reported by several authors. It is therefore of the utmost importance that the use of the OHQoL as a quality control tool in the dental office be established in robust clinical studies. Furthermore, because of its ability to reflect a patient’s satisfaction with any proposed treatment, it may prove to be a valuable asset for practitioners when assessing their patients’ quality of life before, during and after treatment of various clinical conditions such as DHS/ECD.
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Conflict of interest  The author declares that he has no conflict of interest.

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References

1. Brondani MA, MacEntee MI (2007) The concept of validity in sociodental indicators and oral health-related quality-of-life measures. Community Dent Oral Epidemiol 35:472–478
2. Tsakos G, Allen PF, Steele JG, Locker D (2012) Interpreting oral health-related quality of life data. Community Dent Oral Epidemiol 40:193–200
3. Fitzpatrick R, Davey C, Buxton MJ, Jones DR (1998) Evaluating patient-based outcome measures for use in clinical trials. Health Tech Assess 2:1–74, i–iv
4. Locker D, Allen F (2007) What do measures of ‘oral health-related quality of life’ measure? Community Dent Oral Epidemiol 35:401–411
5. Slade GD, Spencer AJ (1994) Development and evaluation of the Oral Health Impact Profile. Community Dent Health 11:3–11
6. Slade GD (1997) Derivation and validation of a short-form oral health impact profile. Community Dent Oral Epidemiol 25:284–290
7. Bekes K, Hirsch C (2012) Dentin hypersensitivity and oral health-related quality of life. Clin Oral Invest, in press
8. Bekes K, John MT, Schaller HG, Hirsch C (2009) Oral health-related quality of life in patients seeking care for dentin hypersensitivity. J Oral Rehabil 36:45–51
9. Boiko OV, Baker SR, Gibson BJ, Locker D, Sufi F, Barlow APS, Robinson PG (2010) Construction and validation of the quality of life measure for dentine hypersensitivity (DHEQ). J Clin Periodontol 37:973–980
10. Guyatt G, Bombardier C, Tugwell P (1986) Measuring diseasespecific quality of life in clinical trials. J Can Med Assoc 134:889–895
11. Slade GD (ed) (1997) Measuring oral health and quality of life. University of North Carolina, Dental Ecology, Chapel Hill