Does dentine hypersensitivity affect oral health-related quality of life?

Dr Katrin Bekes

Dentine hypersensitivity is an oral complaint frequently reported in clinical dental practice. While many individuals do not seek treatment to desensitise their teeth because they do not perceive dentine hypersensitivity to be a severe oral health problem, a substantial number of patients experience discomfort to the extent that it interferes with their eating, drinking, oral hygiene habits and sometimes even breathing. These symptoms often have a considerably adverse impact on their daily quality of life (QoL). This article reviews the impairments of oral health-related quality of life in patients seeking care for dentine hypersensitivity.

Traditionally, dentists have been trained to recognise and treat oral diseases and to describe them by using dental indices. Dental indices provide a quantitative method for measuring, scoring, and analysing dental conditions in individuals and groups. They describe the status of individuals or groups with respect to the condition being measured. However, important as these objective measures are, they only reflect the end-point of the disease processes. They give no indication of the impact of the disease process, especially oral disorders, on function or psychosocial well-being, and only provide little insight into the impact on daily living and QoL.

Therefore, QoL research in medicine and dentistry has attracted increasing attention over the past years. QoL is defined as an individual's perception of his or her position in life, in the context of the culture and value systems in which he or she lives and in relation to his or her expectations, goals and concerns. QoL has multiple dimensions (such as cultural factors, social integration, socio-economic status, quality of environment and personal autonomy). One dimension of QoL is health. The real impact of health and disease on QoL is known as quality of life (QoL). Oral health-related quality of life (OHROQL) is that part of QoL that focuses on oral health and orofacial concerns (Fig. 1). The concept of OHROQL facilitates studying the impact of a disease on a person's total oral health because it can be used across conditions. It describes the way in which oral health affects a person's ability to function, his or her psychological status, social factors and pain or discomfort.

How to measure OHROQL

OHROQL is a multidimensional construct that cannot be observed directly. It needs to be visualised by means of suitable indicators. In order to comprehend a construct like this, target persons, that is patients, have to be asked pertinent questions. For example, some questions focus on function, some are concerned with pain and discomfort, and others evaluate self-image and social interaction.

The Oral Health Impact Profile (OHIP) is amongst the most widely used instrument in studies evaluating OHROQL. It attempts to measure both the frequency and severity of oral problems on functional and psychosocial well being. This tool was developed by Slade and Spencer in Australia in 1994.

The OHIP is a 49-item measure, with statements grouped into seven theoretical domains, namely functional limitation, pain, psychological discomfort, physical disability, psychological disability, social handicap and handicap. Examples of some OHIP questions are:

- Have you had trouble pronouncing words because of problems with your teeth, mouth or dentures?
- Have you found it uncomfortable to eat any foods because of problems with your teeth, mouth or dentures?
- Have you felt that your sense of taste has worsened because of problems with your teeth, mouth or dentures?

For each of the 49 OHIP questions, subjects are asked how frequently they have experienced the oral problem. Responses are according to a Likert-type scale: 0 = never, 1 = hardly ever, 2 = occasionally, 3 = fairly often, and 4 = very often.

A summary score of between 0 and 196 results from the 49 questions, with 5 scoring steps each, which provides a good impression of the extent to which OHROQL is affected. A score of 0 indicates the absence of any oral health-related problem. Higher scores represent an OHROQL that is more impaired. The most...
extensive impairment of the OHRQoL is expressed by a score of 106. This is termed the problem index and demonstrates that all oral problems are frequently encountered. A table of standard values representative of different populations is provided, according to which the patient’s score can be compared and evaluated.

To be able to assess levels of OHRQoL in non-English-speaking populations, cross-culturally adapted translations of the original English-language version of the OHIP into Chinese, Dutch, Hungarian, Italian, Japanese, Portuguese, Spanish and Swedish has been achieved in several countries. The demand for an internationally comparable German tool led to the development of a German version of the OHIP (OHIP-G), which determines the OHRQoL of German-speaking persons. OHIP-G includes the 49 items of the English original, as well as four additional items that were regarded as important for the German population specifically. OHIP-G can be applied to patients of 16 years and older.

OHRQoL in patients with dentine hypersensitivity

Dentine hypersensitivity is a common oral complaint that is frequently reported in dental practice. It is characterised by sharp and sharp pain arising from exposed dentine and occurring in the presence of thermal, chemical, tactile or osmotic stimuli (Fig. 2). From the relatively few studies that investigate the prevalence of dentine hypersensitivity, it can be concluded that it is a frequent condition. Studies have reported a prevalence of dentine hypersensitivity in the adult dentate population ranging from 4 to 57 per cent. However, figures as high as 60 to 98 per cent have been reported in patients with periodontitis. While many individuals do not seek treatment to desensitise their teeth because they do not perceive dentine hypersensitivity to be a severe oral health problem, 10 to 25 per cent of patients experience discomfort to the extent that it interferes with their eating, drinking (including soft drinks), oral hygiene habits and sometimes even breathing. The degree of discomfort depends on individual pain perception, pain tolerance, and emotional and physical factors. These symptoms are highly relevant from the patient’s point of view and often have a considerably adverse effect on daily QoL.

A study was conducted at the Martin Luther University Halle-Wittenberg, Germany to describe and evaluate OHRQoL in patients with dentine hypersensitivity. Data was collected through a questionnaire as part of a larger study targeting several areas of oral health beyond hypersensitivity teeth, such as oral hygiene, preventive efforts, and oral behaviour and habits.

There were 724 patients (mean age: 42.8 ± 13.0 years) who participated in the study, presenting at 161 German dental offices because of hypersensitive teeth and reacting positively to an air stimulus applied by the dentist. Patients with removable partial dentures and patients with missing answers in the OHIP questionnaire were excluded.

After these exclusions, 656 patients remained in the study for analysis. These patients were compared with 1,541 subjects without removable partial dentures from a national, general German population sample (mean age: 57.7 ± 15.4 years). OHRQoL was assessed using OHIP-G. The OHIP-G summary score characterised the OHIP-G construct as a whole. The OHIP-G summary score of patients with hypersensitive teeth was 54.5 (± 22.6), while the general population sample had a score of 12.2 (± 18.6). The 22.3 difference was statistically significant. The general population subjects had an OHIP-G median score of 5, while the patient group had an OHIP-G median score of 50 (Fig. 5). Ten per cent of the subjects with the highest OHIP-G summary scores had scores of 56 (general population) and 66 (patients).

Differences according to gender were minimal. Although the difference between gender of a mean 2.8 points was statistically significant (p < 0.01), it was regarded as negligible. Amongst the patient group, women reported more problems with the condition of dentine hypersensitivity than men, which is in contrast to the general population, in which men had higher OHIP-G scores than women (Fig. 4).

Conclusions

QoL has been established as an important outcome for evaluating the impact of a disease and for assessing the efficacy of treatment. The OHRQoL summary scores had scores of 56 (general population) and 66 (patients).

“QoL has been established as an important outcome for evaluating the impact of a disease and for assessing the efficacy of treatment”

Dr. Katrin Bekes is Assistant Medical Director at the Department of Operative Dentistry and Periodontology, University School of Dental Medicine, Martin Luther University Halle-Wittenberg, Halle/Saale, Germany. She can be contacted at katrin.bekes@medizin.uni-halle.de.