

METHODS TO ASSESS LIFE QUALITY OF DENTAL STUDENTS GROUP AFFECTED BY DENTINAL HYPERSENSITIVITY

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ABSTRACT

The aim of the present study was to evaluate, based on a DHEQ questionnaire, the quality of life of a group of 25 students, 12 men and 13 women, from the Faculty of Dentistry, U.M.F. “Grigore T.Popa” Iasi (Romania) suffering from dentinal hypersensitivity. Materials and method. Patients were divided into 4 groups according to age: 20-25; 26-30; 31-35 and 36-40 years. The questionnaire included 15 questions, each with scores from 1 to 7 according to Likert scale. The data were analysed using Excel. Results. High scores values (5-7) on each question in the questionnaire (> 50% of the respondents) were obtained in 10 of the 15 questions, 84% of the people giving high scores to question no. 3; 80% to question 12; and 76% to questions 4,5,6,7,8. The lowest percentage (40%) of people who gave scores between 5-7 were for questions 9, 10, 13,15. Conclusions. As dental hypersensitivity is increasingly common in young people, we believe that the questionnaire method can be a means of quickly and completely assessing this condition. This method can help the dentist together with the clinical and paraclinical examination in making a correct diagnosis and developing an appropriate treatment plan. At the same time, with this quick method, the patient can become aware that the symptoms cannot be neglected and he must address to the dentist for diagnosis and treatment.

Key words: dentinal hypersensitivity, quality of life, DHEQ assessment questionnaire.

INTRODUCTION

Oral pain caused by dentin hypersensitivity is experienced by millions of people around the world as short, lightning, transient pain. Most people accept the discomfort and protect themselves to avoid pain. Indeed, they avoid or delay to seek help from a dentist [Fischer C. *et al.*, 1992; Addy M., 2000; Canadian Advisory Board on Dentin Hypersensitivity, 2003]. Despite the fact that dentinal hypersensitivity can be diagnosed at all ages, from adolescents to octogenarians, it occurs most frequently in young people aged between 20 and 40 years. Moreover, dentinal hypersensitivity is more common in women than in men [Gillam D.G. *et al.*, 2003; Addy M. *et al.*, 2007].

An analysis of dentinal hypersensitivity published by Cunhan-Cruz in 2010 would suggest that the best estimate of the prevalence of dentinal hypersensitivity is 10% [Cunha-Cruz *et al.*, 2010].

Certain clinical features and habits of patients, such as dentin exposed to gingival recession or tooth enamel abrasion, a diet high in acids, smoking and excessive brushing, are associated with dentinal hypersensitivity and their presence in history may suggest that dentinal hypersensitivity it is the cause of pain [Addy M., *et al.*, 2007]. Excessive toothbrushing can lead to exposure of the coronary dentin in the cervical area with the appearance of dentinal hypersensitivity [West NX *et al.*, 2012].

Subjective experience is particularly important in relation to dentinal hypersensitivity (DH). Holland defines it as a short, sharp pain arising from the dentin exposed in response to typical thermal, tactile, osmotic, or chemical stimuli; it cannot be attributed to any other form of dental defect or disease [Holland GR. *et al.*, 1997; Cummins D., 2009]. Although many patients experience this pain, few seek medical attention just for this symptom. Usually, patients try to avoid the causal factor and believe that the symptom will disappear on its own. The assessment method in terms of pain through questionnaires is very widespread in other medical specialties, but in recent years questionnaires have been developed for dental hypersensitivity. Questionnaires or surveys are widely used in pain medicine to collect quantitative information from both patients and healthcare professionals. Data of interest could range from observable information (e.g., lesion presence, mobility) to patients' subjective symptoms about their current condition (e.g., the amount of pain they feel, psychological state) [Siny Tsang. *et al.*, 2017].

The first experience questionnaires (DHEQ) contained a main scale of 34 articles that recorded the impacts in five subscales: functional, behavioural, emotional, psychological, and social. Participants answered each question using the 7-point Likert Scale coded from 1 to 7 (totally disagree, disagree, only partially disagree, don't know, only partially agree, agree and totally agree). The DHEQ is supplemented on the basis of VAS pain assessment scale and contains an overall oral health assessment that requires participants to assess their oral health as excellent, good, correct, poor or very poor. Finally, a smaller

scale was developed as to take into account the effect of dentinal hypersensitivity on the lives of subjects [Baker *et al.*, 2013; Boiko *et al.*, 2010]. Shorter questionnaire forms can improve response rates, reduce missing data, reduce data collection costs, and facilitate their use in larger segments of the population, such as the elderly [Dillman, 2007].

A study conducted in 2013 showed that a questionnaire with 15 questions is effective in assessing dentinal hypersensitivity [Machuca C., *et al.*, 2013].

The aim of the present study was to evaluate, based on a DHEQ questionnaire, the quality of life of a group of 25 students, 12 men and 13 women, from the Faculty of Dentistry, U.M.F. "Grigore T.Popa" Iasi (Romania) suffering from dentinal hypersensitivity.

MATERIALS AND METHOD

Patients were divided into 4 age groups: 20-25 years; 26-30; 31-35 and 36-40 years. Patients included in the study had a VAS index of 4-6; duration of dentinal hypersensitivity was over 6 months.

The exclusion criteria were as follows: patients who had a dental pathology that caused pain similar to cervical dentinal hypersensitivity (such as caries teeth, the presence of orthodontic appliances and restorations and/or the presence of surgery in the tooth area in the last three months), patients who have received professional treatment with desensitizing agents in the last 3 months, advanced periodontal disease, general conditions that can cause xerostomia.

DHEQ questionnaire had 15 questions, each with scores from 1 to 7, according to Likert scale. Data were analysed in Excel.

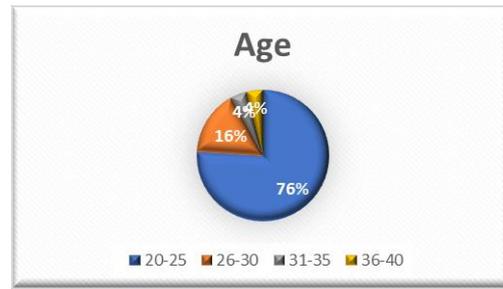
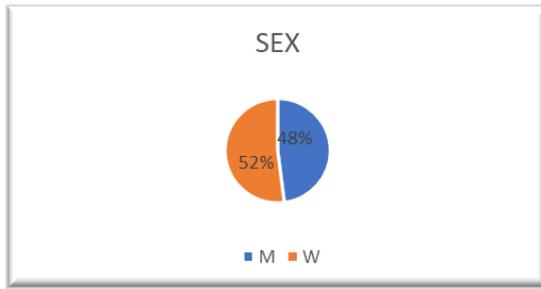


Figure 1. Patients' distribution related to sex Figure 2. Patients' age categories

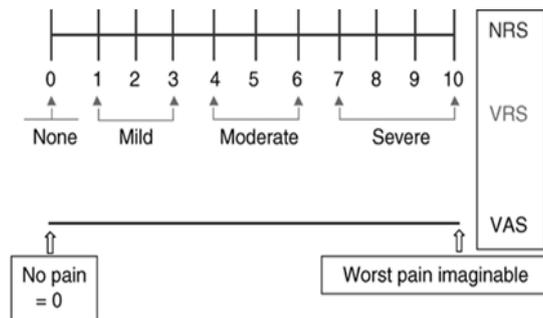


Figure 3. VAS scale

RESULTS AND DISCUSSIONS

Table 1. Media, impact and percentage of students with scores 5-7 to each question

	Average	Impact of the question	% of people scores 5-7
1. The sensations in my teeth deprive me of the pleasure of eating and drinking	5.16	309,6	60
2. It takes a long time to finish certain foods or drinks due to the sensations in the teeth	5.08	304,8	60
3. There were times when I couldn't eat ice cream because of these sensations	6.12	514,08	84
4. I need to change the way I eat or drink certain things	5.56	107	76
5. I have to be careful how I breathe on a cold day	5.64	422,56	76
6. When I eat certain foods, I make sure I don't touch certain teeth	5.48	416,48	76
7. Because of dental sensations, it takes longer to finish a meal, unlike other people	4.28	325,28	76
8. I have to be careful what I eat when I am with other people, because of the dental sensations	4.00	304	76
9. The visit to the dentist is a stalemate for me, because I know it will be painful, given the sensations in the teeth	4.92	196,8	40
10. I was worried that I might eat or drink something that would cause me dental sensations	5.76	230,4	40
11. These dental sensations have become irritating	5.12	307,2	60
12. These dental sensations have become annoying	5.84	467,2	80
13. These dental sensations make me feel old	3.80	152	40
14. These dental sensations make me feel compromised	3.28	118,08	36
15. These dental sensations make me feel unhealthy	3.6	144	40

Table 1 shows in the first column the average score obtained by each question after the completion of the questionnaire by all subjects. The second column represents the impact that the question has on the answers. To calculate the impact of a question, the average score of the question

was multiplied by the percentage of people who agreed with the question (score ranging from 5-7). It can be seen that the big impact was for the following questions: no 3. (514.08) > no.12 (467.2) > no.5 422.56 > no.6. 416.48.

15 questions were grouped into three, in relation to the components as follows:

functional, behavioural, social, emotional, psychological.

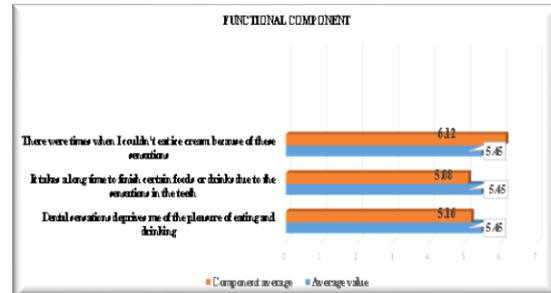
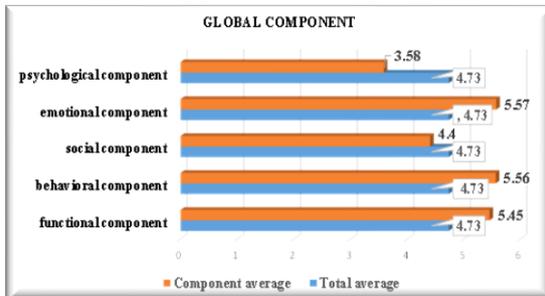


Figure 4. Scores comparison for global component Figure 5. Analysis of functional component

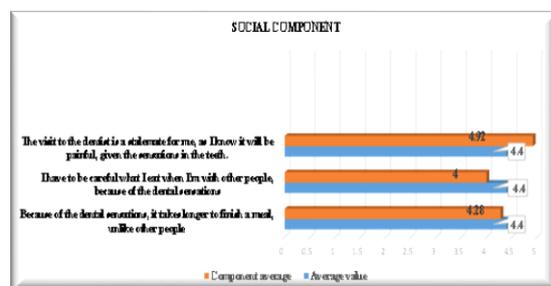
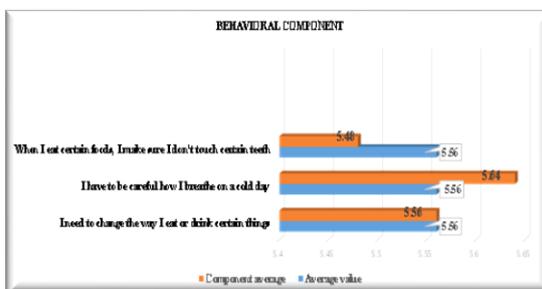


Figure 6. Analysis of behavioural component Figure 7. Analysis of social component

Components with higher means than general mean ($m = 4,73$) were behavioural, functional and emotional. These aspects of life quality were changed by disease (Fig.4).

From the analysis of the functional component (Fig. 5), it can be observed that question no. 3 presented the highest score 6.12; question no. 1. had a score of 5.16, and question no. 2, a score of 5.08.

- Question no. 1: Do dental sensations deprive me of the pleasure of eating and drinking?

- Question no. 2: Does it take a long time to finish certain foods or drinks due to the sensations in the teeth?

- Question no. 3: Were there times when I couldn't eat ice cream because of these sensations?

Figure 6 shows the values of the behavioural component to questions no. 4,5,6.

- Question no. 4: Do I have to change the way I eat or drink certain things?

- Question no. 5: Do I have to be careful how I breathe on a cold day?

- Question no. 6: When I eat certain foods, do I make sure I don't touch certain teeth?

Question no. 5 presented the highest score of 5.64; question no. 4 had a score of 5.56, and the last question, a score of 5.48.

The behavioural impact is strongly modified in question no. 5.

The analysis of the social component according to the score, highlighted the following social dimensions of the disease in questions no. 7,8,9 (Fig. 7).

- Question no. 7: Because of dental sensations, does it take longer to finish a meal, unlike other people?

- Question 8: Do I have to be careful what I eat when I am with other people, because of the dental sensations?

- Question no. 9: Is the visit to the dentist a stalemate for me, because I know it will be painful, given the sensations in the teeth?

Question no. 9 presented the highest score (4.92), followed by question 7 (4.28), the last question having a score of 4.

This can influence patients to avoid the visits to the dental office, due to fear of pain.

The scores for the emotional component are shown in Figure 8.

- Question no. 10: Was I worried that I might eat or drink something that would cause me dental sensations?

- Question 11: Have these dental sensations become irritating?

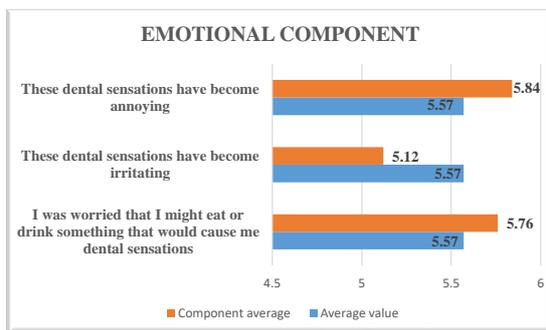


Figure 8. Analysis of emotional component

In a study by Sarah R. Baker *et al.* it was observed that the use of the DHEQ questionnaire led to the improvement of the life of patients suffering from dental hypersensitivity [Baker SR *et al.*, 2013]. This was observed in patients who used desensitizing toothpaste after 12 weeks compared to the control group.

However, there are many patients who do not seem to consider this hypersensitivity as a serious dental health problem; few of them go to the dentist for diagnosis and treatment

- Question no. 12: Have these dental sensations become annoying?

Question no. 12 presented the highest score (5.84), no. 10 (5.76) and no. 11 (5.12). This can cause negative emotions in some patients.

The scores for the psychological dimension of the disease are represented in Figure 9.

- Question no. 13: Do these dental sensations make me feel old?

- Question no. 14: Do these dental sensations make me feel compromised?

- Question no. 15: Do these dental sensations make me feel unhealthy?

Question No. 13 had the highest score (3.8), No. 15 (3.6) and No. 15 (3.28). This can cause some patients to think negatively and have a damaged self-image.

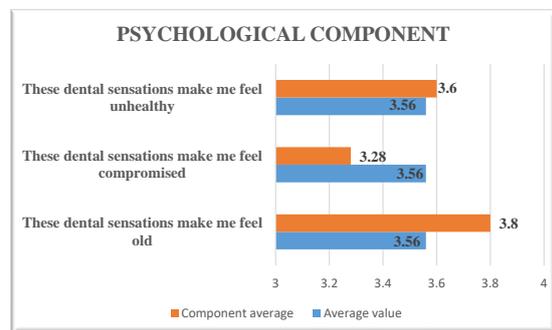


Figure 9. Analysis of psychological component

[Bartold, P. M., 2006; Bekes, K., *et al.*, 2009].

We need to explain to patients that this condition, which often becomes chronic, can change their quality of life, making them avoid eating foods or drinks that trigger their pain, but at the same time, if they are not diagnosed and treated in time. can lead to complications.

In a study by Bekes K *et al.*, in 2008, it was shown that the questionnaire method can help patients to be aware of the condition they have [Bekes K, *et al.*, 2008].

Middle-aged patients had higher values to the questions of the questionnaire.

The methodology applied by us is simple and effective for the quantitative study of the participants' answers, and also is useful to fulfil our objective; we must take into account that the pain is subjective and very difficult to measure.

From the results of our study, we can establish an order of the importance of the modified behaviours: emotional ($m = 5.57$) > behavioural ($m = 5.56$) > functional ($m = 5.45$) > social ($m = 4.40$) > psychological ($m = 3.58$). Questions about the consumption of cold food, cold air, which led to the persistence of hypersensitivity had a greater impact.

Our results agree with other studies that have shown that the assessment methods of the life quality in patients with dentinal hypersensitivity by the questionnaire method are effective both in detecting triggers and in specific treatments for dentinal hypersensitivity [Lima T.C. *et al.*, 2017].

By introducing dental students in this study, we tried to find out how many of them have altered quality of life due to dentinal hypersensitivity, but also their awareness of the importance of early diagnosis of this condition. In a study conducted by Bologa E. *et al* in 2020, on groups of 6th year students from the Faculty of Dentistry, UMF Iasi and young doctors with 5 years of practice, method of the questionnaire was used to assess the degree of knowledge regarding the causes and symptoms as well as the preventive-therapeutic methods of dentinal hypersensitivity. The authors concluded that

2/3 of the participants knew the aetiology of the condition, but the preventive-therapeutic methods for dentinal hypersensitivity were better known by dentists with 5 years of practice [Bologa E. *et al.*, 2020].

The methods of evaluating both the quality of life of patients suffering from dentinal hypersensitivity, are an easy and practical method that can be extended to a larger population, through online means.

CONCLUSIONS

- Research has been carried out over the last 20 years with the aim of developing measures to be used to capture a subjective assessment of health. They have been used in population surveys and clinical trials and it is now possible to systematically determine the impact of the disease and its incidence on patients' daily lives.

- The choice of 15-question questionnaire was considered more scientifically relevant and easy to use for respondents. The measure to use must be valid for the state of disease and must have good reliability and receptivity. Considering these, we chose to explore the condition by using the following parameters: behaviour, functional, social, psychological and emotional.

- Through this questionnaire we can conclude that dentinal hypersensitivity has a negative impact on quality of life, can change the behaviour, functions and emotions of patients.

- The study based on the DHEQ questionnaire can be used to detect and monitor dentinal hypersensitivity and to evaluate its response to treatment.

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