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The Manifestation of Glossodynia in Dentists with Burnout Syndrome

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Abstract*: The aim of the present study was to identify the dependence of the frequency and quality of hygiene habits on signs of burnout. The study included 112 dentists; a survey was conducted on the Maslach Burnout Inventory questionnaire. Own questionnaire was also used to identify the dependence of the frequency and quality of hygiene habits on signs of burnout. 96 dentists showed signs of burnout. The study revealed an association between the motivation for the oral hygienic course and the severity of burnout syndrome among dental professionals. Decrease in dentists' motivation for hygienic oral care has been associated with signs of burnout. With increasing severity of burnout dentists had less motivation for individual oral hygiene. Common glossodynia (burning mouth syndrome) complaints were identified in 2 dentists (1, 96%). They showed signs of burnout on all 3 scales of the MBI questionnaire. It was found that both dentists, shortly before the burning sensation in the oral cavity, experienced events that caused them a strong psycho-emotional stress.*

Key words: *burning mouth syndrome, glossodynia, oral hygiene, burnout.*

I. INTRODUCTION

Glossodynia (burning mouth syndrome, glossalgia) is a chronic disease characterized by excruciating burning pain and paresthesia of the mucous membrane of the tongue or other parts of the oral cavity. 20-25% of patients with oral mucosa diseases suffer from glossodynia [1].

Glossodynia is usually manifested though burning sensation and feeling of scalded or peppered tongue. Similar pain can be observed in other parts of the oral mucosa: the palate, gums, cheeks, and throat. At the same time, patients may experience dryness, taste distortion or dullness, increased sensitivity of lips and tongue. Metallic taste, bitterness or acidic taste may appear [2].

Glossodynia is a polyetiological disease caused by both somatic diseases and local factors: dental diseases, various dental prostheses containing metals and plastics, bite pathologies, TMJ disorders. J.B. Costen (1935) described TMJ arthrosis due to decreased inter-alveolar height (you can change this to vertical dimension) accompanied by impaired salivary secretion, facial pain, feeling of clogged ears, burning and paresthesia of the tongue [3,4].

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II. OBJECTIVE

The aim of the present study was to evaluate the frequency of glossodynia in dentists with burnout syndrome.

III. MATERIAL AND METHODS

The study involved 43 males, 69 females (112 in total); the mean age was 39.04 ± 11.48 years (age limits from 23 to 65 years). Specialties of the respondents: restorative dentistry and endodontics (RestDent&Endo), dental prosthodontics (DentProsth), orthodontics, maxillofacial surgery (MaxFacSurg).

The Maslach Burnout Inventory questionnaire modified for healthcare providers was used to identify burnout syndrome.

Own questionnaire was used to identify the frequency and quality of hygiene habits depending on the signs of burnout (Appendix A).

Oral hygiene OHI-S (Green J.C., Vermillion J.R., 1964) and caries prevalence and CIL (Caries Intensity Level, Leus PA., 1990) were also evaluated.

The study was conducted in Tashkent state dental institute (TSDI), Uzbekistan. The study has been conducted in full accordance with the Helsinki declaration by World Medical Association. TSDI Institutional Review Board gave the approval for conducting the study and verbal informed consent from all the dentists was also obtained prior to the survey. Information from all the participating dentists was collected ensuring anonymity of the information provided

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IV. RESULTS OF THE STUDY

The survey on the MBI questionnaire revealed that 13 dentists (11.6%) were prone to burnout on all 3 scales; at least on one scale - 83 dentists (74.1%); burnout symptoms were not detected in 16 dentists (14.3%). It was found that the higher the experience, the more pronounced emotional deficiency, depersonalization and the lower the interest in professional activity ($p < 0.01$) (tab. 1-3).

Table 1The MBI survey results among dentists with 1-3 year experience

Scale	Specialty	Severity			
		M (av.)	Standard deviation	F (av.)	Standard deviation
Emotional exhaustion	RestDent&Endo	24,83	10,6	25,67	10,3
	DentProsth	28,91	11,1	28,6	10,8
	MaxFacSurg	19,96	7,8	22,35	10,7
	Orthodontics	23,52	9,8	24,1	10,2
Depersonalization	RestDent&Endo	8,15	6,3	8,39	7,22
	DentProsth	10,37	8,3	11,18	8,2
	MaxFacSurg	8,36	6,4	9,78	6,5
	Orthodontics	8,4	6,3	8,5	7,3

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Personal accomplishment	RestDent&Endo	30,43	10,2	28,67	9,4
	DentProsth	29,7	9,5	28,87	9,3
	MaxFacSurg	32,87	10,7	29,2	9,8
	Orthodontics	33,5	11,1	34,1	11,2

Table 2.: The MBI survey results among dentists with 4-9 year experience

Scale	Specialization	Severity			
		M (av.)	Standard deviation	F (av.)	Standard deviation
Emotional exhaustion	RestDent&Endo	22,19	10,5	23,48	9,9
	DentProsth	27,43	12,2	27,54	12,8
	MaxFacSurg	18,87	8,7	19,25	11,6
	Orthodontics	21,23	10,7	22,21	9,4
Depersonalization	RestDent&Endo	7,63	6,2	7,65	6,1
	DentProsth	9,45	7,4	10,23	7,3
	MaxFacSurg	8,13	7,1	8,63	6,2
	Orthodontics	8,1	6,2	8,3	6,9
Personal accomplishment	RestDent&Endo	33,21	11,1	34,48	11,1
	DentProsth	34,6	10,2	36,76	12,1
	MaxFacSurg	36,43	11,8	36,3	10,1
	Orthodontics	35,71	11,1	37,19	11,4

Table 3. The MBI survey results among dentists with 10 years or more experience

Scale	Specialization	Severity			
		M (av.)	Standard deviation	F (av.)	Standard deviation
Emotional exhaustion	RestDent&Endo	21,18	8,6	21,32	8,7
	DentProsth	22,08	10,04	21,14	9,6
	MaxFacSurg	16,17	7,1	17,23	7,6
	Orthodontics	19,14	8,5	18,7	8,3
Depersonalization	RestDent&Endo	6,82	5,1	6,24	4,9
	DentProsth	8,21	7,1	8,23	7,2
	MaxFacSurg	7,19	5,7	7,24	5,8
	Orthodontics	7,79	6,1	8,25	6,3
Personal	RestDent&Endo	37,25	11,4	38,65	11,8

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accomplishment	DentProsth	38,7	10,9	38,87	11,1
	MaxFacSurg	36,25	10,1	36,14	9,8
	Orthodontics	39,67	11,2	38,13	10,7

Dentists with signs of burnout on at least 1 scale had sleep disorders (21% higher), the feeling of chronic fatigue (13%), waking up difficulties (7%) and the feeling of waking up frustration (10 %) than dentists without signs of the syndrome. Oral care worsened significantly - 47% of those who had signs of the syndrome used a toothbrush only once a day or less often. Also, the number of dentists using dental floss decreased (only 27% of all respondents) and tongue scraper (only 15%). Mouth rinsers used only 2% of all tested. This was confirmed by the data obtained in the study of the hygienic condition of the oral cavity and the prevalence and intensity of caries in the subjects. With an increase in the severity of burnout, the hygienic condition of the oral cavity (OHI-S) worsens (increased by 62%) and the intensity level of caries (CIL) increases (increased by 51,6%) (table. 4).

Table 4.Dependence of the oral hygiene status (OHI-S) and caries prevalence & intensity level (CIL) on the severity of dentists' burnout

Index	Dentists without burnout signs n=16	Dentists with signs of burnout on at least one scale , n=83	Dentists with signs of burnout on all scales, n=13
OHI-S	1,3±0,56	1,7±0,47	2,1±0,73
CIL	0,16±0,06	0,28±0,09	0,31±0,11
Caries prevalence, %	100	100	100

Common glossodynia (burning mouth syndrome) complaints were identified in 2 dentists (1, 96%). Dentist №1: female, 43 years old (simple restorative and simple prosthodontics dental treatment); Dentist №2: female, 57 years old (only restorative dental treatment). Work experience was 22 and 35 years respectively. They showed signs of burnout on all 3 scales of the MBI questionnaire (Table 5).

Table 5 Burnout indicators in dentists with identified glossodynia (MBI)

Scale	dentist №1	dentist №2
Emotional exhaustion	27,12	26,14
Depersonalization	12,59	12,64
Personal accomplishment	27,13	28,43

It was found that both dentists, shortly before the burning sensation in the oral cavity, experienced events that caused them a strong psycho-emotional stress.

In addition, they reported that they had diseases of the gastrointestinal tract (chronic cholecystitis in dentist №1, chronic pancreatitis in dentist №2).

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V. LOCAL DENTAL STATUS

Dentist №1: composite fillings on #13, 14, 19; #3 and 30 are covered with PFM crowns. Visible plaque, tartar; tongue was slightly coated.

Dentist №2: composite fillings on #3, 5, 13, 14, 15, 22. A PFM bridge replacing #19 and 20, abutment teeth are 18 and 21. Visible plaque, tartar, the tongue was slightly lined. Hygienic indices and caries indicators are presented in table. 6.

Table 6 Hygienic and caries indices in dentists with identified glossodynia.

Index	dentist №1	dentist №2
OHI-S	1,2	0,8
CIL	0,21	0,32
Caries prevalence, %	100	100

Both specialists had sleep disorders, feeling of chronic fatigue, trouble waking up in the morning, frustration after waking up.

Oral care deteriorated significantly - they brushed their teeth less than once a day. Dental floss, tongue scraper and mouthwash were not used. This is confirmed by the data obtained in the study of the oral hygiene (OHI-S) and the prevalence and intensity of caries (CIL) in study participants.

VI. DISCUSSION

Stress can be considered a trigger mechanism for glossodynia [5,6].Studies have been conducted on the relationship of glossodynia and occupational stress [7,8]. If a set of diagnostic measures does not reveal objective disorders, glossodynia can be considered as a somatoform pain disorder due to acute and chronic stress ("true" glossodynia).

Examination of patients with glossodynia reveals that many of them have developed burnout syndrome. Oral rehabilitation in such individuals usually does not bring relief of symptoms since neurogenic origin exists despite the fact that most patients consider local factors to be the main cause of discomfort [9].

No association was found between oral Candida infection and glossodynia [10].

According to de Souza F.T. et al. (2012), the cause of glossodynia in some patients is only mental trauma (death of a loved one from a malignant neoplasm of the tongue) [11]. Gradually developing carcinophobia in such patients also confirms psychogenic nature of this disease [12].

Asthenic disorders like weakness, vulnerability, resentment, memory loss and sleep disturbances are observed in patients with glossodynia [13,14]. The development of a glossodynia is preceded by traumatic factors: acute stressful situation, death or severe illness of close relatives, high-stress family situations, problems with children, social status change, chronic psychological trauma, conflicts at work, lack of money, the presence of a disabled person in the family [15].

Pokupec-Gruden J.S. et al., (2000) revealed previous psycho-emotional disorders in patients with glossodynia [16].

Lack of ethical and deontological standards in working with patients can lead to psycho-emotional stress [9].

Glossodynia manifests itself as a result of change in psychological status [17].

VII. CONCLUSION

Based on the data obtained, it can be concluded that glossodynia in these dentists had a psychogenic origin and was associated with burnout syndrome. The frequency of glossodynia occurrence in this research was 1.96%, both dentists had bad oral hygiene. Not all types of glossodynia can be cured only by oral rehabilitation. In some cases, these individuals need burnout syndrome treatment.

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