

# Psychogenic Factors in the Aetiology of Stomatopyrosis

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## ABSTRACT

*This research has been conducted on the basis of the association between a psychogenic factor and stomatopyrosis as its consequence. Stomatopyrosis is characterised as a burning sensation or as pain in the mouth cavity with clinically normal oral mucosa. It typically occurs with elderly female population, aged on average 67. Burning mouth as a symptom occurs primarily on the lips, although it may be located on some other sites on the oral mucosa. There are various etiological factors influencing the emergence of stomatopyrosis. They are divided into local factors, related to candidiasis, dysfunction, problems caused by dentures; systemic factors, with hormonal or immunological disturbance, medicines, etc; and, finally, psychogenic factors, characterised by various psychological states and conditions like depression, anxiety, adaptability and emotional stability.*

*The objective of this research was to prove that psychogenic factors cause the burning mouth syndrome sensation. Methods which helped us to establish the link between psychogenic factors and the emerging of stomatopyrosis were general history of the respondents, clinical history, which included both objective and subjective assessment, and psychological rating scales and tests.*

*The results have shown that sex of the respondents does not make any difference. Diagnosis of the oral disease shows that burning is the symptom as well as in the diagnosis of the disease, that localisation of the symptom is primarily on lips, followed by tongue, cheeks, and palate. The description of the symptoms shows that respondents with stomatopyrosis complain of burning and dryness in the mouth cavity. As far as the intensity of the symptom is concerned, the results have shown that the symptom is in most cases unbearable. The frequency of the occurrence of the symptoms said to be continuous. The typical time when the symptom occurs is daytime, followed, by night and evening, day and night. Tension dentures and hot food intensify the symptom. Subjective change in taste is present in the high percentage. Visual analogue scale shows a high degree subjective assessment of the symptoms in the mouth cavity. Thermoesthesiometry has established that there are no pathological changes on the oral mucosa. Psychological rat-*

*ing scales and tests have established the presence of psychical changes in a high percentage. What we took into account were the most frequent changes: depression, anxiety, adaptability and emotional stability. We also established a systematic and a psychiatric diagnosis that was necessary for making the right choices when treating people with stomatopyrosis.*

*Stomatopyrosis is the state whose factor, apart from local and systematic factors, may be psychogenic factor. We think that stomatopyrosis may be psychosomatic state that can be cured or treated by appropriate treatment, which includes psychiatric treatment as well.*

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## Introduction

Burning mouth syndrome is characterised by a sense of burning, heating and pain in mouth with normal oral mucosa. Various terms have been used for it nowadays, »glossodynia«, »stomatodynia«, »stomatopyrosis« and »oral dysaesthesia« being some of them<sup>1, 2</sup>.

There are various etiological factors that affect the emerging of burning mouth syndrome. These factors may be local, systemic and psychogenic<sup>3</sup>. Local etiological factors which may be the cause of various burning mouth symptoms imply dentures<sup>4,5</sup>, candidiasis and bacterial mouth infection<sup>6</sup>, as well as allergic reaction of mouth<sup>7,8</sup>, dysfunction of TMJ and salivary glands<sup>9,10</sup> or reaction of mucosa after radiation therapy<sup>11,12</sup>.

The condition of oral mucosa may be affected by numerous systemic diseases. Such pathological conditions may be described as a subjective burning mouth symptom. Systemic factors are various deficiencies, hormonal and immunological disturbances and side-effects while taking medicines. Brooke and Seganski<sup>13</sup> have found out that patients with stomatopyrosis suffer from iron deficiency. The lack of vitamins B, B<sub>2</sub>, B<sub>6</sub> and particularly deficiency in their combination cause stomatopyrosis<sup>9,14,15</sup>. Glick and his colleagues<sup>16</sup> think that a high concentration of proteins, potassium and phosphates in blood may be responsible for the

changes in the mouth cavity, which result in stomatopyrosis. Neurogenic and circulatory disturbances typical for diabetes mellitus lead to stomatopyrosis symptoms as well<sup>17</sup>.

Psychogenic factors have an important role and may cause pathological changes in oral mucosa and pathological subjective symptoms in mouth. Fainmann and Harris<sup>18</sup> have established and described the connection between the pain in the mouth cavity and stressful and problems-loaded life. Serious stressful situations in private life are, according to Hammaren and Hugoson<sup>19</sup>, also leading to stomatopyrosis. Hamph and his colleagues<sup>20</sup> have discovered that a high percentage of patients display mild, moderate and serious mental disturbances, the result of which may be stomatopyrosis again. Having applied psychotherapeutic interviews, they established emotional factors like animosity and aggression in persons suffering from stomatopyrosis<sup>9,21</sup>. Browning and his colleagues<sup>22</sup> have come to the conclusion that depression and anxiety lead to the emerging of stomatopyrosis. Grushka and his colleagues<sup>23</sup> have stated that persons with stomatopyrosis not only pay an unusually increased attention to their physical functions, but are also depressed, emotionally dull, suspicious, anxious and socially isolated, and tend to display reactive and exogene depressions, anger, loneliness or professional worries. Re-

search on hidden (larval) depressions has shown that we should distinguish vital sensibility and psychomotoric inhibition which may be displayed through physical symptoms on oral mucosa, skeleton muscles and on cardiovascular, gastrointestinal, vaso-vegetative and genitourinary system. Lamay and Lamb<sup>9</sup> have found out that mental disturbances like anxiety, depression and cancerphobia are among the main etiological factors of stomatopyrosis. This is what tests conducted by several authors have proved<sup>24,27–30</sup>.

### Methods and Materials

The research was conducted on the sample of 20 respondents with subjective symptoms of stomatopyrosis, treated in the Institute for mouth diseases of the Faculty of Stomatology in the period 1994 – 1998, without any clinical pathological assessment, which is the prerequisite for the existence of stomatopyrosis as a separate diagnosis. The control group contained 20 respondents of the same age and without any clinical changes or stomatopyrosis symptoms.

The clinical part of the examination was conducted in the following way: apart from typical general data, localisation of the burning mouth symptoms was established according to Teed Peterson and WHO<sup>31</sup>. Subjective intensity of burning sensation has been expressed in centimetres according to visual analogue scale (VAS). Thermoesthesiometry was used to measure the temperature at the site of an intensive burning sensation, according to Reed Peterson topographic scheme<sup>25</sup>.

Psychological testing was conducted by means of psychological questionnaires/rating scales. The first questionnaire relates to DEPRESSION, which was assessed by the scale used by Demange et al. The same scale was used to analyse persons with stomatopyrosis, and the ma-

jority of the respondents displayed depression<sup>26</sup>.

The second questionnaire targeted ADAPTABILITY; psychological assessment was conducted according to rating scales quoted by Trikkas et al.<sup>30</sup> The third questionnaire assessed ANXIETY and it was conducted by means of Hamilton anxiety scale by Rojo and his colleagues<sup>27</sup>. The third questionnaire relates to the assessment of the emotional stability according to Tourne and Friction<sup>2</sup>.

Clinical assessment of the intensity of burning sensation, establishment of the location of stomatopyrosis, thermoesthesiometric measuring and psychological questionnaires were done by one and the same person under equal conditions for all the respondents. Apart from dental check-ups, all the patients have undergone a psychiatric and psychotherapeutic check-up. Psychological enquiry was performed by a psychologist, according to the standards of the respective rating scales. Statistical results were obtained by means of establishing the mean value of all tests and were expressed in percentages.

### Results

The results of the research confirm the correlation of stomatopyrosis and psychogenic disturbances in our population. Table 1 shows the distribution of respondents according to occupation. This table shows that the majority of respondents are retired persons. The same was with the control group.

The age range of the respondents was 56–75 years. Distribution of respondents according to their age is featured in table 2. The majority of respondents with stomatopyrosis are 66–70 years old, while the age range of the control group was 61–65.

Distribution of respondents according to their sex is shown in Table 3. Women

**TABLE 1**  
DISTRIBUTION ACCORDING TO OCCUPATION

Occupation	Respondents		Control group	
	Number	%	Number	%
Retired persons	10	50	16	80
Nuns	2	10		
Housewives	8	40	2	10
Clerks	2	10		
Altogether:	20	100	20	100

**TABLE 2**  
DISTRIBUTION ACCORDING TO AGE

Age	Respondents		Control group	
	Number	%	Number	%
55–60	4	20	2	10
61–65	2	10	10	50
66–70	8	40	6	30
Beyond 70	6	30	2	10
Altogether:	20	100	20	100

**TABLE 3**  
DISTRIBUTION ACCORDING TO SEX

	Women		Men		Altogether	
	Number	%	Number	%	Number	%
Respondents	18	90	2	10	20	100
Control group	16	80	4	20	20	100

are predominating in both groups. Clinical oral assessments have shown that none of the respondents having stomatopyrosis displays any pathological change on oral mucosa; i.e. clinical oral assessment was negative with all 20 respondents (100%).

Localisation of symptoms on oral mucosa, featured in Table 4, shows that the most frequent site of the symptoms are lips, which are followed by tongue tip. While describing symptoms, the respondents talk about burning sensation, itching, dryness, pricking and pain. One and

the same respondent is liable to simultaneous occurrence of several symptoms. The control group members did not display such symptoms. The assessment of the intensity of the burning sensation has been presented in Table 5. The table shows that half of the respondents find their symptoms of stomatopyrosis unbearable.

Thermoesthesiometry applied on respondents has not registered any increase in temperature in oral mucosa, which proves that inflammation is not the cause of stomatopyrosis.

**TABLE 4**  
LOCATION OF STOMATOPYROSIS

Site	Lips	Tongue Tip	Palate	Altogether
Number (%)	14 (70)	4 (20)	2 (10)	20 (100)

**TABLE 5**  
DISTRIBUTION ACCORDING TO THE BURNING SENSATION INTENSITY

Intensity	Unbearable	Moderately bearable	Bearable	Altogether
Number (%)	10 (50)	4 (20)	3 (60)	20 (100)

Measurement and assessment of the subjective intensity of symptoms have shown that majority of respondents had a strong burning sensation. The respondents had to assess their burning sensation intensity according to the control scale from 0 to 10. The established mean value is 5.9.

Depression rating scale was applied on both the respondents with stomatopyrosis and the control group. Table 6 features the results of this assessment. Depression was expressed by both respondents suffering from stomatopyrosis and the members of the control group. Still, there was a difference in the intensity of depression: depression is expressed as being severe in respondents with stomatopyrosis and mild with the control group members.

Adaptability rating scale was applied on both the respondents and the members of the control group. The outcome is featured in Table 7, showing that the adaptability of the respondents suffering from stomatopyrosis was rather poor, while the one expressed by the members of the control group was mostly good.

The objective of the questionnaire applied on the respondents and the control group was to establish the presence of anxiety. The results are displayed in Table 8. Anxiety was present with both

**TABLE 6**  
DISTRIBUTION OF THE OUTCOMES OF DEPRESSION RATING SCALE

Depression	Respondents	Control group
Severe	14 (70)	2 (10)
Moderate	4 (20)	2 (10)
Mild	2 (10)	16 (80)
Altogether:	20 (100)	20 (100)

**TABLE 7**  
DISTRIBUTION OF ADAPTABILITY RATING SCALE OUTCOMES

Adaptability	Respondents	Control group
Mild	12 (60)	2 (10)
Moderate	4 (20)	4 (20)
Normal	4 (20)	14 (70)
Altogether:	20 (100)	20 (100)

**TABLE 8**  
DISTRIBUTION OF THE OUTCOMES OF ANXIETY RATING SCALE

Anxiety	Respondents	Control group
Severe	16 (80)	2 (10)
Moderate	2 (10)	6 (30)
Mild	2 (10)	12 (60)
Altogether:	20 (100)	20 (100)

groups. However, the intensity of the anxiety present with the respondents was reported as being strong, while the anxi-

ety expressed by the control group was rather weak.

Emotional stability rating scale was applied on both groups. The findings, which are displayed in Table 9, show that the majority of respondents with stomatopyrosis are emotionally unstable, while the majority of control group members are in general emotionally stable.

**TABLE 9**  
DISTRIBUTION OF EMOTIONAL STABILITY  
RATING SCALE OUTCOMES

Emotional stability	Respondents	Control group
Emotionally stable	6 (30)	16 (80)
Emotionally unstable	14 (70)	4 (20)

## Discussion

Stomatopyrosis is a disease affection elderly, primarily female persons, which has been proved by this research. The age range of out patients is 56–75, with the average age of 67. J. Bergdah and Anne-roth<sup>1</sup> described stomatopyrosis patients as mostly elderly women (50–60), which corresponds to the findings of this research. These women are typically either housewives or old age pensioners. Basker and his colleagues<sup>28</sup> confirm that the patients are predominantly old age pensioners.

The very definition of the disease implies the fact that this is a disease without any clinical oral assessment, which corresponds to what Cekić et al.<sup>25</sup> think. The symptoms are primarily located in the area of lips or at the tongue tip. Burning sensation is the dominant symptom, which is a part of the diagnostic criterion as well. Grushka et al.<sup>3</sup> have discovered that the burning sensation is most frequently located at the tongue tip and palate. Majority of the respondents

have reported their burning sensation as being unbearable and permanent. Majority of them reported that the symptom occurs during the day, since that is the period when they are exposed to bigger stressful situations than they are at night or in the evening. Denture intensifies the symptoms. If a person is psychically sensible, a denture, as a corpora alienatum, causes oral symptoms. If the stability of the denture is not ideal, it may cause mechanical irritations which can objectively result in pain and burning sensation. Old dentures and the ones with poorly maintained dental hygiene can become the site where candidiasis occurs, which again causes stomatopyrosis. Nater et al.<sup>4</sup>, as well as many other authors, emphasised this problem<sup>1,2,5</sup>. Emotional tension almost as efficiently intensifies stomatopyrosis, which is very significant for our research. This finding has been confirmed by Grushka et al.<sup>23</sup>. In most cases, the respondents have not reported any change in taste. Thermoesthesiometry has not detected any inflammation, which confirms the non-existence of oral pathological assessment<sup>25</sup>. Subjectively, the majority of the respondents have reported on a strong burning sensation, which suggests some mental disturbances. Depression, low adaptability, anxiety and emotional instability are proven stronger in respondents with stomatopyrosis than in the members of the control group. Rojo et al.<sup>27</sup>, having applied Hamilton depression and anxiety scale, discovered that depression is a dominant disturbance in majority of respondents with stomatopyrosis, which has been featured in this research. Lamay and Lamb<sup>29</sup> have by means of HAD scale detected depression, anxiety and borderline structure in respondents. Trikkas et al.<sup>30</sup>, having treated a patient with stomatopyrosis symptom by means of various psychometric instruments, detected psychopathological symptoms.

## Conclusion

On the basis of our research, what we might conclude is that the psychogenic factor is significant in the emerging of stomatopyrosis. Almost 4/5 of the respondents are unadapted and suffer from anxiety and depression. The equivalent number of them is emotionally unstable. Stomatopyrosis may be the result of a complex dynamics, ranging from hysterical conversion to incapability to mentalize separation, the basis of which is a »Narcissistic nucleus«. Namely, what is present here is alexithymia. These findings suggest a need for an interdisciplinary treatment of stomatopyrosis, which, apart from dental therapy, demands a

certain kind of psychotherapy as well. Stomatopyrosis may be treated by various psychotherapeutic techniques: relaxation psychotherapy, like autogenous training, or psychoanalytical and behavioural therapy. Besides, the treatment of the quoted mental disturbances requires the use of psychopharmacs as well (benzodiazepines and antidepressants). Stomatopyrosis might be prevented or even cured by the improvement in psychical quality of life. The increased frequency of this symptom in our patients confirms that aetiology of stomatopyrosis is connected with the post-war stress as an etiological factor.

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## PSIHOGENEZA SINDROMA PEČENJA USTA

### SAŽETAK

Ovo je istraživanje provedeno na osnovi povezanosti psihogenog čimbenika s pojavom stomatopiroze kao posljedice. Stomatopirozu karakterizira osjećaj žarenja ili boli u usnoj šupljini kod klinički normalne oralne sluznice. Obično se javlja kod ženskoga spola, starije životne dobi (u prosjeku 67 godina). Pečenje se, kao simptom, pojavljuje, najčešće, na usnama a može biti prisutno i na drugim lokacijama na sluznici usne šupljine. Postoje različiti etiološki čimbenici koji utječu na nastajanje stomatopiroze; oni se dijele na:

lokalne: kandidijaza, disfunkcija, problem umjetnih zubala;

sustavne: nedostatak hormona, imunološki poremećaji, lijekovi i dr.;

psihogene: depresija, anksioznost, maladaptabilnost, emocionalna nestabilnost.

Svrha ovoga istraživanja je dokazati da je psihogeni čimbenik uzrok nastanka pečenja u usnoj šupljini. Metode pomoću kojih smo ustanovili mogućnost pojave stomatopiroze pod utjecajem psihogenih čimbenika bili su: opća anamneza bolesnika, klinička anamneza (kojoj pripada objektivna i subjektivna procjena simptoma) i klinički testovi.

Rezultati nam pokazuju da je u ispitnoj skupini simptom pečenja lokaliziran u najvećoj mjeri na usnama, a zatim na jeziku, obrazima i nepcu. Opis simptoma ukazuje na osjećaj pečenja i suhoće u ustima. U procjeni intenziteta simptoma prevladava nepodnošljivost. U opisu učestalosti prevladava trajni oblik simptoma. Vrijeme javljanja je dan, zatim noć, a slijede razdoblja: navečer, te danju i noću. Simptomi se pojačavaju najčešće kod napetosti, zatim zbog proteze i vruće hrane. U velikom postotku dolazi do promijenjenog okusa. Vizuelna analogna skala pokazuje visok stapanj subjektivne ocjene simptoma. Termoesteziometrija nije registrirala patološke promjene u oralnoj sluznici. Psihološki su testovi pokazali visoki stupanj psihičkih promjena: depresija, anksioznost, maladaptabilnost i emocionalna nestabilnost. Uspostavljena je i sustavna psihijatrijska dijagnoza koja je potrebna za pravilan odabir liječenja osoba sa stomatopirozom.

Stomatopiroza je stanje koje uzrokuje osim lokalnih i sustavnih, u velikoj mjeri i psihogeni čimbenici. Smatramo da se može govoriti i o psihosomatskom oboljenju koje se pravilnim psihoterapijskim postupkom može izliječiti ili zaliječiti.