From: The Department of Prosthetic Dentistry, School of Dentistry, Karolinska Institutet, Stockholm; the Department of Oral and Jaw Diseases, the Department of Medicine, and the Department of Psychiatry, Karolinska Sjukhuset, Stockholm, Sweden.

A PSYCHO-ODONTOLOGIC INVESTIGATION OF PATIENTS WITH BRUXISM

by

CARL MOLIN

LENNART LEVI

INTRODUCTION

In medical and odontological literature the term *bruxism* means all habitual clenching and grinding of the teeth, except when the patient is masticating or swallowing, whether he is awake or asleep. The word is derived from the greek expression "brychein odontas" that literally means "to gnash one's teeth".

For thousands of years people have been aware of a relationship between emotional states and non-functional activity of the masticatory system (*Every*, 1965). In the Bible, for instance, we find many examples of this awareness, e.g.:

"The wicked shall see it, and be grieved; he shall gnash with his teeth, and melt away; the desire of the wicked shall perish". (Ps. 112: 10); "... there shall be weeping and gnashing of teeth". (Mt. 8: 12).

In most cases, this activity is transitory and ceases at the same moment as the generating emotional tension disappears. In a minority of cases, however, a clenching tendency develops with lower and lower trigger threshold. In these patients the clenching

episodes increase in frequency and develop into chronic states. As a rule the patient is not aware of his bruxism. For that reason it is difficult to gain any reliable information about the morbidity. Most investigators simply refer to the very high, but in this connection not particularly relevant, prevalence in highly selected groups of patients with periodontal disease (*Peterson et al.*, 1950; *Nadler*, 1957).

The concepts of the aetiology of bruxism are still widely divergent and controversial. One school postulates a mechanical genesis and considers all causes to be determined by occlusional disturbances (*Costen*, 1934; *Markowitz & Gerry*, 1950; *Lindblom*, 1953; *Jankelson*, 1955, and *Shore*, 1959). This opinion is supported by the fact that bruxism can be induced experimentally in man as well as in some animals by means of onlays on the teeth. Bruxism induced in this way ceases as soon as the elevated points are worn down (*Jankelson*, 1955; *Ramfjord*, 1961 a & b). Arguments against the mechanical theory are the relatively high incidence of disturbed occlusion in individuals without any subjective or objective signs of bruxism, as well as the opposite findings, i.e. bruxists with severe symptoms but without any evident occlusal disturbances.

Another school emphasizes a psychosomatic view on the aetiology of bruxism, considering that some constitutional or acquired psychic factors may dispose to or provoke it by increasing muscular tension in the masticatory system (*Karolyi*, 1902; *Tischler*, 1928; *Frohman*, 1932; *Garn*, 1952; *Moulton*, 1955 a; *Schwartz*, 1955; *Kydd*, 1959; *Perry*, 1960, and *Posselt*, 1960).

Furthermore, the possibility of three different types of aetiology cannot be excluded: a) the somatogenic, b) the psychogenic, and c) the mixed type. This multicausal hypothesis is supported by the favourable results obtained by dental as well as by psychiatric therapy (*Bundgaard-Jörgensen*, 1950; *Moulton*, 1955 & 1957; *Moore*, 1956; *Nadler*, 1957; *Berlin & Dessner*, 1960; *Lullies*, 1960; *Posselt*, 1960 & 1964; *Drum*, 1962; *Kruuse*, 1962, and *Hupfauf*, 1964).

Whatever the aetiology may be, the resulting non-physiological load on the masticatory system in bruxism has been claimed to damage the structures or disturb the function in the following tissues:

I. *Teeth:* Too rapid abrasion of a single tooth or the whole dentition. Pain can be experienced, and is claimed to be due to reactive pulpal hyperaemia (*Wolff,* 1948; *Schwartz,* 1959; *Ingle,* 1960).

II. *Periodontal tissues:* At least an aggravating factor in already developed periodontal disease (*Posselt & Emslie,* 1959).

III. *Masticatory muscles:* Spasm, trismus, and myositis due to the long-standing isometric contraction of the muscles causing ischaemia. Subjective symptoms are muscular fatigue, tension, and pain (*Sainsbury & Gibson,* 1954; *Perry,* 1957, and *Travell,* 1960).

IV. *Temporomandibular joint:* "Clickings", "subluxations", and even true luxations, due to disturbed coordination of the muscles (*Ireland,* 1951; *Carlsöö,* 1952, and *Schwartz,* 1959). Pain, possibly of articular origin, but more likely arising in the muscles — referred pain (*Schwartz,* 1955; *Hankey,* 1956; *Campbell,* 1958, and *Travell,* 1960).

V. *Adjoining parts:* Reactive tension and pain in adjoining muscle groups, especially in the neck and the shoulders. Accompanying or reactive tension in the neck and scull muscles may also be experienced as headache (*Wolff,* 1948; *Ross,* 1954; *Berlin & Dessner,* 1960, and *Friedman,* 1961).

As pointed out above, it is supposed but still not proved that psychological factors can predispose to, precipitate, or aggravate a state of bruxism. Therefore, the first step to the study of the possible role of such factors must be to compare the psychological characteristics of bruxist patients with those of a matched group. If certain psychological traits distinguishing the two groups can be demonstrated, the next step would be to analyze, whether they are primary or secondary by studying the problem experimentally.

To the knowledge of the present authors, only two papers have been published in which personality characteristics are related to symptoms in this field (*Thaller,* 1960; *McCall, Szmyd* and *Ritter,* 1961). In Thaller's study, the Cornell index was administered to 50 female patients, 25 with the bruxistic habit and 25

without the bruxistic habit. A significant difference between the scores of the two groups was found. The author concludes that further study is necessary.

The second study utilized the Minnesota Multiphasic Personality Inventory (MMPI) to compare certain characteristics of 70 patients with temporomandibular joint complaints with those of a matched group of 70 subjects coming for a routine dental check-up. A third group of patients who were about to undergo oral surgery, was included in order to evaluate the effects of the acute situational anxiety present in this group as compared with the chronic anxiety assumed to be operational in the temporomandibular joint syndrome.

The authors reported some psychological differences between the groups investigated. The number of discriminative MMPI items, however, was not very impressive, considering the number of items used in the inventory. A further limitation of this study lies in its restriction to military subjects. For this reason the following investigation, making use of a different psychological instrument, was conducted.

MATERIAL AND METHOD

The experimental group of this study included 103 patients from the Dental Department of Södersjukhuset in Stockholm and from the Department of Prosthetic Dentistry, Faculty of Odontology, Karolinska institutet, Stockholm. The distribution of age and sex is seen from Table I.

Table I

Age and sex distribution of the 103 bruxists

Age group Years	Males n = 19	Females n = 84	Total n = 103
16—20	1	12	13
21—30	6	21	27
31—40	6	20	26
41—50	5	21	26
51—60	1	7	8
61—70	—	3	3
Mean age	35.3	34.8	35.1

All the patients had a clearly manifested bruxism with pain-dysfunction symptoms such as previously defined.

Although it was considered essential that the *control subjects* of this study should be in good physical and mental health, it was also of great importance that they should be in the psychological situation of being patients, because this may influence their attitude to the questionnaire and its different items.

The controls were therefore chosen from a group of several thousand individuals who once a year had a routine medical check-up, paid for by their employers. The subjects were paired off as regards sex, age, and self-rated occupational stress. This last measure was included to account for some situational differences possibly present between the two groups.

Each subject in this study completed a new personality questionnaire (*Jonsson & Levi,* 1966), consisting of 97 items, 48 of which were derived from Eysenck's "Maudsley Personality Inventory" (*Jensen,* 1958; *Eysenck,* 1959). The purpose of the questionnaire was to study symptoms indicating depression, anxiety, and neurasthenia as well as signs of possibly psychogenically induced autonomic nervous system and somato-motor-system arousal.

In addition to this personality questionnaire, each subject had to complete an odontological questionnaire with 42 items, centering directly on subjective local symptoms and their emotional reaction to them. In both lists of questions the items were worded in a declarative manner, with positive and negative statements appropriately balanced, and including an "in-between" alternative.

The comparison between the groups was made separately for each item by use of the chi-square test. Two different calculations were performed:

I. χ^2 was calculated on the whole material. Significance here indicates that the groups differ from each other in some way, but does not tell how.

II. χ^2 was calculated only on those subjects who have chosen either the positive or the negative alternative, avoiding the "in-between" alternative. Significance here demonstrates a difference between the two groups in positive and negative answers and the direction of this difference.

Table II A

Selected symptoms and characteristics in the bruxist and the control group demonstrated

Item No.	Items intended to indicate	Percentage of						Cal (cor
		positive answers		"in-between" answers		negative answers		
	Depressive symptoms	Bruxists	Controls	Bruxists	Controls	Bruxists	Controls	d.f.=2 χ^2
10	Easily downhearted	45.6	22.3	33.0	48.6	21.4	29.1	12.51
11	Frequent changes of mood	27.2	12.6	40.8	38.8	32.0	48.6	9.02
17	Depressed without reason	33.0	9.7	44.7	57.3	23.3	33.0	16.82
23	Often feelings of guilt	40.8	22.3	39.8	53.4	19.4	24.3	8.15
29	Often feelings of loneliness	26.0	9.7	21.0	24.3	53.0	66.0	9.28
34	Light-hearted disposition	10.8	16.5	38.2	52.4	51.0	31.1	8.46
39	Worrying	21.4	4.9	45.6	41.6	33.0	53.4	15.84
45	Often discontented	25.5	9.7	42.2	33.0	32.3	57.3	15.51
	Symptoms of anxiety							
3	Difficult to concentrate	13.6	2.9	60.2	58.3	26.2	38.8	9.67
27	Often tensed	63.1	21.8	22.3	43.6	14.6	34.6	35.82
47	Very restless	15.7	6.8	62.7	47.6	21.6	45.6	14.57
75	Hurrying without reason	36.7	15.7	30.7	41.2	32.7	43.1	11.55
81	Anxious without reason	19.8	6.9	51.5	28.4	28.7	64.7	27.20
85	Able to relax during leisure hours	23.8	44.1	34.6	27.5	41.6	28.4	9.54
96	Imagine an accident, when a friend is delayed	39.2	26.4	28.4	55.9	32.4	17.7	16.05

	Symptoms of neurasthenia												
35	Listless, often tired	29.1	9.7	56.3	69.9	14.6	20.4	12.51	* *		8.72	* *	
55	Easily weary	28.0	7.9	48.0	71.3	24.0	20.8	16.11	* * *		5.20	*	
60	Cannot stand noise	33.0	14.8	44.0	54.5	23.0	30.7	9.15	* (*)	1% = 9.21	7.02	* *	
	Autonomic nervous system symptoms possibly of psychogenic origin												
52	Perspire without reason	24.3	11.6	41.7	47.6	34.0	40.8	5.60	10 %	* = 5..99	4.90	*	
56	Urinate frequently when upset	17.0	7.8	34.0	27.5	49.0	64.7	6.31	*		5.31	*	
118	Excessive salivation	17.5	5.0	37.1	29.0	45.4	66.0	11.66	* *		10.25	* *	
	Note to tables II A and B. As the subjects occasionally left a few items unanswered, the number of answers to the different items varies between 103 and 99, except for items 69 and 78, where n = 94.												

RESULTS

An analysis of the patterns of response of all the subjects in the two groups using the chi-square test, as described above (alternative I), on each of the 97 items, yielded 33 items which discriminated between the bruxist group and the control group at or beyond the .05 level of significance. 20 out of these 33 items discriminated between the groups at or beyond the .01 level and among these 20 items 12 reached beyond the .001 level.

The chi-square test according to alternative II (see above) yielded 36 items discriminating at or beyond the .05 level. 20 of them discriminated between the groups at or beyond the .01 level and out of these 20 items 10 reached beyond the .001 level of significance.

27 items gave significant differences at tests by both alternatives, 6 by alternative I only, and 9 by alternative II only.

In Tables II A and II B, some of these items were grouped together according to what symptoms they were intended to indicate — n.b. without claiming to have isolated any genuine factors. The incidence of *depressive symptoms* was significantly higher in the bruxist group. The same was true about symptoms indicating *anxiety.*

The tables also show that *symptoms of muscular tension* inside as well as outside the masticatory system were commoner in the bruxist group than in the control group, as also were *manifestations judged to be indicative of a neurasthenic syndrome.*

However, contrary to what might be expected, the items intended to indicate aggressiveness, latent or manifest, yielded no conclusive evidence in favour of a more marked tendency in the bruxist group.

In the odontological questionnaire 20 out of its 40 items discriminated between the groups at or beyond the .05 level of significance by the chi-square test according to alternative I. All but 2 of these 20 reached beyond the .01 level and 15 at or beyond the .001 level.

The chi-square test by alternative II yielded 23 items beyond the .05 level, 18 beyond the .01, and 15 beyond the .001 level of

Table II B

Selected symptoms and characteristics in the bruxist and the control group demonstrated

Item No.	Items intended to indicate	Percentage of positive answers		"in-between" answers		negative answers		Ca (co
	Miscellaneous characteristics	Bruxists	Controls	Bruxists	Controls	Bruxists	Controls	d.f.=2 χ^2
12	Prefer planning to carrying out work	15.2	17.6	23.2	8.8	61.6	73.5	7.80
18	Finically careful	37.6	22.3	38.6	55.3	23.8	22.3	7.07
26	Frequent commissions leading to contacts with many people	26.5	48.5	29.4	27.2	44.1	24.3	12.65
63	Poor health	15.8	1.0	34.7	25.5	49.5	73.5	19.56
69	Generally working leisurely	8.0	1.9	41.0	54.9	51.0	43.1	6.42
71	Prefer tasks involving persuasion	14.0	3.9	25.0	30.9	61.0	65.3	6.39
78	Working hard for a career	21.2	34.6	39.4	44.6	39.4	20.8	9.05
80	Getting into a temper over bagatelles	20.6	7.8	41.2	47.1	38.2	45.1	6.80
86	No religious belief	20.8	28.4	38.6	50.0	40.6	21.6	8.61
98	No one to confine in	11.8	4.9	34.3	26.5	53.9	68.6	5.71
100	Heavy physical labour	23.5	9.7	37.3	26.2	39.2	64.1	14.00
101	Mentally tiring work	32.0	28.2	47.0	52.4	21.0	19.4	0.61
	Muscle symptoms possibly of psychogenic origin							
49	Headache	47.1	13.7	33.3	40.8	19.6	45.6	30.36
53	Pain around the heart or in the chest	11.8	6.8	45.1	28.2	43.1	65.0	9.93
58	Trembling of hands when worried	30.0	19.8	47.0	27.7	23.0	52.5	18.65

Table III

Selected symptoms and characteristics in the bruxist and the control group demonstrated

Item No.	Items intended to indicate	Percentage of						
		positive answers		"in-between" answers		negative answers		Cal (con
	Bruxism	Bruxists	Controls	Bruxists	Controls	Bruxists	Controls	d.f.=2 χ^2
102	Pain in the neck and shoulders	46.0	19.6	27.0	49.0	27.0	31.4	17.52
103	Tiredness in the masticatory muscles	42.4	2.0	40.4	41.2	17.2	56.8	58.79
104	Facial pain radiating to the ears	27.0	6.9	31.0	2.0	42.0	91.1	55.90
109	Teeth clenched on awakening in the night	38.4	18.0	31.3	11.0	30.3	71.0	33.31
110	Teeth sore on awakening in the morning	27.6	9.1	36.7	21.2	35.7	69.7	24.06
113	Locking of the jaw	40.0	3.9	21.0	13.9	39.0	82.2	46.72
115	Clicking or crepitations in the TMJ	39.0	11.0	38.0	28.0	23.0	61.0	34.89
116	Subluxations on opening the mouth wide	34.0	5.0	32.0	36.0	34.0	59.0	28.52
	Physical factors suspected to elicit bruxism							
125	Noticed some premature contact	30.3	14.6	33.3	16.7	36.4	68.7	20.50
130 I	Obtained too high restoration	13.7	5.1	17.9	9.2	68.4	85.7	8.40
130 II	Obtained too low restoration	4.1	3.0	15.5	7.1	80.4	89.9	3.76

	Symptoms of bruxism possibly elicited by physical factors												
104 II	Facial pain when lifting heavy objects	6.1	1.0	25.2	10.0	68.7	89.0	12.80	* *		4.87	0	
105	Facial pain on exposure to cold or wind	26.5	11.9	32.7	28.7	40.8	59.4	9.26	* *		8.91	* *	
	Symptoms of bruxism possibly elicited by psychical factors												
104 III	or upset Facial pain when stressed	24.7	2.0	24.7	7.1	50.5	90.9	40.02	* * *		29.90	* * *	
107	Clenching when upset	71.0	28.7	13.0	14.9	16.0	56.4	40.81	* * *		40.66	* * *	
108	Tension of antagonistic muscles when upset	45.0	15.0	25.5	18.0	28.6	67.0	32.13	* * *		30.59	* * *	
	Ear symptoms												
124	Tinnitus	15.1	8.0	52.5	50.0	32.3	42.0	3.52	0	*= 5.99	3.39	0	*= 3.84
137	Impaired hearing during the last 5 years	12.0	8.0	31.0	38.0	57.0	54.0	1.59	0		0.51	0	
	Note to table III. In this table the number of answers to the different items varies between 103 and 97.												

significance. Only 1 item gave significant difference by alternative I alone.

The age and sex distribution in the material roughly corresponded to that reported by other investigators (*Lindblom,* 1953 and 1960; *Hankey,* 1956; *Posselt,* 1958, and *Thomson,* 1959).

A factor analysis of the personality questionnaire on 500 "normal" subjects is in progress and will soon be completed.

DISCUSSION

A total of 66 items out of the 138 of the two inventories have been shown to discriminate between the groups at or beyond the .05 significance level according to one or other of the two calculation alternatives.

In general the bruxists manifest more anxiety and depression than do the controls. Neurasthenic symptoms, as well as muscular tension in non-odontological parts of the body, also occur more frequently in the bruxist group. These results are in agreement with those formerly reported by McCall, Szmyd, and Ritter. The also find support in clinical experience reported by several authors (*Moulton,* 1955; *Hankey,* 1956; *Schwartz,* 1959, and *Kydd,* 1959).

It may be tempting to speculate about a possible causal relationship between the bruxism symptoms and the personality traits described. Thus, it may be argued that those traits that were found in excess in the bruxist group may be not the cause but the result of the occlusional disorder. However, this is highly unlikely, because the physical symptoms are usually known not to be very invalidating or of very long duration (*Moulton,* 1956 b).

In addition, the statistical relation found between the two classes of data does not prove the presence of a causal relationship. It may well be that bruxism and the personality traits are manifestations in different dimensions of what may be called a state of stress.

Table III indicates that clenching of the teeth may accompany certain emotional states. This holds true for 71 per cent of the patients and for 28 per cent of the control subjects (item 107).

In this table are also given some results supporting the concept that the masticatory muscles rather than the temporomandibular joint are responsible for the symptoms (item 102 and 103). In most cases the symptoms appear acutely and without similar manifestations in other joints. Their relatively short duration, and the above-mentioned effect obtained by psychiatric treatment, argue against the view that these symptoms (fatigue and pain in the masticatory muscles) should be secondary to a disease in the temporomandibular joint.

Symptoms like locking of the jaw, clickings, and subluxations (items 113, 115, 116), which superficially seem to arise exclusively within the joint, may also be interpreted as caused by muscular factors (*Ireland,* 1951).

It is noteworthy that the significantly higher incidence of symptoms in the patient group, possibly indicating muscular tension, is not limited to the jaw region but is also demonstrated in other parts of the body, for example in the head as headache, in the neck and shoulder region, in the thoracic region ("inframammary pain"), and in the extremities (tremor).

The bruxism-precipitating stimulus, however, need not necessarily be an emotional one. Physical stimuli, like cold, especially a cold wind, or excessive lifting and carrying, may sometimes act in the same way, c.f. Table III (items 105, 104 II). But in spite of some overrepresentation in the bruxist group of subjects reporting heavy physical work (Table II, item 100), the difference between the groups in respect to lifting as a precipitating factor (Table III, item 104 II) is relatively small. The same holds true in the case of pain triggered by cold (Table IV, item 105). Thus, in view of the very impressive differences demonstrated in the items regarding psychic precipitators (Table IV, items 104 III, 107, and 108), the role played by external physical stimuli in the aetiology of bruxism seems not to be too imposing.

As regards the internal physical precipitators, i.e. triggering factors within the occlusion, the answers to the questionnaire may give some information. Of the subjects in the bruxist group, 30 per cent had noticed that some tooth was too high (premature contact), while in the control group only 14 per cent had the same experience (Table IV, item 125). However, it cannot be

taken for granted that the interfering tooth is the cause and not the result of the manifest bruxism. The elevation of the tooth in question might well be a migration generated by the unfavourable load within the dentition during bruxism (*Schwartz* 1959, *Mühlemann* 1960, *Engelberger et al.* 1963). Some support for this interpretation is possibly found in item 130 I, where only 13 per cent of the bruxists stated that they had on some occasion obtained a dental restoration which for a considerable time felt too high, and still fewer — 4 per cent — had noticed a too low restoration.

One additional factor possibly influencing the symptoms presented by the bruxist patients ought to be mentioned. It can not be excluded that the subjects of the patient group have a stronger tendency to ruminate about every sensation accompanying normal bodily functions. Such a tendency — possibly a constitutional one — might have added to the number of positive answers reported in the patient group.

One may expect, however, that such a tendency would manifest itself also with regard to some subjective ear symptoms like tinnitus and impaired hearing. In fact, a high incidence of these symptoms has been claimed as one of the features of the temporomandibular joint syndrome. The results of the present investigation, however, do not support this concept, since there is no significant difference between the two groups in this respect.

In conclusion, the results of this study lend some support to the hypothesis of emotional factors being operative in bruxism.

As the next step bruxists and controls will be exposed to standardized psychic stressors (*Levi,* 1966). Simultaneously measurements will be made of the subjective feelings as well as of a number of relevant physiological variables, the main one being the urinary catecholamine excretion which reflects the intensity of the stress reactions present in the organism (*Levi,* 1963 & 1966; *Euler,* 1964).

SUMMARY

A preliminary report is given of a controlled personality investigation of 84 female and 19 male bruxist patients. The control group was matched on a pair basis and consisted of a sample from an ordinary working population coming for their annual

medical check-up. Both groups completed a new personality questionnaire partly derived from the Maudsley Personality Inventory. A chi-square analysis item by item demonstrates that the bruxist group exhibited significantly more neurotic traits than did the control group, with regard to both anxiety and depressive symptoms. In their answers to a specially designed odontological questionnaire, the bruxist group also reported an inclination to react with muscular tension not only in the jaw region but in other body regions as well. The possible aetiological significance of these findings is discussed.

RÉSUMÉ

ETUDE PSYCHO-ODONTOLOGIQUE DE PATIENTS PRÉSENTANT UNE BRUXOMANIE

Les auteurs donnent un compte-rendu préliminaire sur une étude de la personnalité concernant 84 femmes et 19 hommes présentant une bruxomanie, étude faite avec groupe-témoin. Le groupe-témoin était accordé deux à deux au groupe des patients et consistait en un échantillon provenant d'une population ordinaire d'employés venant pour leur visite médicale annuelle. Les deux groupes remplirent un nouveau questionnaire d'étude de la personnalité, dérivé en partie du "Maudsley Personality Inventory". Une analyse du chi carré, point par point, démontre que le groupe présentant une bruxomanie présentait significativement plus de traits de névrose que le groupe-témoin, tant en ce qui concerne les symptômes d'anxiété que les symptômes dépressifs. Dans les réponses à un questionnaire odontologique spécialement élaboré, le groupe atteint de bruxomanie rend aussi compte d'une tendance à réagir par une tension musculaire, non seulement dans la région des mâchoires, mais également dans les autres régions du corps. Les auteurs discutent la signification étiologique que ces résultats peuvent avoir.

ZUSAMMENFASSUNG

EINE PSYCHOLOGISCH-ODONTOLOGISCHE UNTERSUCHUNG AN PATIENTEN MIT BRUXISMUS

Zweck dieser Arbeit war zu untersuchen, ob sich zwischen Patienten mit Bruxismus und einer "normalen" Kontrollgruppe gewisse signifikante Unterschiede feststellen lassen.

84 weiblichen und 19 männlichen Patienten mit nachgewiesenem Bruxismus wurde eine ebenso grosse Vergleichsgruppe, ausgewählt aus einer Anzahl Berufstätiger, die sich zur jährlichen Untersuchung ihres Gesundheitszustandes einstellten, gegenübergestellt. Die Vergleichspersonen stimmten in bezug auf Geschlecht, Alter und von ihnen selbst angegebenen psychischen Belastungsgrad in ihrer Tätigkeit mit den Untersuchungspersonen überein.

Von beiden Gruppen wurde ein neuer Fragebogen ausgefüllt, der sich auf The Maudsley Personality Inventory stützt. Die χ^2-Analyse der einzelnen Fragen ergab, dass die bruxistische Gruppe signifikant mehr neurotische Züge — sowohl im Hinblick auf Angst- als auch auf Depressionssymptome — aufweist als die Kontrollgruppe.

In einem neuen besonders für odontologische Untersuchungen ausgearbeiteten Fragebogen gaben die Patienten mit Bruxismus auch an, dass sie eine grössere Neigung dazu hätten, mit muskularen Spannungen — nicht nur im Kieferbereich, sondern auch in anderen Körperteilen — zu reagieren.

Die mögliche ätiologische Bedeutung dieser Befunde ist Gegenstand weiterer Untersuchungen.

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Addresses:

Carl Molin,
Department of Oral and Jaw Diseases,
Karolinska Sjukhuset,
Stockholm,
Sweden.

Lennart Levi,
Laboratory for Clinical Stress Research,
Karolinska Sjukhuset,
Stockholm,
Sweden.