Bruxism as mechanism subserving hysteria: a new theory

O bruxismo como um mecanismo na histeria: uma teoria nova

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SUMMARY

Objective. To explore the hypothesis that bruxism is a mechanism in hysteria by comparing features in hysteria, bruxism, hostility, and local complaints in bruxers. **Method.** We evaluated 33 patients with mild bruxism, 52 with moderate, 55 with severe, and 42 with extreme bruxism with the Minnesota Multiphasic Personality Index and the Cook-Medley scale for hostility. **Results.** Scores of hysteria and hostility increased from the mild to the moderate, severe, and extreme bruxism subgroup ($p<0.0001$). Mean local complaints increased with the severity of bruxism and with scores of hysteria ($p<0.0001$). The group that presented higher scores in both hysteria and hostility and greater local complaints as compared to two groups, low hysteria and high hostility, and low hysteria and hostility ($p<0.003$). **Conclusion.** Scores in hysteria e hostility increased with the severity of bruxism, and the number of local complaints increased with scores in hysteria and severe bruxism, suggesting that bruxism may be a hysterical mechanism in temporomandibular disorders/bruxing behavior patients

Keywords: Temporomandibular Joint Disorders. Hysteria. Bruxism. Pain.

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RESUMO

Objetivo. Testar a hipótese de que o bruxismo é um mecanismo na histeria comparando valores em histeria, bruxismo, hostilidade e locais com dor. **Método.** Nos avaliamos 33 pacientes com bruxismo leve, 52 com moderado, 55 com grave e 42 com bruxismo extremo com o Questionário Multifásico de Personalidade de Minnesota e a escala Cook-Medley para hostilidade. **Resultado.** Os valores em histeria e hostilidade aumentaram do subgrupo leve para os subgrupos moderado, severo e extremo ($p<0,0001$). O número médio de locais com dor aumentou com a gravidade do bruxismo e com os valores em histeria ($p<0,0001$). O grupo com valores mais altos em hostilidade e histeria apresentou número maior de locais com dor do que os grupos com valores baixos em histeria e altos em hostilidade, e com valores baixos em histeria e em hostilidade ($p<0,003$). **Conclusão.** Os valores em histeria e hostilidade aumentaram com a gravidade do bruxismo e o número de locais com dor aumentou com os valores em histeria e com a gravidade do bruxismo, sugerindo que o bruxismo é um mecanismo histérico em pacientes com bruxismo e Distúrbios temporomandibulares.

Unitermos: Transtornos da Articulação Temporomandibular. Bruxismo. Histeria. Dor.

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INTRODUCTION

Hysterical personalities are characterized by histrionic display of emotions, identity problems, tendency toward development of dissociative reactions, psychosomatic and conversion disorders. A number of pathological conditions in many organs and systems, usually linked with the autonomic nervous system are related with hysterical reactions. The hysterical has profound unsatisfied oral and sadistic needs. Teeth biting are sadistic, may be considered a mechanism to dissipate rage and aggression, and are also used in symptom formation so as to reinforce close ties and dependency with significant others[1]. The hysterical craves for attention, food and the breast, which she is unable to express directly, except through symbolization. Most personalities labeled as hysterical might be better characterized as immature/oral dependent as their behaviors and communication are used to coerce others to respond in a predictable manner[2]. Because of strong fears of punishment or retaliation, aggression/hostility in such personality is disguised under the form of many symptoms so as to obtain care, close ties, control and subjugate others in the environment[3]. Hysterical and conversion symptoms in the masticatory system including trismus, difficulties to open and intense pain may preclude the use of the mouth in a mature level to feed; thus, cure may be protracted and many physicians may be involved in the "healing process"[4]. In this study, we use hysteria as "a term applicable to persons who are vain and egocentric, displaying shallow affectivity, dramatic attention-seeking behavior, who are prone to lie excessively, sexually provocative yet frigid, dependently demanding and manipulative in interpersonal relations and prone to psychosomatic reactions"[5].

When an instinctual trend undergoes repression, its libidinal elements are turned into symptoms and its aggressive component into a sense of guilt. Repression is the predominant defense in hysteria and both aggression and sexual impulses are repressed, thus, the logic result would be an unsatisfied sexuality, symptom formation and guilt[6]. Unconscious aggression, hostility, need for punishment and destructiveness occupy a central place in the old and new hysterics and hysteria should be viewed as part of a hysterical-paranoid syndrome and an inflexible/debilitating defense against rage. Rage is not recognized, hate is denied and psychosomatic symptoms, which are so common in the hysterical personality, emerge and realistic frustration of normal desires directly awakens feelings of hostility[1]. One study reviewed the entire theory of instincts and argued that the muscular system serving as an especial organ can divert destructive impulses into the external world[7]. The hysterical personality may present a wide variety of symptoms including headaches and may adapt to the medical and psychological situation by symptom production in any part of the body[8]. His or her dependency demands seem to represent an infantile effort to control the medical as well as any other situation[9].

Studies evaluating the relationship between temporomandibular disorders and psychological factors have shown higher scores in hysteria, depression and hypochondria[10,11]. However, such approaches have not established clearly the percentage of bruxers and severity of bruxing behavior. Most temporomandibular disorder patients are bruxers and a profile characterized by hypochondria/depression/hysteria seems to be frequent in those patients[12]. Additionally, in many cases, a hysterical profile also resembles a somatic disorder and can also be found in those patients presenting with headache, low back pain and fibromyalgia[13]. Bruxism was defined as a psychosomatic disorder and psychosomatic illnesses predominate in temporomandibular disorders female patients[14], it may be that hysteria and bruxism share some psychophysiological mechanisms.

An unconscious need for punishment in the hysterical personality is closely related with depression and symptom formation of a psychosomatic character[1]. In such a case, disease is thought to result from somatization of psychological/emotional forces affecting the immune system. Symptoms in the hysterical character involve no organic pathology, but entail the mimicry of organic disease[1]. The hysterical personality expresses pain and conflict in acceptable forms of body illness. The female hysterical brings pain and suffering using a diversity of systems and mechanisms to maintain important ties to internal and external objects and to take excessive aggression and hostility inward so as to dissipate guilt and punishment. A diversity of symptoms close and distant to major organs/systems including the masticatory system, can be seen in the hysterical personality who denies hate and rage and gets sick instead of consciously feeling and talking.

A number of mechanisms may operate in the hysterical personality with bruxing behavior: The use of the teeth to displace anger, hate, hostility and aggression; using the muscular system to

produce bruxism leading to a number of symptoms usually neuromuscular in the face, head and neck; many oral and jaw habits concomitants of anxiety which produce additional muscle pain, tension, wear facets and muscle fatigue resulting in the use of soft foods and inability to talk[4]. Trismus in the hysterical personality with temporomandibular disorders and bruxism, is the conversion symptom and precludes the use of the jaws at an adult level[4].

Hysteria is closely related to the oral stage of development. Aggression and hostility in such a personality are released through aggressive biting[15]. Additionally, strong teeth biting may have the symbolic meaning of a regression/fixation to an oral stage of development when teeth erupt and the child learns to be hostile and redirect aggression and frustration in external objects that he can bite and manipulate. During the oral sadistic stage of psychosexual development, the child learns to bite with all his strength. Not all biting at this stage has a definitive sadistic coloring, but it readily becomes fused with truly aggressive impulses[1]. The baby comes to use more and more his teeth in direct offense and defense as a punishing response to frustration. Teeth biting in adult life allow an individual to release his/her hostility through aggressive biting at the same time that prevents external punishment or retaliation for her/his hostility[4,15]. It follows that intense loading in the masticatory system can be equated with the release of intense hostility and frustration.

The literature on a relationship between bruxism and hysteria is poor or simply absent. However, some putative relationships can be inferred and should be better delineated in future studies: The high frequency of bruxing behavior in temporomandibular disorder patients with acute or chronic facial and headache pain and the predominance of females in samples temporomandibular disorder patients and bruxing behavior[16]; both bruxism and a hysterical disorder have been correlated with psychosomatic disease, symptom formation, anxiety, aggression and a profuseness of signs and symptoms[4].

Bruxism is an oral phenomenon described as a parafunctional activity involving sleep related bruxism and/or diurnal tooth clenching/grinding[17]. The behavior is characterized by repetitive and/or sustained strong tooth contact. The new revision of The International Classification for Sleep Disorders, defines bruxism as a periodic and motor disorder characterized by stereotyped jaw movements during clenching and grinding of the teeth as a result of rhythmic contraction of the masseter muscles during sleep[18]. Sleep bruxism is an exaggerated form of oromotor activity associated with sleep micro-arousals[19].

Both diurnal and sleep related bruxism are different clinical entities occurring during different conscious states with different etiologies and thus, need different treatments[20]. Pain in bruxers is worst in the morning suggesting a possible form of post-exercise muscle soreness and studies suggest that there are distinct subgroups of bruxers[21]. Various theories of its cause have been described in the literature: an inability to express emotions such as anxiety, rage, hate, sadism, aggression or libidinal desires[22], stress exacerbating signs and symptoms related to bruxing behavior[23]. Other theorists have explained bruxism as a sleep disorder and as a light sleep phenomenon occurring more frequently in stage II sleep[24]. Besides, in anamnestically diagnosed bruxers, the behavior is also related with a transient state of anxiety occurring frequently in contemporary society[25]. Because the relationships between local/distant signs and symptoms, hysteria and severity of bruxism are not clear at this time, the goals of this project are to test the following hypothesis: 1) If bruxing behavior has a significant relationship with hysteria, the severity of bruxism should increase with higher scores in hysteria; 2) Higher scores in hysteria should result in both, higher scores in hostility and bruxisms as hysteria has been associated with hostility, and supposedly bruxism is hostility dependent; 3) Higher scores in hysteria are associated with both severer bruxism and greater number of local pains in the masticatory system.

METHOD

Patients were referred consecutively for diagnosis and treatment of Orofacial Pain to the Department of Occlusion and Orofacial Pain, University of Gurupi, School of Dentistry in the period 2003-2007. There were 160 females (87.91%) and 22 males (12.09%) and the mean age of the group was about 33.3±11.28 years (range: 14–67). Patients were included if presented two of the following: complaint of pain, actively seeking temporomandibular disorder treatment, joint noises, and difficulties to open the jaw, and to perform active jaw movements. It is accepted in the literature[26] that a combination of sign and symptoms described above, better describes a patient with temporomandibular disorders. The Ethical Committee UNIRG Health Science Center approved the study.

Assessment

Patients were evaluated comprehensively, establishing, and obtaining a full description of the main complaint (location, chronicity, intensity, and quality), evaluating if the complaint was temporomandibular disorders, assessing muscle tenderness and trigger points by palpation, evaluation of jaw movements, use of diagnostic tests for internal joint derangements, assessing presence and severity of bruxing behavior, oral jaw habits using appropriate questionnaires to obtain other clinical and epidemiological data, self-report, and clinical examination. To assess hysteria, the Minnesota Multiphasic Personality Index (MMPI) and the Cook-Medley scale for hostility were used. Because bruxing behavior has been equated with many diagnostic signs and symptoms, a scale described as follows allowed us to detect a full range of severities: 0–2 signs/symptoms (no bruxism), 3–5 signs/symptoms (mild bruxism), 6–10 signs/symptoms (moderate bruxism), 11–15 signs/symptoms (severe bruxism), and 16–24 signs/symptoms (extreme bruxism).

Statistical analysis

We used parametric and non-parametric Kruskal-Wallis, ANOVA, Pearson Product Moment Correlation Coefficient, and Tukey Kramer to test data significance when comparing groups (mild, moderate, severe, and extreme severe bruxism) regarding hysteria and hostility.

RESULTS

The mean MMPI hysteria score were about 23.03, 17.50, 22.23, 24.43, and 27.97 to mild, moderate, severe, and extreme bruxing behavior groups respectively ($p<0.0001$). The difference was only significant between the mild and severe groups, mild and extreme groups, and moderate and extreme groups of bruxers (Table 2).

The mean scores in hostility were about 17.06, 19.51, 19.49, and 21.80 to mild, moderate, severe, and extreme bruxism groups respectively ($p<0.001$).

Table 1. Socio-demographic data in 182 temporomandibular disorders and bruxing behavior patients.

Gender	N	%
Females	160	87.91
Males	22	12.09
Total	182	100.0
Mean Age	33.3	
SD	11.38	
Range	14-67	

Table 2. Mean scores in hysteria in 182 temporomandibular disorders and bruxing behavior patients.

	Groups					
	All	Mild	Moderate	Severe	Extreme	P value
Mean	23.03	17.05	22.23	24.43	27.97	0.0001*
SD	7.71	6.76	7.61	7.56	8.91	
Range	4-47	4-35	4-45	8-41	8-47	

*Kruskal-Wallis test

A significant difference in hostility scores was observed only between the mild and extreme bruxing behavior groups.

The mean local complaints in the masticatory system were about 2.90, 4.07, 5.07, and 6.21 to the mild, moderate, severe and extreme bruxing behavior groups ($p<0.0001$), but was observed only between the mild and severe groups ($p<0.001$), the mild and extreme groups ($p<0.001$), and between the moderate and extreme bruxing behavior groups ($p<0.001$, Table 4).

The correlations between hysteria and hostility ($r=0.4057$, $p<0.001$)), hysteria and local complaints ($r=0.3825$, $p<0.0001$), hysteria and bruxism ($r=0.3830$, $p<0.0001$), and bruxism and local pains ($r=0.5394$, $p<0.0001$) were all positive and extremely significant (Table 5). Noteworthy to mention is that the highest positive correlation was between bruxism and local pains ($r=0.5394$) rather than between hysteria and bruxism ($r=0.3830$).

The mean local pains in the group presenting higher scores in both hysteria and hostility were about 5.00, 3.24 in the group presenting low scores in hysteria but high scores in hostility, and 3.36 in the group presenting low scores in both hysteria and hostility (0.0038). Such data suggest that local complaints in the masticatory system are more likely to be found if a combination of high scores in hysteria and hostility (which are correlated with more severe bruxism) is present in temporomandibular disorders and bruxing behavior patients (Table 6).

DISCUSSION

Scores in hysteria increased with severity of bruxing behavior

Even though many individuals with low scores in hysteria were found, the mean score in hysteria in the group of temporomandibular disorders/bruxing behavior patients was about 23.03 and such mean increased with severer bruxing behavior. These findings are supported at least in part by one investigation[27], reporting higher values in hysteria and hypo-

chondria in temporomandibular disorder patients as compared with controls. Because scores in hysteria increased with the severity of bruxism, thus, those temporomandibular disorder patients with higher scores in hysteria are more likely to be found in those presenting with severer bruxism. Because many subjects in this study demonstrated low scores in hysteria, our findings are in line with those of one study[12] in temporomandibular disorder patients reporting that only 30% patients achieved higher scores in hypochondria, hysteria and depression. Depending on selection criteria and referrals, hysterical traits may be found frequently in temporomandibular disorders and bruxing behavior patients. Because severer bruxing behavior was observed in those with higher hysteria scores, this study indicates that there is a close relationship between hysteria and bruxing behavior in males and females with temporomandibular disorders. Those with more pronounced hysteria scores are more likely to be found in the severe and extreme bruxing behavior groups. Because of the difficulties hysterical traits posit in the diagnostic and treatment dyad, it is more likely that more chronic pain complaints are to be found in those with more severe bruxing behavior. This assumption has support at least in part in one study[28], suggesting that "with time, personality profile deteriorates either through an increase in hysterical traits or through transformation with a variable increase in anxiety and accompanying symptoms". Personality traits reinforced pain[40]. This is not to say that severe and chronic pain is to be found in all temporomandibular disorder and bruxing behavior patients as only extreme elevations in the hysteria scale increase the probability that a psychological/emotional component influences the presentation of pain[29].

Scores in hostility in bruxers increased with scores in hysteria

Because the severe and extreme bruxing behavior groups presented higher scores in hysteria and hostility, the results of this study are in line with those of one investigation[30], reporting different values in urinary catecholamines suggesting a differential level of both anxiety and aggression in the "light and heavy groups" of temporomandibular disorders and bruxing behavior subjects. Because not all patients in our study demonstrated high scores in hostility and hysteria, the results of our investigation have support in one study[31], reporting that some bruxers and temporomandibular disorders individuals are excessively dependent whose reactive anger and hostility stimulate clenching the teeth as an attempt to aid repression or suppression of anger. Interesting to note is that patients in that study could be considered similar in many respects when compared to our groups of severe and extreme bruxing behavior. In our investigation, a pain complaint was more frequent in severe and extreme bruxers. It may be that those individuals with higher hysteria/hostility scores, use bruxing behavior as a mechanism to displace anger, resentment and hostility. Through some unknown mechanism, such subjects unconsciously prefer to displace those affects inward. Such assumption has support in one study indicating that the hysterical personality with pain is unconscious of intense rage and is a fugitive of guilt.

Table 3. Means in hostility/hysteria in 182 bruxers by the severity of bruxism.

	Hostility*			Hysteria*		
Severity of bruxism	Mean	SD	Range	Mean	SD	Range
Mild (33)	17.06	5.00	7-31	17.51	6.76	4-35
Moderate (52)	19.51	5.21	9-31	22.23	7.61	7-45
Severe (55)	19.49	4.89	6-32	24.43	7.56	8-41
Extreme (42)	21.80	5.01	7-29	27.97	8.91	8-47

*Kruskal-Wallis test p<0.001

Table 4. Mean number of local complaints and scores in hysteria in subgroups of bruxers and temporomandibular disorders individuals.

Bruxing type	Hysteria scores			Local complaints scores*		
	Mean	SD	Range	Mean	SD	Range
Mild	17.50	6.76	4-35	2.90	1.62	0-6
Moderate	22.23	7.61	7-45	4.07	2.00	0-9
Severe	24.43	7.56	8-41	5.07	2.05	0-9
Extreme	27.97	8.91	8-47	6.21	1.78	2-10

*Kruskal-Wallis test p<0.0001

The number of local pain complaints increased with the severity of hysteria in bruxers

Greater number of local complaints was observed in those subjects with higher scores in hysteria .In one investigation in temporomandibular disorder patients[32], those individuals scoring higher in hysteria tended to be hypersensitive to pain and frequently expressed psychological conflict through local, distant pain and non-pain symptoms. In hysteria and psychosomatic disease, there is unconscious aggression and a need to suffer. Symptoms in such patients should be interpreted as an alternative to guilt[1]. It may be that such individuals use "excessive biting" to suppress their anger, resulting in more pain sites local and distant to the masticatory system.

Table 5. Correlation of hysteria/hostility bruxism, and local complaints.

Pair of variables	Pearson product	p value	Significant?
Hysteria and hostility	0.4057	0.0001	Yes
Hysteria and bruxism	0.3830	0.0001	Yes
Hysteria and local complaints	0.3825	0.0001	Yes
Bruxism and local complaints	0.5394	0.0001	Yes

Clinically, the more difficult temporomandibular disorders cases are those presenting severer symptoms, bruxism and higher scores in hysteria and hostility. Hysterical patients are more likely to get sick instead of feeling and talking as they have a tendency to punish themselves via illness or symptoms. Frequent bruxers and temporomandibular disorder individuals are more likely to present pain in multiple sites in the masticatory system[33]. Finally, our assumption that a greater number of local complaints should correspond with higher hysteria scores in bruxers, is reinforced by the positive and significant correlation found between local pains and bruxing behavior as demonstrated by the Pearson Product Test.

Greater number of local complaints was found in those with higher scores in hysteria/hostility

In order to test the hypothesis that hysteria was closely associated to both bruxism and local pains, we arbitrarily generated three comparisons groups. One group presenting with higher hysteria and hostility scores; another group presenting with lower scores in hysteria and higher hostility scores, and a third group presenting with lower scores in both hysteria and hostility. When the "hysteria factor" was removed in the second and third group, such change yielded a lower mean in pain sites in the masticatory system in those two bruxing behavior subgroups The results of this study strongly support the notion that hysteria is related to both aggression, bruxism and symptom formation. However, to depict such a relationship more clearly, larger subgroups presenting common factors like hysteria, bruxism and local pains, but ordered by the severity of one factor, need to be studied. If so, the effect of one factor (for instance, hysteria) could be observed more clearly.

Table 6. Mean values, standard deviations and ranges in the number of local complaints in temporomandibular disorders/bruxing behavior patients.

SUB-GROUPS	Local complaints*		
	Mean	SD	Range
High hysteria/high hostility scores	5.00	2.10	2-9
Low hysteria/high hostility scores	3.24	2.06	0-7
Low hysteria/low hostility scores	3.36	1.86	0-7

*Tukey-Kramer multiple comparison test $p<0.0038$

Limitations of this study

Even though the sample of this study was large enough and the working hypothesis were supported by statistically significant results and the literature on the subject, the cross sectional nature of this investigation precludes the generalization of the results as cause and effect relationships cannot be inferred from such a research. Future investigations should address the relationships between bruxing behavior, pain, hostility and bruxism using different study designs so as to obtain evidence strong enough to further support the evidence presented in the current investigation.

CONCLUSION

Hysteria seems to be more evident in severe and extreme bruxing and temporomandibular disorders patients and pain sites seem to be strongly dependent in the severity of hysteria and bruxing behavior scores. Because when the "hysteria factor" was removed in one group of bruxers and temporomandibular disorders patients, resulting in lesser number of pain sites and lower scores in bruxing behavior, the relationship between hysteria, bruxism and pain sites in the masticatory system is now more apparent. Hysteria related hostility seems to be an important mechanism in symptom formation in bruxers and temporomandibular disorders subjects.

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