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Is there a correlation between degree of dissociation and waking up with pain in multiple sites in sleep bruxers.

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Abstract:
Introduction: *Even though there are subgroups of Craniomandibular Disorders and bruxing behavior individuals perfectly normal in their psychological make up, others may be severely disturbed in the spheres of dissociation, somatization and sleep.* ***Methods:*** *Clinical examination, self-reports, biomechanical tests, self-reported questionnaires, the Bernstein and Putnam and the Rief and Hiller instruments for Dissociation and Somatization respectively, were used to examined CMDs and BB subjects referred consecutively to an OrofacialPain Unit over a period of 10 years. The clinical records were stored in a database. Dental and Medical records of 40 subjects in each category of dissociation (scores 0-10; 11-20; 21-29, 30 or higher and Controls no CMDs), were consecutively retrieved from the database and retrospectively evaluated regarding dissociation, somatization and pain sites scores. In each subgroup of dissociation, somatization and pain sites on awakening were considered independent variables. Data were analyzed using Kruskal-Wallis nonparametric ANOVA. Correlation between scores in dissociation and pain sites and between somatization and pain sites was examined using Spearman Rho and Pearson Correlation coefficients, respectively.* ***Outcome: Means in dissociation*** *in the 0-10, 11-20, 21-29, 30 or higher and in the control subgroup were as follows: 6,4 (SD=3,0, range=1-10); 15,0 (SD=3,0, range=11-20); 24,4 (SD=2,7, range=21-29), 40,0 (SD=8,8, range=30-63) and 9,1 (SD=6,7, range=1-28), respectively.* ***Means in somatization*** *in the same subgroups and order were as follows: 8,6 (SD=3,4, range=1-14); 11,7 (SD=4,8, range=11-21); 12,6 (SD=4,3, range=5-2); 13,4 (SD=4,6, range=7-28) and 4,1 (SD=3,2, range 0-9), respectively. Kruskal-Wallis and Dunn´ statistics (p<0,0001), but a statistically significant difference was observed only in some pairs of groups: 0-10 subgroup versus 21-29 subgroup (p<0,01); 0-10 subgroup versus 30 or higher subgroup (p<0,001); 0-10 subgroup versus Control subgroup (p<0,01); 11-20 subgroup versus Control subgroup (p<0,001); 21-29 subgroup versus Control subgroup (p<0,001); 30 or higher subgroup versus Control subgroup (p<0,001).* ***Means in pain sites*** *in the subgroups with different range of scores in dissociation were as follows: 0-10 subgroup (mean1,43, SD=1,0, range=0-3); 11-20 subgroup (mean=1,96, SD=1,4, range=0-4); 21-29 subgroup (mean=2,8, SD=1,3, range=1-6); 30 or higher subgroup (mean=3,2, SD=1,2, range=2-8) and Control subgroup (mean=0,21, SD=0,6, range=0—3). Because Kruskal-Wallis statistics followed by Dunn´s test yielded a p-value<0,0001, there was a statistically very significant difference when means in pain sites were compared. Statistical and significant differences were observed only when some pairs of subgroups were compared: 0-10 subgroup versus 21-29 subgroup (p<0,01); 0-10 subgroup versus 30 or higher subgroup (p<0,001); 0-10 subgroup versus Control subgroup (p<0,001); 11-20 subgroup versus 30 or higher subgroup (p<0,05); 11-20 subgroup versus Control subgroup (p<0,001); 21-29 subgroup versus Control subgroup (p<0,001); 30 or higher subgroup versus Control subgroup (p<0,001). Scores in dissociation in 160 subjects with CMDs and BB in the four experimental subgroups (0-10, 11-20, 21-29 and 30 or higher) correlated positively and statistically significantly with scores in pain sites (Spearman Rho=0,2346, p<0,0004). Further, scores in somatization in the same 160 subjects from the four experimental subgroups correlated positively and significantly with scores in pain sites on awakening (Pearson correlation coefficient rho=0,3862, p<0,0001). Thus, these positive correlations indicate that dissociation and pain sites and somatization and pain sites on awakening in the morning, are closely interrelated and dependent.* ***Conclusion:*** *Somatization scores increased from the subgroup with the lowest to the highest scores in dissociation. Pain locations with pain on awakening in the morning also increased progressively from the subgroup with the lowest to the highest scores in dissociation. There was a*

positive and statistically significant correlation between scores in dissociation and scores in pain sites on awakening in the morning and between scores in somatization and scores in pain sites on awakening. Somatization and dissociation should not be considered as etiological factors but rather as mediating the development of multiple pain sites on awakening in the morning in bruxers and craniomandibular disorders individuals.

Key Words: *Craniomandibular Disorders. Bruxing Behavior. Dissociation. Somatization. Pain Sites on awakening.*

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I. Introduction

Craniomandibular Disorders (CMDs) constitute collective terms used in Medicine, Dental Medicine and Physical Therapy to designate a set of disturbing signs and symptoms usually involving pain and dysfunction occurring in the masticatory muscles, temporomandibular joints (TMJs) and adjacent related anatomic structures usually muscles, tendons and ligaments that are considered of musculoskeletal origin[1]. CMDs are characterized by a well defined set of signs and symptoms including a complain of pain in the masticatory muscles and/or TMJs, joint noises of various types, tenderness to palpation of muscles and joints, limited jaw movements and headache of musculoskeletal origin.Bruxism Behavior (BB) is defined as an involuntary diurnal or nocturnal parafunctional activity including clenching, bracing, gnashing and grinding of the teeth without functional purposes[2]. BB can be classified as diurnal, nocturnal or mixed and as mild, moderate, severe and extreme and can be diagnosed using a combination of self-report, questionnaire and clinical examination of the mouth, muscles and TMJs. Sleep bruxism (SB) is defined as a parafunctional and orofacial motor activity including clenching, bracing, gnashing and grinding of the teeth during sleep[3] that may occur both during REM and NREM sleep. Sleep BB is an extremely complex motor and psychological disorder in which psychological variables and nocturnal neurophysiological mechanisms are still obscure and demand further studies.

Dissociation The term "dissociation" is used with the connotation of a "disruption of the normal integration of experience, consciousness, memory or perception of the environment"[4]. Dissociation is considered a very severe psychiatric disorder usually associated with severe traumatic experiences in childhood and adolescence and now understood to be closely associated with somatization and sleep disorders. Dissociation or Dissociative Identity Disorder, is characterized by the presence of two or more separate identities or personality states with an autonomic capacity to perceive, and relate to the environment and the self[5]

Nightmares are the most prevalent form of pathological dream disturbance. A nightmare is a pathological and disturbing frightening sleep experience that may or may not awaken the dreamer. This sleep disorder is usually associated with disturbing unpleasant and intense emotional content including sadness, anger, violence, aggression, frustration, confusion, and hostility[6].

Morning awakening with pain: Many CMDs and BB individuals report that they awake with pain in the morning. Such pain presents with a variety of location including the face, teeth, TMJs, head, face and cervical structures. Such pain has been attributed to strong non inhibited non masticatory loading while sleeping and perhaps during dreaming. On the other hand, because CMDs and BB have been described as psychosomatic disorders, it follows that such pains are influenced by some neurochemical and or neurophysiological mechanisms closely related to somatization and perhaps by a dissociation disorder. There is a body of evidence supporting the point of view that some CMDs and BB individuals are psychologically and psychiatrically very complex[7] and many researchers report an association between CMDs, bad sleep and poor quality of life[8]. Because somatization is closely related to dissociation, we hypothesized that there could be a correlation between severity of dissociation and waking up with pain in multiple sites. There is a paucity of studies relating CMDs with somatization, dissociation, nightmares and waking up with pain in the morning. Consequently, this investigation was designed to:

1.Evaluate scores in pain on awakening in the morning in groups with different scores in dissociation;
2.Test the hypothesis that higher scores in somatization are observed in subgroups with higher scores in dissociation;
3.Test the hypothesis that pain in different locations will increase with higher scores in dissociation;
4.Test the assumption that "there is a positive and significant correlation between dissociation and somatization scores and number of self-reported pain locations on awakening in the morning.

II. Material and Methods

Subjects included in this investigation were subgroups from those referred consecutively for examination, diagnosis and treatment to the Division of Orofacial School of Dentistry University of Gurupi (Brazil) en the last 10 years. At baseline, subjects were comprehensively examined including taking a complete history of the chief complaint, palpating, muscles and TMJs, using biomechanical tests to evaluate the type of Internal Derangement of the TMJs, using clinical examination and self-reported questionnaires to assess presence and type of BB, questionnaire, self report and clinical examination to evaluate signs and symptoms of CMDs and finally, some psychological tests to assess anxiety, depression, somatization, and dissociation. Onece subjects were comprehensively evaluated, clinical records were summarized and transferred to a data base for future evaluation of a variable of interest, for instance, depression in bruxers and non bruxers, dissociation by the degree of severity of BB and so on. In the last two months, we reviewed clinical records of subjects with CMDs and BB and we consecutively retrieved all those CMDs, BB and scores in dissociation ranging from 0 to 10 (n=40), all those with scores in dissociation ranging from 11 to 20 (n=40), all those with dissociation scores ranging from 21-29 (n=40), those with dissociation scores of 30 or higher (n=40), and controls with no CMDs and no BB (n=40). Thus, subjects were included in subgroups ordered by the severity of dissociation and compared to a control non CMDs and non BB subgroup. We did so, as the objectives of the investigation was to evaluate somatization scores, number of pain sites by the severity of dissociation and evaluate correlations between dissociation and pain sites and between somatization and pain sites.

Inclusion criteria for CMDs: A complaint of pain in the masticatory system, difficulties to perform normal jaw movements, presence of different types of joint noises, tenderness to palpation of masticatory muscles and/or TMJs, headache of musculoskeletal origin.

Inclusion criteria for BB: Using clinical examination and a self-reported instrument, we classified subjects as bruxers if they reported catching themselves clenching or grinding during the day, catching themselves clenching or grinding at night, if a friend or relative reported subject´s grinding or clenching at night, patients´report of awakeking with facial, TMJs or head pain in the morning and/or if they awakened up in the morning with pain in the masticatory system. Using this comprehensive examination and self-report, subjects were classified as diurnal, nocturnal or mixed bruxers and as mild, moderate, severe and extreme bruxers.

Inclusion criteria for morning awakening with headache: A simple self-reported questionnaire was used to gather information about awakening with pain in the teeth, face, head, TMJs, ears, neck, shoulders, back and other structures in the masticatory system. A report of awakening with pain in one or more anatomic sites was recorded in the medical and dental records.

Exclusion criteria: Subjects presenting with psychological and/or psychiatric disorders, those with severe cognitive difficulties and those with severe motor disorders were excluded from participating in the current investigation.

III. Measures

The Bernstein and Putnam[9] self-reported instrument is a 28-item questionnaire which gathers information about dissociation in which the reader is exposed to some situations of the everyday life and he or she responds using a scale ranging from 0% to 100% denoting the frequency of the behavior or reaction. The Rief and Hiller self-reported questionnaire[10] is a list of 32 item used to gather information about signs and symptoms of body disease. In this instrument, the subject selects the option according to the frequency that the sign or symptom occurs (never, rarely, occasionally, frequently, always). The instrument is widely used to detect signs and symptoms of somatization.

IV. Statistical Analysis

Kruskall-Wallis nonparametric ANOVA was used to evaluate age differences in the subgroups in the current investigation. The same statistics was also used to evaluate statistical differences when analyzing scores in somatization and pain sites in the experimental and control subgroups. Spearman nonparametric statistics was used to assess correlation between scores in dissociation and scores in pain sites. Pearson Correlation was used to evaluate a potential positive correlation between somatization scores and pain sites. A significant difference was accepted if $p<0,05$.

V. Outcome

Mean age in the subgroups with different scores in dissociation is described as follows: Scores from 0 to 10 (mean age=32,5, SD=11,4, range 17-55); scores in dissociation from 11-20 (Mean age 30,2 SD=12,2, range 17-63); scores in dissociation from 21-29 (Mean age=34,3, SD=12,1, range=18-66); scores in dissociation 30 or higher (mean age=32,1, SD=13,2, range=14-57, Controls (mean age=31,5, SD=11,8, range=17-64). Kruskall–Wallis statistics (=0, 23) indicating that regarding age there was no significant difference when the subgroups were compared. See Table 1 for additional details. Scores in dissociation in the aforementioned subgroups are described as follows: Subgroup with 0-10 scores (Mean 6,4, SD=3,0, range=1-10); subgroup with 11-20 scores (mean 15,0, SD=3,0, range=11-20); subgroup with scores 21-29 (mean=24,4, SD=2,7, range=21,29); subgroup with scores 30 or higher (mean=40,0, SD=8,8, range=30-63), control subgroup (mean=9,1, SD=6,7, range=1-28). A statistical test was not used as subgroups were previously allocated to those in the categories of 0-10, 11-20, 21-29 and 30 or higher scores in dissociation and the independent variables were scores in somatization and number of pain sites on awakening in the morning. See Table 2 for additional details.

Regarding somatization in the same subgroups, their scores are described as follows: Subgroup 0-10 dissociation scores (mean in somatization 8,6, SD=3,4, range=1-14); subgroup 11-20 dissociation scores (mean in somatization 11,7, SD=4,8, range=11-21); subgroup 21-29 dissociation scores (mean in somatization=12,6, SD=4,3, range=5-20); subgroup 30 or higher dissociation scores (mean in somatization=13,4, SD=4.6, range=7-28); Control subgroup (mean in somatization=4,1, range=3,2, range=0-9). Kruskall-Wallis and Dunn´ statistics ($p<0,0001$): 0-10 subgroup versus 11-20 subgroup ($p<0,05$); 0-10 subgroup versus 21-29 subgroup ($p<0,01$); 0-10 subgroup versus 30 or higher subgroup ($p<0,001$); 0-10 subgroup versus Control subgroup (p,0,01); 11-20 subgroup versus 21-29 subgroup ($p>0,05$); 11-20 subgroup versus 30 or higher subgroup ($p>0,05$); 11-20 subgroup versus Control subgroup ($p<0,001$); 21-29 subgroup versus 30 or higher subgroup ($p>0,05$); 21-29 subgroup versus Control subgroup ($p<0,001$); 30 or higher subgroup versus Control subgroup ($p<0,001$). See Table 2 for additional details.

Regarding mean scores in pain sites in different subgroups, they are described as follows: 0-10 dissociation subgroup (mean score in pain sites=1,43, SD=1,0, range=0-3); 11-20 dissociation subgroup (mean score in pain sites=1,96, SD=1,4, range=0-4); 21-29 dissociation subgroup (mean score in pain sites=2,8, SD=1,3, range=1-6); 30 or higher subgroup (mean score in pain sites=3,2, SD=1,2, range=2-8); Control subgroup (mean score in pain sites=0,21, SD=0,6, range=0-3). Kruskal-Wallis and Dunn´ statistics ($p<0,0001$): 0-10 dissociation subgroup versus 11-20 dissociation subgroup ($p>0,05$); 0-10 dissociation subgroup versus 21-29 dissociation subgroup ($p<0,01$); 0-10 dissociation subgroup versus 30 or higher dissociation subgroup ($p<0,001$); 0-10 subgroup versus Control subgroup ($p<0,001$); 11-20 dissociation subgroup versus 21-29 dissociation subgroup ($p>0,05$); 11-20 dissociation subgroup versus 30 or higher dissociation subgroup ($p<0,05$); 11-20 dissociation subgroup versus Control subgroup ($p<0,001$); 21-29 dissociation subgroup versus 30 or higher dissociation subgroup ($p>0,05$); 21-29 subgroup versus Control subgroup ($p<0,001$); 30 or higher subgroup versus Control subgroup ($p<0,001$). See Table 2 for additional details.

VI. Discussion

Regarding painful anatomic sites on awakening in the morning, different scores and subgroups were observed in those with different scores in dissociation. It may be that levels of somatization and dissociation, severity, frequency and intensity of sleep BB, poor sleep quality, depression and anxiety, impact differently in different subjects with CMDs and BB. Further, some individuals may have chronic pain and lower thresholds for pain as compared to other individuals, thus leading to a variety of scores and pain in different anatomic areas on awakening in the morning. Etiological factors that ultimately result in pain are not only different from one individual to another, but have a different impact in different individuals. It has been demonstrated that CMDs and BB individuals vary with respect to somatization, dissociation, and severity of bruxing behavior[7,12]. BB may be mild, moderate, severe and very severe, diurnal, sleep and mixed[7,12]. Further, some bruxers may not have CMDs. Soma CMDs individuals may not have BB. Thus, they do not awake with pain in the morning[7, 11,12].

Even though dissociation has many clinical and behavioral manifestations and characteristics, such a disorder is also expressed or manifested through somatization mechanisms, that is, forms of dissociation that are directly associated with poor sleep, insomnia, and dysfunctional oral jaw habits including sleep BB. Because these pathological alterations occur in different gradients, intensities, frequencies and durations, they may affect individuals in different ways, for instance generating different thresholds for pain. Thus, the number of pain sites on awakening in the morning varies considerably among CMDs and BB subjects. Even the severity of sleep bruxism plays a major role causing pain in some or many anatomic sites on awakening in the morning. It is more likely that a combination of psychological factors including dissociation, somatization,

anxiety, poor sleep, REM sleep alterations, chronic pain and depression, have a role influencing the threshold for pain on awakening in the morning.

Most subjects in the experimental subgroup reported chronic pain in the face, TMJs, cervical structures, teeth, TMJs and headache on awakening in the morning. Thus, the outcome in the current investigation and the aforementioned considerations are endorsed in part by one investigation[13] asserting that sleep disturbances may impair key processes that contribute to the development of chronic pain including endogenous pain inhibition and joint pain. In this regard, recent investigations[14] indicate that sleep complains are present in 67-88% of chronic pain disorders. Parafunctional behaviors cause damage and inflammation in different tissues of the masticatory system. It has been reported that pain and sleep are reciprocally interrelated and that sleep associated insomnia increases pain sensitivity[13]. Insomnia symptoms, depression and parafunctional behaviors in subjects with CMDs, somatization and dissociation may lower pain threshold on awakening in the morning, thus, resulting in pain in different anatomic locations. Supporting in part this point of view, one study[15) asserts that insomnia symptoms increase the risk of exacerbating existing headache and new headache incidents at long term follow-up. Further, Sleep disturbances and dissociative and somatization disorders are related to each other[16].

In the current investigation we found that there were subjects with very different scores in somatization and dissociation and painful sites on awakening. Thus, this outcome is congruent with one investigation[16] reporting that both dissociation and somatization are conceptualized as ranging on a continuum, from non-pathological manifestations of daydreaming to more severe disturbances typical of dissociative disorders including identity disorders. Findings in the current study are also consonant with the outcome of an investigation in CMDs and BB individuals[17] who responded to the KSP (Karolinska Scales of Personality). Chronic CMDs and bruxers in that investigation described themselves as more anxiety prone, had higher values in the somatic anxiety scale and autonomic disturbances, related their disorders to stress, demonstrated pain in multiple sites and were described as " more psychosomatic, tense, anxious, with difficulties to socialize and more vulnerable to psychosomatic disorders"

2.Higher scores in somatization were observed in subgroups with higher scores in dissociation.

In some studies, CMDs and BB have been defined as "somatization disorders". Thus, we may expect that in individuals with high scores in dissociation, this disorder manifests also in the form of numerous somatic symptoms including sleep bruxism, CMDs and chronic pain. Because in the current investigation we observed that higher scores in dissociation corresponded to higher scores in somatization which in turn was paralleled by greater number of pain sites on awakening in the morning, this outcome is in line with one investigation[18] assessing somatization in patients with dissociative disorders, indicating that a very high percentage of patients with dissociative disorders, met criteria for somatization disorders.

Because we found that higher scores in somatization were observed more frequently in subgroups with higher scores in dissociation, it is apparent that both disorders are closely interrelated. This observation is consistent with Fisher´s studies[19] asserting that many somatic symptoms including pain in multiple sites are usually observed in individuals with dissociative disorders including unusual pain tolerance, headache which manifest suddenly and or pains that do not respond to psychopharmacological medication. It is very likely that dissociation as a very complex psychiatric disorder finds expression through somatization. In other words, somatization and dissociation constitute different aspects of the same phenomenon. These observations are congruent with one investigation[20] indicating that dissociation is a polysymptomatic disorder that uses a number of complex defense operations to produce many symptoms including conversion and somatization and these defensive reactions occur in response to overwhelming childhood traumatic experiences. Consonant with findings in the current investigation, it has been observed in clinical settings, that somatization patients report having dissociative symptoms much more frequently as compared to patients with other psychiatric disorders. Thus, it is more likely that some somatized symptoms also result from dissociation, as a form of activation of somatic representations of pain[21] in order to hide a psychological conflict.

3. A greater number of pain sites on awakening in the morning was associated with higher scores in both somatization and dissociation

Dissociation is diagnosed and is more frequently observed through more complex disorders, for instance, memory disturbances, changes in personality, nightmares and depression whereas somatization is more frequently observed through numerous physical and or psychological complains for instance pain, anxiety and depression. Because in the current investigation higher scores in painful sites on awakening in the morning were observed in those with higher scores in both somatization and dissociation, this outcome is in line with one investigation[22] reporting that somatic individuals are those with no discernible organic disease, present with a large number of physical complains, amplify their symptoms use extensively the medical services and uses larger amounts of medications.

It may be that both dissociation and somatization are associated with other psychological variables including sleep disturbances, oral jaw behaviors, insomnia, REM sleep alterations during sleep, which in turn lowers pain thresholds. Thus, patients or subjects presenting with somatization, dissociation, insomnia, nocturnal jaw habits and chronic pain because of a lower threshold for pain, are more likely to report morning awakening with pain in different anatomic sites.

Supporting in part these assumptions, one study[16] evaluated patients with dissociative identity disorders and those with post-traumatic stress disorder. They reported that there was a direct association between higher levels of unusual sleep experiences and dissociation. All patients in the current investigation presented for initial interview with a complain of facial pain or headache. In clinical settings, more than half of patients with chronic pain reported insomnia, and sleep disturbances was significantly associated with pain intensity, anxiety and depression[23]. Chronic pain per se, more intense pain, insomnia and other sleep disturbances and depression may contribute to poor sleep quality and thus with awakening with pain in multiple sites.

Some researches investigate the relationship of headache with sleep. However they do not ask questions neither about other painful sites on awakening in the morning nor about the presence of sleep bruxing behavior. Nonetheless, the relationship between poor sleep and headache is increasingly being investigated. In regard to this, Vieira and colleagues[24] investigated the association between sleep BB and headache on waking up in the morning in a population of non CMDs individuals. They reported a significant association between the frequency of sleep bruxism and morning headaches. Symptoms of anxiety and depression were associated with the presence of headache.

4.There was a positive and significant correlation between dissociation scores and number of self-reported pain locations and between somatization and pain sites on awakening in the morning. Because the number of pain sites on awakening in the morning and somatization scores were positively and significantly associated, these observations are in line with other investigations asserting that somatization is a form of dissociation.

Scores in somatization increased in subgroups demonstrating higher scores in dissociation. It may be that dissociation and somatization associated with other psychological variables are in some way correlated with sleep variables including bad sleep quality, REM sleep alterations, insomnia and oral jaw behaviors leading to damage on some body tissues, thus lower pain thresholds for pain. These observations are in part in line with one study[13] indicating tha "ample evidence suggests that sleep and pain are interrelated as sleep impairments reliable predict new incidents and exacerbations of chronic pain[13], at least some of these pains may manifest on awakening in the morning.

Even though in one investigation[25] researchers examined dissociation, somatization and substance abuse in women with chronic pelvic pain, they found a positive association between dissociation and somatization in women with histories of physical and sexual abuse and chronic pelvic pain. Dissociation and somatization are more likely to be associated with other psychological variables rather than with a medical condition.

The observation that both dissociation and somatization are closely interrelated and that higher scores in somatization or in dissociation correspond to higher scores in painful sites on awakening, is strongly supported by one investigation[18] reporting a significant correlation between the degree of dissociation and degree of somatization, scores in somatization and dissociation and scores in medical complaints in patients with dissociative disorders.

VII. Conclusion

Based on data in the current investigation it was found that CMDs and BB individuals are characterized by different scores in somatization, dissociation and pain sites on awakening in the morning, thus, subgroups can be identified. Those subjects demonstrating higher scores in dissociation were those presenting with higher scores in somatization and pain sites on awakening in the morning. A significant correlation was found between scores in dissociation and scores in pain sites and scores in somatization and scores in pain sites on awakening in the morning. Because higher scores in dissociation, somatization and pain sites on awakening were observed in many CMDs and BB subjects, it is concluded that many CMDs and BB subjects are psychologically and psychiatrically very complex. Dissociation, somatization and awakening with pain in many locations of the masticatory system are interrelated disorders probably sharing some common neurophysiological or neurochemical mechanisms. Because this was a cross-sectional and retrospective study, new investigations in this field using similar samples, should be carried out in order to increase the significance and validity of findings in the current study.

Table 1: Social and Demographic data in subgroups of CMDs and BB subjects with different scores in dissociation.

SUBGROUPS WITH DIFFERENT DISSOCIATION SCORES

0--10=40 11-20=40 21-29=40 30/Higher=40 Controls=40

AGE					
Mean	32,5	30,2	34,3	32,1	31,5*
SD	11,4	12,2	12,1	13,2	11,8
Range	17—55	17—63	18-66	14—57	17-64
GENRE					
Females	37=	39=	38=	36=	28=
Males	3=	1=	2=	4=	12=
Totals	40=100%	40=100%	40=100%	40=100%	40=100%

*Kruskal-Wallis test (p=0,23), a statistically non significant difference.

Table 2: Means in dissociation, somatization and painful sites on awakening in the morning in 5 subgroups scores ranges in dissociation: CMDs + BB + 0-10=40; CMDs + BB + 11-20=40; CMDs + BB + 21-29=40; CMDs + BB +30 or higher scores=40 and Controls no CMDs (n=40).

SUBGROUPS

CMDs + BB+ CMDs+BB CMDs+BB CMDs+BB CONTROLS

0--10 + 11--20 +21—29 + 30/higher

DISSOCIATION					
Mean	6,4	15,0	24.4	40,0	9,1
SD	3,0	3,0	2,7	8,8	6,7
Range	1—10	11—20	21—29	30—63	1—28
SOMATIZATION					
Mean	8,6	11,7	12,6	13,4	4,1*
SD	3,4	4,8	4,3	4,6	3,2
Range	1--14	11—21	5—20	7—28	0—9
PAIN SITES					
Mean	1,43	1,96	2,8	3,2	0,21**
SD	1,0	1,4	1,3	1,2	0,6
Range	0—3	0—4	1—6	2—8	0—3

*Kruskall-Wallis and Dunn´ statistics p<0,0001, an extremely significant difference: 0-10 subgroup versus 11-20 subgroup (p<0,05); 0-10 subgroup versus 21-29 subgroup (p<0,01); 0-10 subgroup versus 30 or higher subgroup (p<0,001); 0-10 subgroup versus Control subgroup (p<0,01); 11-20 subgroup versus 21-29 subgroup (p>0,05); 11-20 subgroup versus 30 or higher subgroup (p>0,05); 11-20 subgroup versus Control subgroup (p<0,001); 21-29 subgroup versus 30 or higher subgroup (p>0,05); 21-29 subgroup versus Control subgroup (p<0,001); 30 or higher subgroup versus Control subgroup (p<0,001).

**Kruskal-Wallis and Dunn´statistics (p<0,0001), an extremely significant difference: 0-10 subgroup versus 11-20 subgroup (p>0,05); 0-10 subgroup versus 21-29 subgroup (p<0,01); 0-10 subgroup versus 30 or higher subgroup (p<0,001); 0-10 subgroup versus Control subgroup (p<0,001); 11-20 subgroup versus 21-29 subgroup (p>0,05); 11-20 subgroup versus 30 or higher subgroup (p<0,05); 11-20 subgroup versus Controls (p<0,001); 21-29 subgroup versus 30 or higher subgroup (p>0,05); 21-29 subgroup versus Control subgroup (p<0,001); 30 or higher subgroup versus Control subgroup (p<0,001).

Table 3:Correlations coefficients in the relationship between dissociation and pain sites on awakening in the morning and somatization and pain sites on awakening in the morning in 160 subjects with CMDs and BB.

Pair of Variables	Statistical Tests	Rho value	p-value	Significant?
Dissociation + Pain sites	Spearman Rho	0,2346	<0,0004	Yes
Somatization + Pain Sites	Pearson Correlation	0,3862	P<0,0001	Yes

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