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Depression, Somatization And Dissociation in Bruxers And Temporomandibular Disorders Individuals With Sexual Abuse History: A Comparison Study

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Abstract

Introduction:*Sexual abuse is a relatively common disorder in temporomandibularand bruxing behavior individuals and is associated with a number of psychiatric and psychological disorders.*

Aim: *Evaluate scores in depression, somatization and dissociation, the strength of association in pairs of psychological variables and between severity of sexual abuse and depression, somatization and dissociation in temporomandibular disorders patients with sexual abuse history.*

Methods: *A retrospective evaluation of 50 temporomandibular disorder and bruxing behavior individuals with sexual abuse history, 50 temporomandibular disorder and bruxing behavior subjects without sexual abuse, and 50 individuals without temporomandibular disorders, no bruxing behavior and no sexual abuse history. Signs and symptoms, clinical examination, self-report and criteria to assess temporomandibulardisorders, and bruxing behavior were used. The Beck depression inventory, the Sanders and Becker-Lausen questionnaire, the Rief-Hiller scale for somatization and the Bernstein-Putnam questionnaire for dissociation were used. Data were analyzed using parametric or non-parametric analysis of variance, Fisher´s exact test and Pearson/Spearman correlation coefficient.*

Results:*Means in depression in the TMDs+ BB+ SAH, TMDs+ BB+ SAH-, TMDs- BB- SAH- were about 15.0, 11,3,a and 8.2, respectively,(Kruskal-Wallis statistics with Dunn´s test, p<0.0001). Means in somatization in the same three groups were about 12.5, 10.4, and 7.2, respectively (Tukey-Kramer multiple comparison test, p<0.0001). Means in dissociation in those groups were about 20.1, 17.5 and 13.3 , respectively (Kruskal-Wallis statistics, p<0.01). Pearson or Spearman correlation coefficients for depression/somatization in the TMDs+ BB+ SAH+,TMDs+ BB+ SAH-, and TMDs- BB- SAH- were about 0.53 (p<0.0001); 0.31 (p<0.03), and 0.52 (p<0.02), respectively. Regarding depression/dissociation, the same coefficients were about 0.37 (p<0.01), 0.15 (p=0.31), and 0.27 (p=0.19), respectively. Coefficients of correlation for somatization/dissociation in the three groups were about 0.37 (p<0.01), 0.21 (p=0.17), and 0.27 (p=0.21), respectively. Pearson/Spearman coefficients regarding severity of sexual abuse and depression, somatization and dissociation were evaluated only in the subgroups TMDs+ BB+ SAH+ and were about 0.20 (p=0.15), 0.27 (p<0.05), and -0.02 (p=0.90), respectively.*

Conclusion: *Higher scores in depression, somatization and dissociation were observed in TMDs patients with bruxing behavior and sexual abuse history. The correlation between depression and somatization was the strongest association in that subgroup. In TMD patients with sexual abuse history, only severity of sexual abuse and somatization were positively and significantly correlated.*

Keywords*: Depression. Somatization.Dissociation.Bruxism.Temporomandibular disorders.Sexual Abuse.*

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I. Introduction

Temporomandibular disorders (TMDs) is a set of well-defined signs and symptoms usually of musculoskeletal origin affecting the temporomandibular joints (TMJs) and associated masticatory muscles. Some signs and symptoms, more specifically pain and severe limitation of jaw movements may be disabling for many TMDs patients[1]. Painful TMDs is a heterogeneous group of musculoskeletal pain condition affecting approximately 5% of the adult population.TMDs patients usually report facial pain, myofascial pain dysfunction (MPDs) and usually bodily pain adjacent and far from the orofacial region indicating somatization tendencies[2]. The term "La Bruxomanie" was used for the first time in Dentristry in 1907 by Marie and Pietkiewiczto denote the act of clenching and grinding the teeth with no functional purposes. Such a parafunctional behavior was soon classified as diurnal or nocturnal[3]. Jaw movements during sleep bruxism (SB) and diurnal bruxism (DB) behavior are produced by sustained contraction of the masseter and other jaw closing muscles and usually occur without patients´ awareness[4]. Bruxing behavior (BB) and other oral jaw behaviors usually occur in combinations or gradients in many individuals, they are thought to be very destructive and usually cause pain in many anatomic areas, tooth wear, inflammation, muscle pain and TMDs[5].In patients with chronic sign and symptoms of TMDs, depression and catastrophizing constitute psychiatric disorders contributing to the progression of muscle disorders, joint pain and disability[6]. Patients presenting with orofacial pain (OFP) including TMDs and a history of abuse, report higher levels of depression and pain severity as compared with patients with no history of abuse. When pain becomes chronic, their coping resources may be substantially compromised[7]. Childhood sexual abuse (CSA) is a major health problem and the most common single cause of severe depression, post-traumatic stress disorder and attention deficit hyperactivity disorder[8]. Psychological problems usually associated with sexual abuse history (SAH) in childhood include depression, self-destructive behaviors, anger taken inward, helplessness, shame, negativity about themselves and guilt[8].Somatization is a psychiatric disorder wherein mental states, experiences and psychic conflict are expressed as bodily symptoms, frequently implies the presence of unconscious defense mechanisms and is described as a set of bodily symptoms affecting different organs[9]. Somatization is a common disorder in TMD patients[3]. Psychological processes in somatization disorders give rise to the report of a number of physical symptoms which the patient interprets as organic in nature and involves the persistent and frustrated pursuit of a medical solution[10]. Dissociation refers to a set of complex mental processes characterized by severe difficulties of connections in the individual´s thoughts, memories, perceptions, feelings, actions and even a sense of self. Dissociation is a complex neurophysiological disorder in which certain information is not associated or related with other information as it would normally be, usually with the objective of escaping emotional pain and suffering[11].

The term dissociation usually has the connotation of compartmentalization of experience in which, elements of an experience are not integrated into a unitary whole, but are stored in isolated fragments[12], resulting in the presence of two or more different identities or personality states[13]. It has been accepted that BB predominates as an etiologic agent in TMD patients. Because BB is also considered a form of somatization which is closely related to dissociation, one is led to reason that dissociation disorders may not be so rare in TMDs patients. CSA is considered a unique form of severe traumatic event usually defined as a sexual act between an adult and a child, in which the child is utilized for the sexual satisfaction of the perpetrator[11]. A large proportion of chronic OFP patients including those presenting sign and symptoms of TMDs has a history of emotional, physical and/or sexual abuse[14]. Thus, it is imperative to carry out a completephysical and psychological evaluation of TMDs and OFP patients. Recent investigations[15], indicate that adults with histories of childhood physical, sexual and emotional abuse usually present with symptoms of post-traumatic stress disorder and other psychiatric disturbances[15]. It has been reported that about 18-20% of the general population is victimized by abuse. Further, about 40-70% of chronic pain patients including those with TMDs signs and symptoms, have been victimized by physical or sexual abuse. OFP and TMDs patients usually have higher levels of stress, depression and vigilant behaviors and frequently present difficulties in the diagnosis and treatment[16]. Although some studies have been carried out about the relationship betweenTMDs, BB and some psychological factors including anxiety and depression, the information about depression, somatization and dissociation in sexually abused TMDs individuals is very scarce. Thus, this investigation was designed to:

1. 1.Evaluate scores in depression, somatization, and dissociation in bruxers and TMDs patients with sexual abuse history;
2. Assess the strength of association between depression and somatization, depression and dissociation and somatization and dissociation in bruxers with TMDs individuals.
3. 3.Evaluate the strength of association between severity of sexual abuse and depression, somatization, and dissociation in those who reported a history of sexual abuse.

II. Material And Methods

2.1 Sample

All records from a large sample of TMDs and BB individuals were retrospectively and systematically reviewed. All those records having information about self-reported SAH and demonstrating signs and symptoms of TMDsand BB (TMDs+ BB+ SAH+, n=50) were retrieved, evaluated and compared with another group of 50 TMDs and BB without SAH (TMDs+ BB+ SAH-, n=50), and with a second control group of subjects with no TMDs, no BB and no SAH (TMDs- BB- SAH-, n=50). Individuals in these three subgroups, had been referred over the same period of time (2010-2017) to an OFP Facility, as part of an ambitious program to gather accurate and comprehensive data includinginformation about psychological factors using appropriate tests with epidemiological purposes. The principles of the Helsinki declaration were followed rigorously before clinical examination and the use of questionnaires: Patients and controls were informed that there was no absolute risk for their health during clinical evaluation and use of questionnaires, that any physical and/or psychological discomfort warranted discontinuity of the evaluation, that an accurate and comprehensive evaluation was necessary in order to gather accurate data and establish proper diagnosis before any treatment could be planned, that the principal examiner was an experienced and scientifically qualified person. Patients and controls were also informed that there were potential scientific and clinical benefits using their data for research purposes. Further, patients and controls signed a formal consent and were informed that their social, demographic and clinical data could be used for research purposes and that anonymity was warranted. All evaluated individuals were also informed that they were being evaluated comprehensively, that they were not subjected to an experimental study and that their data could be used in potential demographic studies. Thus, 150 records were retrieved and evaluated to form three different subgroups: Group TMDs with BB and SAH= TMDs+ BB+ SAH+, n=50; Group TMDs with BB and no SAH= TMDs+ BB+ SAH-, n=50, and group no TMDs, no BB, no SAH= TMDs- BB- SAH-, n=50. Inclusion criteria for TMDs: Self-report, history of TMDs signs and symptoms and clinical examination were used to gather clinical data about joint sounds, tenderness to palpation of muscles and TMJs, difficulties to perform normal jaw movements and pain. The presence of at least two of these signs and symptoms was the major criteria to consider that TMDs were present in each individual being evaluated.
Inclusion criteria for bruxing behavior: BB was considered aspresent ifat least three signs and symptoms of a large list published previously[17] were present using clinical examination and self-report. It has been reported that SB can be detected using some questions and self-report from a comprehensive questionnaire[17] and there is evidence that awake bruxism may also be diagnosed based on self-report using questionnaires and the anamnestic part of a clinical examination[18]. The comprehensive evaluation of BB used in this investigation allows the researcher to diagnose diurnal, nocturnal and mixedBB.Exclusion criteria: Records of patients or controls were not included in the current study if they presented with information or behavior about severe psychiatric disorders, a report of current use of selective serotonin reuptake inhibitors, a history of Parkinson´s disease, they were in treatment for TMDs and BB in another facility , and if they stated that they would allow the dental school to use their material for research purposes.

The Beck Depression Inventory or (BDI)[19], is a 21-item self-reporting questionnaire used to evaluate the severity of depression in normal and psychiatric populations and is widely accepted as a reliable measure of depression. The SOMs-7 is a new 53-item instrument for the evaluation of treatment effects in somatoform disorders[20]. However, only 32 questions from this questionnaire were used to evaluate symptoms indicating the presence of somatoform disorders. The Dissociative Experience Scale (DES)[21] is a 28-item self-reported instrument that evaluates how often dissociative symptoms occur in daily life. The Child and Trauma Scale [22] is an instrument developed to measure emotional physical and sexual abuse which yields a quantitative index about the frequency and extent of various types of negative experiences in childhood and adolescence.

III. Data Analysis

Data were analyzed using both parametric and non-parametric methods. Statistical tests deemed to be appropriate in the current investigation included parametric ANOVA (Tukey-Kramer test), no parametric ANOVA (Kruskal-Wallis and Dunn´s statistics), Fisher´s exact test, and parametric (Pearson´s correlation) or non parametric (Spearman correlation) statistics.

IV. Results

A total of 150 clinical records were evaluated retrospectively in the current study. Fifty subjects demonstrated signs and symptoms of TMDs, BB, and SAH, fifty individuals received a diagnosis of TMDs, BB without SAH, and fifty additional individuals constituted a second control group and without TMDs, no BB and no SAH. Mean age was not different in the three groups: TMDs+ BB= SAH+ =33.5; TMDs+ BB+ SAH- =35.7; TMDs- BB- SAH- 35.7, (Kruskal-Wallis statistics $p>0.61$). Females predominated in the subgroups TMDs+ BB+ SAH+ (94%) and TMDs+ BB+ SAH- (90%) as compared with the TMDs- BB- SAH- subgroup (72%), Fisher´ s exact test: TMDs+ BB+ SAH+ versus TMDs+ BB+ SAH- ($p=0.7$); TMDs+

BB+ SAH+ versus TMDs- BB- SAH-, (p=0.006); TMDs+ BB+ SAH- versus TMDs- BB- SAH-. (p=0.03). See Table 1 for further details. As for depression,the means in the three groups were about 15.0, 11.3, and 8.2, respectively, (Kruskal-Wallis statistics with Dunn´s multiple comparison test (p<0.0001): TMDs+ BB+ SAH+ versus TMDs+ BB+ SAH- (p>0.05); TMDs+ BB+ SAH+ versus TMDs- BB- SAH-, (p<0.001); TMDs+ BB+ SAH- versus TMDs- BB- SAH- (p<0.05). Regarding somatization in the three groups, means were about 12.5, 10.4, and 7.2 in the subgroups TMDs+ BB+ SAH+, TMDs+ BB= SAH-, and TMDs- BB- SAH-, respectively. Tukey-Kramer multiple comparison test, p<0.0001: TMDs+ BB+ SAH+ versus TMDs+ BB+ SAH-, (p>0.05); TMDs+ BB+ SAH+ versus TMDs- BB- SAH-, (p<0.001), TMDs+ BB+ SAH- versus TMDs- BB- SAH-, (p<0.05). Means in dissociation in the three groups were about 20.1, 17.5, and 13.3, respectively. Kruskal-Wallis statistics with Dunn´s multiple comparison test p<0.01: TMDs+ BB+ SAH+ versus TMDs+ BB+ SAH-, (p>0.05); TMDs+ BB+ SAH+ versus TMDs- BB- SAH-, (p<0.05); TMDs+ BB+ SAH- versus TMDs- BB- SAH-, (p>0.05). See Table 2 for additional details. Pearson or Spearman correlation coefficients were evaluated in order to test the strength of association between depression and somatization, depression and dissociation and somatization and dissociation in the three groups. The corresponding values were about 0.53 (p<0.0001) for depression and somatization; 0.37 (p<0.01), for depression and dissociation and 0.37 (p<0.01), for somatization and dissociation in the TMDs+ BB+ SAH+ subgroup. The corresponding values in the TMDs+ BB+ SAH- subgroup were about 0.31 (p<0.03) for depression and somatization; 0.15 (p=0.31) for depression and dissociation, and 0.21 (p=0.17), for somatization and dissociation. The corresponding values in the TMDs- BB- SAH- subgroup were about 0.52 (p<0.002) for depression and somatization; 0.27 (p=0-19), for depression and dissociation, and 0.27 (p=0.21) for somatization and dissociation. See table 3 for additional details. Correlation coefficients were also tested only in the TMDs+ BB+ SAH+ subgroup to evaluate the strength of association between scores in sexual abuse and scores in depression, somatization and dissociation. The corresponding values were about r=0.20 (p=0.15) for sexual abuse and depression; r=0.27 (p<0.05), for sexual abuse and somatization, and r=-0.02, (p=0.90) for sexual abuse and dissociation. Thus, the correlation was only positive and significant for sexual abuse and somatization. See table 4 for additional details.

V. Discussion

One goal of the current study was to evaluate scores in depression in TMDs, BB and SAH individuals, when contrasted with two comparison groups. Because scores in depression were higher in the group with TMDs and BB with SAH, the outcome in the current study concurs with one investigation[15], in subjects with a history of emotional, physical and/or sexual abuse, indicating that many participants reported moderate, severe or very severe depression. TMDs patients with SAH usually report significantly higher scoresin pain, anxiety and depression. Depression is usually more intense in TMDs patients with history of physical than in those with SAH[23]. Child abuse survivors frequently report intense feelings of depression usually associated with somatization disorders[8]. Abused individuals are more likely to make negative appraisals of the world as compared with those who have not been abused[24]. Individuals from the general population with a history of emotional, physical and sexual abuse presentwithincreased prevalence of psychiatric disorders including depression[25]. More intense depression can be found in those adults with a history of physical and sexual abuse[26,27]. Sustained abuse of children may lead to psychological disorders including depression, anger and hostility. In TMDs patients, a history of abuse is significantly related to greater pain severity and depression[28]. One study[29]in a large population of headache patients found that any type of childhood abuse was correlated with headache, depression and anxiety. A similar research[30], in a subset of OFP and SAH females, found that abusedfemales reported significantly higher levels of depression than OFP patients without SAH. Somatization: In the current investigation, higher scores in somatization were found in the TMDs+ BB+ and SAH subgroup. One study[15] evaluated patients with history of emotional, physical and sexual abuse in which only 13% reported SAH. Researchers found that many patients reported anger that when kept inwardis one of the causes of somatization. Adult patients with SAH in childhood or adolescence usually report greater anger that has been bottled up inside and a tendency to vent out their rage in various ways including somatic disorders and bruxism[8]. TMD subjects with widespread palpation tenderness reported higher somatic symptoms when compared with TMD participants without widespread bodily palpation tenderness[2]. Thus, widespread palpation tenderness may be related to both TMDs and somatization. TMDs patients have higher scores in somatization and depression and usually report pain in other parts of the body adjacent and far from the masticatory system[31].One investigation[32]in female patients with SAH reported high levels of distress, higher number of physical symptoms indicating somatization, avoidance and denial of emotional aspects of somatic experience.

The life of survivors of sexual abuse is chaotic and many female patients usually present with numerous bodily complaints[33]. The outcome of the current research is also in accordance with one study[30] in OFP patients reporting a history of emotional, physical and sexual abuse history, indicating that abused subjects reportsignificantly higher levels of somatization as compared to OFP patients with no abuse history. Dissociation: In the current investigation participants with TMDs, BB and SAH demonstrated higher scores in

dissociation indicating that in general this subgroup was more dysfunctional. This outcome is congruent with another investigation[15] in subjects with physical and emotional abuse in which only 13% reported SAH. Many trauma survivors in that subgroup reported a chronic repression of their feelings indicating dissociative symptoms, which usually emerged when their feelings became overwhelming characterized by a tendency to harm themselves. The outcome of this research is also in line with one study[11], indicating that SAH individuals demonstrate a higher prevalence of dissociative symptoms. There is a strong association between incidence of sexual abuse and dissociation[33] and a wide variety of symptoms including somatic and dissociative disorders are reported by sexual abuse survivors[34]. Further, dissociative symptoms usually reflect a clinical history of severer childhood traumatic events[35]. The current study found a mean of 20.1 dissociative symptoms in the TMDs subgroup with SAH. Such an outcome is similar to the mean of 24.5 reported in a study in patients with history of emotional, physical and/or sexual abuse[34]. A mean of 23.6 dissociative symptoms was also reported in psychiatric patients with SAH[36].

5.1 Correlation depression and somatization

In the current research, the correlation depression and somatization was positive, stronger and significant in the TMDs+ BB+ SAH+ as compared with the TMDs+ BB+ SAH- and with the TMDs- BB- SAH- subgroups. The outcome of this investigation is in line with one study[15]indicating that depression and somatization are observed frequently in patients reporting a history of sexual, emotional and physical abuse. Depression and somatization are so closely interconnected that depressive and somatization patients usually complain about the somatic manifestations of depression. Sometimes is very difficult for the clinician to recognize the mood component of depression thus, the clinician treats the symptom rather than depression and there is a clear correlation between severity of depression and somatization scores in sexually abuse victims from the general population[37].Survivors of sexual abuse usually report many physical and psychological complaints related to depression. Women survivors of sexual abuse usually complain of depression and frequently use the medical system frequently[38]. Sexually abused patients demonstrate signs and symptoms of both depression and somatization including irritability, anger outbursts, difficulty sleeping and concentrating, low self-esteem, suicidal tendencies, poor physical health and higher number of medical complaints[35].

Correlation depression and dissociation

In the current research, the association between depression and dissociation was positive and significant only in the TMDs+ BB+ SAH+. This outcome indicates that even though the second control group did not complain of signs and symptoms of TMDs, BB and SA, individuals in that group demonstrated depression and dissociation. Both disorders may explain at least in part the reason for consultation in an OFP facility. Because there was a positive association between depression and dissociation in the experimental group, this outcome is congruent with one study[15] indicating that patients with history of emotional, physical and/or sexual abuse are characterized by difficulties in managing their intense affects and strong feelings including fear, suicidal tendencies, depression and dissociative tendencies. There is an association between CSA, depression and dissociation and some survivors dissociate to protect themselves from experiencing the sexual abuse. Feelings of confusion, nightmares and difficulty experiencing feelings are also observed in sexually abuse survivors[38]. Nearly 50% of childhood sexual abuse survivors present with significant depression and dissociation symptoms including splitting o traumatic experiences[39].

5.2 Correlation Somatization And Dissociation

In the current study, a positive and significant correlation between dissociation and somatization was found only in the TMDs+ BB+ SAH+ subgroup. Even though such a relationship was positive in the two control groups, it did not reach significance. The outcome of this study is endorsed at least in part by one investigation[15] indicating that patients with a history of emotional, physical and/or sexual abuse, usually present with signs and symptoms of dissociated terror, rage, extreme guilt and homicidal hatred. A dissociated individual may become hypersensitive to bodily sensations and somatization usually moderates the influence of dissociation. If an individual scores high in somatization, his or her dissociation score may be less than an individual who scores low in somatization, despite the presence of trauma which is associated with higher dissociation scores[33]. Congruent with the outcome of the current study, it has been reported that elevated scores on the dissociative scale may correlate well with both somatization and history/severity of sexual abuse. In the current study, scores in dissociation were higher in the TMDs+ BB+ SAH+ subgroup. In fact, 36%, 24% and 16% of the subgroups TMDs+ BB+ SAH+, TMDs+ BB+ SAH-, and TMDs-, BB- SAH-, respectively, demonstrated scores in dissociation above 20. Mean scores in dissociation above 20 are highly indicative of dissociative symptoms. Scores of 30 and above are generally associated with dissociative disorders such as posttraumatic stress disorder and multiple personalities[34]. These observations as a whole indicate that the subgroup TMDs+ BB+ SAH+ is psychiatrically more complex and disturbed. In psychiatric patients[34], the correlation between the total number of somatic symptoms and scores in dissociation is r=0.26. Severity of

abuse and depressionAnother goal of this study was to evaluate the strength of association between severity of sexual abuse and depression, somatization, and dissociation. The association between severity of sexual and depression was positive but non significant(Spearman´s rho=0.20, p=0.15). The correlation between sexual abuse and somatization was positive and significant (Spearman´s rho=0.27, $p<0.05$). A negative and non significant correlation was found between sexual abuse severity and dissociation (Spearman´s rho=-0.02, p=0.90). In one investigation[37] researchers reported a significant relationship between amount of childhood trauma and depressive symptoms. Further support for the outcome in the current study come from one investigation[25 in the general population reporting a strong relationship between CSA and psychopathology including depression and somatization. There is a close relationship between sexual abuse, depression and dissociation. Further, as the severity of abuse increases, the severity of depression also increases[38]. There is a relationship between pre-onset life events including any form of abuse and cognitive symptoms of depression[40]. SAH is associated with higher depression scores[41]

5.3 Severity of abuse and somatization

A moderate, positive and significant correlation was found between severity of sexual abuse and somatization. Congruent with this outcome is one investigation[36], indicating a positive correlation between somatoform dissociation and scores in sexual abuse. It seems that the amount of somatic dissociation appears to vary with the severity of sexual abuse which is more closely related with somatization than with dissociation[36]. When different forms of abuse are present in non psychiatric patients from the general population, there is a significant correlation between amount of child sexual abuse and somatization[42]. Because lower age, higher number of sexual abuse occurrences, the perpetrator being a stranger or not, modulate the severity of sexual abuse[42], the Childhood Trauma Scale used in the current study does not evaluate properly all aspects related with the severity of childhood sexual abuse.

5.45 Severity Of Sexual Abuse And Dissociation

The current study found a negative and non significant association between severity of sexual abuse and dissociation. Thus, this outcome is not in accordance with one investigation[24], reporting that severity of abuse appears to influence the severity of symptoms that adult victims experience as greater exposure to traumatic events early in life has been correlated with higher level of symptoms. Further, the severity of sexual abuse is directly related to more significant dissociative symptoms[33,34]. This discrepancy may be explained by different factors including different populations being evaluated in different studies, relative inadequacy of the Childhood Trauma Scale to assess severity of sexual abuse and even the fact that in clinical populations, many patients deny or forget sexual abuse experiences. Germaine to this issue is one study[43], asserting that different variables of the abuse in different individuals, rather than the abuse per se, including age at onset, coercive sexual acts, objectifying sexual acts, and concurrent multiple perpetrators, are more important to predict dissociation. Trauma has a causal role in dissociation but this role is less central and specific as it has been contended[44]. Support for the negative correlation between severity of sexual abuse and dissociation found in this study, comes from one investigation[36] in psychiatric patients in which only a subgroup reported a SAH. Researchers[36] reported a negative correlation between sexual abuse and dissociation using the Childhood Trauma Scale. Further, another study[45] found that sexual abuse was unrelated to dissociation scores. One study[46]evaluated sexual abuse victims. Researchers reported that rather than the sexual abuse perse, characteristics of the abuse, longer duration and greater number of perpetrators, better predict levels of dissociation. Such characteristics of the abuse were not addressed in the current research. The intercorrelations in the scores in the subscales of the Childhood Trauma Scale are very strong, but the association between abuse scores and other scales is not strong[47].

VI. Conclusions

This selected population of TMDs, BB and SAH was characterized by higher scores in depression, somatization and dissociation, by positive correlations between depression and somatization, depression and dissociation and somatization and dissociation. Sexual abuse and somatization were closely and positive interrelated in this subgroup. Because scores in depression, somatization and dissociation were also higher in those TMD subjects without SAH, other factors rather than sexual abuse may account for the presence of such psychological disorders. Future studies should be undertaken to unravel the complex relationships between sexual abuse and dissociation in TMDs individuals. Because the association between sexual abuse and somatization was positive and strong in SAH individuals, future research should also evaluate somatization as a form of dissociation in SAH individuals presenting with signs and symptoms of TMDs and BB.

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Table 1: Social and demographic data in the experimental and two control groups.

	TMDs+BB+SAH+ n=50	TMDs+BB+SAH- n=50	TMDs-BB-SAH- n=50
Age			
Mean	33.5	35.7	35.7*
Sd	11.3	13.4	13.8
Range	18-66	17-63	17-70
Genre	N %	N %	N %
Females	47 94	45 90	36 72**
Males	3 6.0	5 10	14 28
Totals	50 100	50 100	50 100

*Kruskal-Wallis statistics: p>0.61
**Fisher´s exact test: TMDs+ BB+ SAH versus TMDs+ BB+ SAH-, (p>0.7); TMDs+ BB+ SAH+ versus TMDs- BB- SAH-, (p<0.006); TMDs+ BB+ SAH- versus TMDs- BB- SAH-, (p<0.03).

Table 2: Scores in depression, somatization and dissociation in the experimental and two control groups.

	TMDs+BB+SAH n=50	TMDs+BB+SAH- n=50	TMDs- BB-SAH- n=50
Depression			
Mean	15.0	11.3	8.2*
SD	9.0	6.6	6.9
Range	1—36	0--28	0—37
Somatization			
Mean	12.5	10.4	7.2**
SD	6.2	5.2	6.0
Range	3—28	10—22	0—23
Dissociation			
Mean	20.1	17.5	13.3***
SD	10.8	14.3	10.3
Range	5.4---44.3	1.4-63.2	2.8—42

*Kruskal-Wallis andDunn´ tests, p<0.0001: TMDs+ BB+ SAH= versusTMDs+ BB+ SAH- (p>0.05); TMDs+ BB+ SAH+ versus TMDs- BB- SAH- (p<0.001); TMDs+ BB+ SAH- versus TMDs- BB- SAH (p<0.05).
**Tukey-Kramer multiplecomparisontest, p<0.0001:TMDs+ BB+ SAH+ versus TMDs+ BB+ SAH-, (p>0.05); TMDs+ BB+ SAH+ versus TMDs- BB- SAH, (p<0.001); TMDs+ BB+ SAH- versus TMDs- BB- SAH-, (p<0.05).
***Kruskal-Wallis statisticswithDunn´s, (p<0.01):TMDs+ BB+ SAH+ versus TMDs+ BB+ SAH- (p<0.05); TMDs+ BB+ SAH+ versus TMDs- BB- SAH- (p<0.05); TMDs+ BB+ SAH- versus TMDs- BB- SAH- (p>0.05).

Table 3: Pearson or Spearman correlation coefficients in psychological variables in the experimental and two control groups.

Psychological variables	TMDs+BB+SAH+ n=50	TMDs+BB+SAH- n=50	TMDs+BB+SAH- n=50
Depression – somatization			
r=	0.53	0.31	0.52
p-value	0.0001	0.03	0.02
Significant?	Yes	Yes	Yes
Depression-Dissociation			
r=	0.37	0.15	0.27
p-value	0.01	0.31	0.19
Significant?	Yes	Yes	Yes

Somatization-Dissociation			
r=	0.37	0.21	0.27
p-value	0.01	0.17	0.21
Significant?	Yes	Yes	No

Table 4: Correlations between severity of sexual abuse and psychological variables only in the TMD+ BB+ SAH subgroup (n=50).

Sexual abuse/psychological variables			
	Pearson/Spearman rho	p-value	Significant?
Sexual abuse and depression	0.20	0.15	No
Sexual abuse and somatization	0.27	0.05	Yes
Sexual abuse and dissociation	-0.02	0.90	No

*Omar Franklin Molina.'Depression, Somatization And Dissociation in Bruxers And Temporomandibular Disorders Individuals With Sexual Abuse History: A Comparison Study." IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 17, no. 1, 2018, pp. 73-81.