

Depression, Nightmares and Suicide Events in Dreams and In the Waking Life in Craniomandibular Disorders and Bruxing Behavior Subjects with Sexual Abuse History.

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Abstract

Introduction: Emotional, physical and sexual abuse constitute significant etiologic factors leading to many psychological disorders observed in clinical populations.

Goals: Evaluate scores in depression, frequency of nightmares and "suicide related events" in bruxers with sexual abuse history.

Methods: Clinical examination, questionnaires, psychological measures and self-reports in subjects with craniomandibular disorders, bruxing behavior and sexual abuse (n=31) which were compared with those presenting craniomandibular disorders, bruxing behavior and no abuse (n=68) and no craniomandibular disorders, some with bruxing behavior and no sexual abuse (n=38). Widely accepted criteria for craniomandibular disorders and bruxing behavior were utilized. The BDI, The Child Abuse and Trauma Scale and a novel instrument to gather information about nightmares and suicide related events were used. Fisher's exact test, Chi-squared for independence and trends and Kruskal-Wallis' statistics were utilized to analyze data.

Results: No significant differences were observed regarding age in the three subgroups (Kruskal-Wallis test, $p=0.32$). Females predominated in all subgroups (30/31=96,7%; 60/68=88,2%, 23/38=60,5%), respectively, but the difference between females and males was statistically significant only between the CMDs+ BB+ SAH+ versus the CMD- BB+- SAH- subgroups (Fisher's exact test, $p<0.0004$) and between the CMDs+ BB+ SAH- and the CMDs- BB+- SAH- subgroups (Fisher's exact test $p<0.001$). There was a statistically and significant difference when depression scores were compared (Kruskal-Wallis' test, $p=0.007$): Craniomandibular Disorders + Bruxing behavior + Sexual abuse history versus Craniomandibular disorders + bruxing behavior with no sexual abuse history ($p>0.05$), Craniomandibular disorders + bruxing behavior + sexual abuse history subgroup versus No craniomandibular Disorders and no sexual abuse history ($p<0.01$); Craniomandibular Disorders + bruxing behavior no sexual abuse history subgroup versus no craniomandibular disorders and no sexual abuse history ($p<0.05$). There was a higher frequency of nightmares in the craniomandibular + bruxing behavior + sexual abuse history subgroup as compared with the other subgroups: 77.4%; 52.9% and 34.2%, respectively: Chi-squared for independence ($p<0.001$), for trends ($p<0.0004$). Thus, the frequency of self-reported nightmares increased from the less psychologically complicated subgroup in the direction of the craniomandibular, bruxing behavior and sexual abuse history subgroup. Regarding "suicide related events", the frequency was as follows: 13/31=41.9% in the craniomandibular bruxing behavior and sexual abuse history subgroup; 10/68=14.7% in the craniomandibular bruxing behavior no sexual abuse history subgroup, and 9/38=23.7% in the no craniomandibular disorders and no sexual abuse history subgroup: Craniomandibular disorders bruxing behavior and sexual abuse history subgroup versus craniomandibular disorders bruxing behavior and no sexual abuse history subgroup (Fisher's exact test $p<0.004$), craniomandibular disorder bruxing behavior and sexual abuse history subgroup versus no craniomandibular disorders no sexual abuse history subgroup ($p=0,12$), craniomandibular disorders subgroup with no sexual abuse history versus no craniomandibular disorders no sexual abuse history (Fisher's exact test, $p=0.3$).

Conclusion: Scores in depression, frequency of nightmares and "suicide related events", were higher and were reported more frequently in the subgroup with sexual abuse history.

Keywords: Craniomandibular disorders. Bruxing Behavior. Sexual Abuse. Depression, Suicide Related Events. Nightmares.

I. Introduction

Craniomandibular Disorders (CMDs) are collective terms used to describe a set of common signs and symptoms involving the temporomandibular joint (TMJs), masticatory muscles and adjacent skeletal musculature, usually characterized by a complaint of pain, joint noises, tenderness to palpation of joints and muscles, headache and impaired jaw movements^[1]. Bruxing Behavior (BB), is a common oral motor behavior which consists of involuntary rhythmic or spasmodic nonfunctional gnashing, grinding or clenching of teeth which leads to occlusal trauma and masticatory muscles disorders and is frequently classified as diurnal or nocturnal^[2].

Sexual Abuse (SA) is defined as sexual exploitation or misuse of a child up to the age of 14 years and to sexual behaviors between a child and an adult or between two children where one of them is significantly older or uses coercion^[3]. In operational terms, SA may be hard to define because of the many different forms it can take, the different levels of frequency, the variation of circumstances and the different relationships that may be associated with^[4]. A sexual abuse history (SAH) may be reported with some frequency in individuals with depression, somatization disorders and dissociation. Depression is a very common psychological disorder or construct characterized by painful feelings, bad humor, anguish, panic attacks, loss of energy, tendency to isolation, poor cognitive function, apathy, difficulty to enjoy and many other characteristics^[5]. Depression is usually observed in many psychological disorders including manic states, schizophrenia, oral dependency, bipolar disorders, borderline states and other personality disorders. Nightmares are defined as extremely dysphoric and well-remembered dreams that usually involve efforts to avoid threats associated with survival, security and/or damage or lesion to physical integrity^[6]. The importance of studying forms of emotional, physical and sexual abuse is that they have a serious negative impact on personality, behavior and quality of life in affected individuals. In this regard, experimental studies^[7] indicate that dream-related disturbances are correlated with a history of maltreatment and depression. Previous investigations have demonstrated that subgroups of CMDs individuals and BB with severe psychological disorders may be observed frequently. However, there is paucity of studies about suicide related events in dreams and in the waking life in such populations. Studies about bad dreams, sexual abuse and suicide trends would increase our current knowledge in this field of science. Thus, this study is aimed at:

1. Evaluate severity of depression in CMDs and BB individuals with SAH;
2. Assess frequency of nightmares in CMDs and BB individuals with SAH;
3. Compare the frequency of "suicide related events" in the same subgroup.

II. Material and Methods

Sample

One hundred and thirty seven subjects (113 females and 24 males) referred to the University of Gurupi, Division of Orofacial Pain in the period 2010-2018 participated in this investigation. Once subjects were clinically examined, responded to a set of questionnaires, and a clinical diagnosis was established, they were allocated to subgroups presenting CMDs, BB and SAH (CMDs⁺ BB⁺ SAH⁺ subgroup, n=31), those demonstrating CMDs, BB without SAH (CMDs⁺ BB⁺ SAH⁻ subgroup, n=68), and those without CMDs, BB, SAH (CMDs⁻ BB⁻ SAH⁻ subgroup n=38). The principles of the Helsinki declaration were followed: Subjects were informed that their clinical evaluation and use of questionnaires had no absolute risk for their health, that any physical or psychological discomfort warranted the discontinuity of the evaluation, that accurate and comprehensive evaluation was necessary in order to obtain accurate data and diagnosis before planning any treatment, that the principal examiner was scientifically experienced and that his/her data would provide practical clinical benefits in future studies and treatments.

Inclusion criteria for CMDs: Presence of TMJ noises, pain on palpation of muscle and joints, difficulties to perform normal jaw movements, a complaint of muscle/joint pain and seeking active treatment for CMDs.

Inclusion criteria for BB: Patient's report of catching himself/herself clenching or grinding the teeth at daytime or during the night, friends/relative's report of grinding the teeth at night, patient's report of fatigue in the masticatory muscles during the day following eating and/or speaking, awakening with facial and/or TMJ pain, headache and/or dental pain and a report of jaw locking on awakening in the morning.

Exclusion criteria: Subjects and controls presenting with severe psychiatric disorders, difficulties to respond properly to questionnaires and presence of neuromuscular disorders: Parkinson's disease, other epilepsy types, speech and cognitive difficulties, were excluded from the comprehensive initial clinical evaluation.

III. Measures

Depression: The Beck Depression Inventory or BDI is a robust psychological test used widely for research and clinical purposes to evaluate depression. The instrument is a 21-item questionnaire which may be answered in 5-10 minutes in which questions are hierarchically arranged from normal to worst, thus providing scores ranging from 0 to 3. The instrument has excellent reliability and good correlation with measures of depression and anxiety.

Sexual abuse: The Child Abuse and Trauma Scale^[8], is a 38-item self-reported instrument designed to evaluate emotional, physical and sexual abuse in childhood and adolescence which correlates significantly with dissociation, depression and victimization. The instrument is a scale designed to evaluate frequency of emotional, physical or sexual abuse as follows: 0= no abuse, 1= abuse that occurred rarely, 2= occasional, 3=frequent abuse, 4= very frequent abuse. In the current study, every chart from any subject having complete information about clinical parameters, depression, sexual abuse and suicide related events was retrieved and retrospectively evaluated

Instrument to assess nightmares and suicide events (INAA-100): This instrument^[9] consists of a set of 100 questions developed to gather information about aggression/violence during dreams and nightmares, nightmares, sexuality themes, persecution, danger, suicide themes in dreams and nightmares, self-harm behaviors and suicide events in the waking life. Each item in the instrument has scores ranging from 0 (never) to 4 (very frequent or always). In the current investigation, a patient's report of nightmares in which he/she, somebody attempted suicide or in which she/he was instigated to kill himself/herself; hearing voices in nightmares or during the waking life instigating to suicide and a history of attempting suicide in the waking life were categorized as "suicide related events" and their frequency was evaluated in the experimental subgroup (CMDs+BB+ SA+, n=31) and in the two control subgroups (CMDs+ BB+ SA-, n=68) and (CMDs- BB+- SA-, n=38).

IV. Statistical analysis

Statistical analysis used in the current investigation included Chi-squared test for independence and trends, Fisher's exact test and Kruskal-Wallis analysis of variance to evaluate and compare means in more than two groups.

V. Results

Age in the experimental group ranged from 18 to 66 years (mean 34.4, SD=10.6), from 17 to 61 years (mean 31.6, SD=12.7) in the CMDs+ BB+ SA- subgroup and from 17 to 70 years (mean 34.6, SD=16.2) in the CMDs- BB+- SA- subgroup. Regarding age, Kruskal-Wallis' statistics showed that there was no significant statistical difference when these subgroups were compared (p=0.32). Females predominated in all subgroups, more specifically in the experimental and first control subgroup. Fisher's exact test: CMDs+ BB+ SAH+ versus CMDs+ BB+ SAH- (p=0.26); CMDs+ BB+ SAH+ versus CMDs- BB+- SAH- (p=0.0004), and CMDs+ BB+ SAH- versus CMDs- BB+- SAH- (p=0.001). See Table 1 for further details.

Regarding depression, Kruskal-Wallis test demonstrated that there was a statistical and significant difference when the three subgroups were compared (p<0.007): CMDs+ BB+ SA+ versus CMDs+ BB+ SA- (p>0.05); CMDs+ BB+ SA+ versus CMDs- BB+- SA-, (p<0.01); CMDs+ BB+ SA- versus CMDs- BB+- SA- (p<0.05). See Table 2 for additional details.

As for nightmares, they were reported more frequently in the CMDs+ BB+ SA+ subgroup as compared with the CMDs+ BB+ SA- subgroup (Fisher's exact test, p<0.02) and with the CMDs- BB+- SA- subgroup (Fisher's exact test p<0.0003). The frequency of nightmare increased with the clinical and psychological severity of each subgroup: CMDs- BB+- SA- >>>>>CMDs+ BB+ SA- >>>>>CMDs+ BB+ SA+: Chi-squared for independence p<0.001, for trends p<0.0004). See table 3 for additional details.

The frequency of "suicide related events" was higher in the CMDs+ BB+ SA+ subgroup (Chi-squared for independence p<0.01), but statistical significance was reached only when the subgroup CMDs+ BB+ SAH+ was contrasted with the CMDs+ BB+ SAH- subgroup (Fisher's exact test p<0.004). Further, CMDs+ BB+ SAH- versus CMDs- BB+- SAH- (p=0.12); CMDs+ BB+ SAH- versus CMDs- BB+- SAH- (p=0.3). See Table 4 for further details.

VI. Discussion

One objective of this investigation was to evaluate scores in depression in subjects with CMDs, BB and SAH. Because higher scores in depression using the BDI were observed in such a group, this outcome is in accordance with previous investigations reporting higher scores in depression and hostility in a similar sample^[10]. Physical and sexual abuse are observed frequently in patients with CMDs and BB. Such events predispose patients to a wide range of psychological disorders including pain, anxiety, depression. Thus, such patients suffer from more depression as compared to other dysfunctional subgroups^[11]. Depression, sexual

dysfunction and low self-esteem are strongly associated with a history of sexual abuse in childhood^[11]. CMDs and BB patients with SAH usually demonstrate higher scores in depression^[12]. The outcome in the current investigation is further substantiated by one study^[13] indicating that subjects with a history of physical, sexual abuse and facial pain report significantly higher levels of psychological disorders including anxiety, depression and somatic symptoms than subjects with no history of abuse. Higher levels of depression, anxiety, negative sexual affect during sexual activities, sexual dysfunction and sexual schemas are frequently associated with a history of child sexual abuse^[14].

The second objective of this investigation was to assess frequency of nightmares. In the current study we report a higher frequency of self-reported nightmares in the group presenting with CMDs, BB and SAH. Nightmare is a functional disorder under the umbrella of "disturbed sleep", usually associated with other psychological disturbances including depression, a history of trauma and dissociation. The outcome in the current research is in line with one investigation^[15] in college students reporting a higher frequency of nightmares in those who reported a history of childhood traumatic experiences. Thus, it is apparent that a history of any traumatic event in childhood predisposes individuals to a wide range of psychological disorders including poor sleep. The impact of child sexual abuse varies from person to person and from case to case. Women who experience familial abuse usually report higher levels of depression and anxiety, dissociative patterns, relationship disorders and disturbed sleep patterns^[4]. Victims of sexual abuse usually report a higher frequency of nightmares as compared to non-sexual abuse victims according to one epidemiological investigation^[16].

The third objective of this investigation was to evaluate the frequency of "suicide related events". In the current study, somebody instigating other to commit suicide, a patient's report of attempting suicide, hearing voices in which the subject is instigated to commit suicide in dreams, having attempted suicide, thoughts about suicide and hearing voices instigating the subject to commit suicide when awake, were pooled under the label "suicide related events". Because we found a higher frequency of "suicide related events" in CMDs and BB subjects with SAH, this outcome is congruent with one investigation^[17] reporting that there is a close association between dissociation, childhood trauma, destructive and suicide behaviors in psychiatric patients. A nightmare is usually considered a form of dissociation and childhood trauma is frequently associated with psychiatric disorders. Sleep disturbances including bad dreams and nightmares are reported frequently in suicide attempters and nightmares are independently associated with higher rates of suicidality^[18]. Some subjects in the current study reported "voices" instigating him or her to self-harm behaviors and even to commit suicide in dreams and when awake. In this regard, two studies^[19,20], indicate that such behaviors are reported frequently in nightmare sufferers, more specifically in individuals with depression, dissociative disorders and suicidal behavior. "Voices" associated with inflicting self-harm have a complex meaning. The "voice" is defined as a systematized integrated pattern of negative thoughts, accompanied by angry affect and there is a significant association between parental introjects or "voices" and self-destructive behaviors^[21].

VII. Conclusion

The outcome of this investigation shows that CMDs and BB individuals with SAH demonstrate higher scores in depression, higher frequency of nightmares and reports associated with "suicidal related events". Thus, this study is an additional contribution to the notion that individuals with a history of childhood traumatic events are psychologically disturbed, do present with sleep disorders and some of them are more prone to suffer from "suicide related events". Regarding "suicide related events", further studies with larger samples are mandatory to reinforce or substantiate findings in the current investigation.

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Table 1: Social and demographic data in CMDs and BB subjects presenting with sexual abuse history (CMDs+ BB+ SA+), without sexual abuse history (CMDs+ BB+ SA-) and controls without CMDs and no sexual abuse history (CMDs- BB+- SA-)

SUBGROUPS						
CMDs+BB+SA+		CMDs+BB+SA-		CMDs-BB+-SA-		
n=31		n=68		n=38		
GENRE	%	%	n	%	n	%
Females	30	96,8	60	88,2	23	60,5*
Males	1	3,2	8	11,8	15	39,5
Totals	31	100	68	100	38	100
AGE						
Mean	34,4		31,6		34,6**	
SD	10,6		12,7		16,2	
Range	18-66		17-61		17-70	

*Fisher's exact test CMDs+ BB+ SAH+ versus CMDs+ BB+ SA-, p=0.26; CMDs+ BB+ SAH+ versus CMDs- BB+- SA-, p=0.0004; CMDs+ BB+ SAH- versus CMDs- BB+- SA-, p=0.001.

**Kruskal-Wallis test p=0.32, a non significant difference in age.

Table 2: Scores in Depression (BDI) in the subgroups CMDs+ BB+ SAH+ (n=31), CMDs+ BB+ SAH- (n=68) and CMDs- BB+- SAH- (n=38).

Subgroups	Mean BDI*	SD	Range
CMDs + BB+ SA+	13,7	8,6	2-31
CMDs + BB + SA-	11,8	7,7	0-30
CMDs- BB + -SA-	8,1	7,2	0-27

*Kruskal-Wallis statistics p<0.007: CMDs+ BB+ SA+ versus CMDs+ BB+ SA-, p>0.05; CMDs+ BB+ SA+ versus CMDs- BB+- SA-, p<0.01; CMDs+ BB+ SA- versus CMDs- BB+- SA-, p<0.05.

Table 3: Frequency of nightmares in CMDs, BB with sexual abuse history, (CMDs+ BB+ SA+), without sexual abuse history (CMDs + BB + SA-) and in the control non CMDs without sexual abuse history (CMDs- BB+- SA-)

SUBGROUPS FREQUENCY OF NIGHTMARES*			
		n %	
CMDs + BB +SA	Yes	24	77,4*
	No	7	22,6
	Totals	31	100
CMDs + BB+ SA-	Yes	36	52,9
	No	32	47,1
	Totals	68	100
CMDs- BB+- SA-	Yes	13	34,2
	No	25	65,8
	Totals	38	100

*Chi-squared for independence (p<0.001), for trends (p<0.0004). Fisher's exact test: CMDs+ BB+ SAH+ versus CMDs+ BB+ SAH- (p<0.02); CMDs+ BB+ SAH+ versus CMDs- BB+- SAH- (p<0.0003);

Table 4: "Suicide related events" in CMDs and BB and SA subjects (CMDs+ BB+ SA+) subjects, CMDs and BB+ SA- (CMDs+ BB+ SA-) and controls non CMDs and no sexual abuse (CMDs- BB+- SA-) individuals.
SUBGROUP "SUICIDE-RELATED EVENTS"

	n %		
CMDs + BB + SA+ n=31	Yes	13	41,9*
	No	18	58,1
	Totals	31	100
CMDs + BB+- SA- n=68	Yes	10	14,7*
	No	58	85,3
	Totals	68	100
CMDs- BB+- SA- n=38	Yes	9	23,7*
	No	29	76,3
	Totals	38	100

*Chi-squared for independence p=0.01 For Trends p=0.10

CMDs+ BB+ SA+ versus CMDs+ BB+ SA- Fisher's exact test p=0.004

CMDs+ BB+ SA+ versus CMDs- BB+- SA- Fisher's exact test p=0.12

CMDs+ BB+ SA- versus CMDs- BB+- SA- Fisher's exact test p=0.3

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