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Frequency of Headache and Headache Types in a Selected Population of Craniomandibular Disorder subjects with Dissociation.

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Abstract
Introduction:*Craniomandibular Disorders (CMDs), are considered by many as disturbances etiologically related to psychological or psychiatric disorders. However, the information about frequency and types of headaches and their relationship to dissociationis very scarce.****Goals:****Evaluate frequency of headache and frequency of the commonest types of headachesin subjects with Craniomandibular Disorders and Dissociation.* ***Methods:****Seventy-three clinical records of Craniomandibular Disorder and bruxing behavior subjects with dissociation, 42 from individuals with Craniomandibular Disorders and very low scores in dissociation and 37 from subjects with no Craniomandibular Disorders and no dissociation were retrieved consecutively and reevaluated retrospectively regarding headache type. History of the chief complain, manual palpation of muscles and joints, diagnosis of headache type and internal derangements, questionnaires to assess bruxing behavior and headache, had been used previously to gather clinical data. Once examination was completed, all clinical records were stored in a database for future studies of variables of interest. Criteria for tension-type headache, combination headache, migraine, occipital neuralgia, bruxing behavior and craniomandibular disorders were used to obtain accurate diagnosis of the type of headachein this clinical sample. The Bernstein and Putnam questionnaire was used to gather data about dissociation.The first control group (n=42) had signs and symptoms of craniomandibular disorders and no dissociation and the second control group (n=37) had no signs and symptoms neither of craniomandibular disorders nor of dissociation. Data were analyzed using Kruskal-Wallis nonparametric statistics, Chi-square for independence and trends and Fisher' s exact test. Significance was accepted if p<0,05.* ***Outcome:****Mean age in the Experimental subgroup was about 31,3 years (SD=12,5, range=14-57); 32,4 (SD=11,4, range=17-55) in the first control craniomandibular no dissociation subgroup; and 32,2 (SD=14,6, range=16-73) in the second control no craniomandibular no dissociation subgroup. There was no age difference when these subgroups were compared (Kruskal-Wallis statistics p=0,75). Frequencies of headache were about 89%, 88% and 48,6% in the experimental craniomandibular and dissociation subgroup,in the Craniomandibular no dissociation subgroup and in the no craniomandibular no dissociation subgroup, respectively. Fisher' s exact test Craniomandibular disorder and dissociation subgroup versus no craniomandibular disorder no dissociation subgroup (p<0,0001); Craniomandibular Disorder no dissociation subgroup versus no craniomandibular disorder no dissociation subgroup (p<0,0002). The frequency of headache increased from the less dysfunctional (second control subgroup) to the most dysfunctional subgroup (Craniomandibular disorders and dissociation subgroup), Chi-square for trends p<0,0001.The frequencies of Tension-type headache in the experimental craniomandibular and dissociation subgroup,craniomandibular disorders no dissociation subgroup and no craniomandibular no dissociation subgroup were 50,7%; 56,8% and 50% respectively. Because the frequencies of headache were very similar, a statistical test for differences was not carried out. The frequency of occipital neuralgia was about 18,5% in the experimental subgroup, 16,2% in the Control 1 subgroup and 0% in the Control 2 subgroup. Fisher' exact test Craniomandibular disorder + Dissociation subgroup versus Craniomandibular Disorder no Dissociation subgroup (p=1,000);Craniomandibular disorder subgroup versus no craniomandibular no dissociation subgroup (p=0,06); Craniomandibular disorder no dissociation subgroup versus no craniomandibular disorder no dissociation subgroup (p=0,16).The frequencies of myofascial headache were about 13,8% in the*

craniomandibular disorder + dissociation subgroup; 13,5% in the craniomandibular disorder no dissociation subgroup and 27,7% in the no craniomandibular disorder no dissociation subgroup. When these subgroups were compared using Fisher' s exact test, no statistically significant differences were observed. The frequencies of migraine were about 9,2% (craniomandibular disorders + dissociation subgroup); 5,4% (craniomandibular disorders no dissociation subgroup) and 5,5% (no craniomandibular disorders no dissociation subgroup). Fisher' s exact test showed that there were no statistically significant differences when these subgroups were compared. ***Conclusion:****The frequency of headache in the craniomandibular disorder subgroup with dissociation was very high and tension-type headache was observed more frequently.*

Key Words: *Craniomandibular Disorders, Headache. Tension-Type Headache. Migraine. Dissociation.*

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I. Introduction

Headache

Craniomandibular Disorders (CMDs) constitute collective terms used in Medicine and Dentistry to describe a set of signs and symptoms of pain and dysfunction in the temporomandibular joints (TMJs), masticatory muscles and in adjacent anatomic structures usually of musculoskeletal origin. Most common CMDs signs and symptoms include a complain of pain in the masticatory muscles and TMJs, joint noises, tenderness to palpation of joint and muscles, limitation of jaw movements and headaches usually referred from muscles and TMJs. Many times, headache indicates central and peripheralsensitization[1]. Headache is nearly an universal human experience which usually and negatively affects lifestyle, health[2] and social relationships and may be associated to a variety of psychological disorders including depression and anxiety. Tension – type headache (TTH), myofascial headache and migraine are very common headache types in headache sufferers. Although the pathophysiology of these disorders is usually complex and multifactorial, studies in the field of CMDs have indicated that joint and muscle dysfunction in the masticatory system may be related to different headache types[2]. Further, daytime and night-time bruxing behavior (BB) may cause headache occurring both at night and during theday[2].CMDs are characterized by a combination of symptoms that include head, facial and neck pain. These symptoms or disorders are usually associated with emotional and psychological alterations in a significant percentage of patients with CMDs and sometimes patients become refractory to conventional treatment. CMDs have a multifactorial etiology and myofascial pain from the masticatory, neck and cervical regions may cause referred pain to the head[3] .TTH is the most common type of headache of myofascial origin from trigger points in the cervical structures[3]. Even though headache of myofascial origin is probably the most common headache in CMDs subjects, epidemiological studies indicate an association between CMDs, migraine and TTH. Headache occurs more frequently in CMDs as compared to control ones[4]. Headache is currently defined as a chronic, acute or intermittent disorder lasting anywhere from minutes, hours, days or even weeks. Clinicians need to consider those anatomic or psychological factors that influence the development, course, duration, and severity of individuals attacks of pain to plan proper treatment. Psychological factors such as negative affect, emotional states and a negative personality can affect the likelihood of headache attack, severity, impact, and treatment prognosis[5].

Dissociationis currently defined as a complex chronic disorder characterized by disturbances of identity and memory and as a post-traumatic condition closely associated with severe childhood traumatic experiences. Dissociation is considered as a form of unsuccessful adaptation to the traumatic and severe experience or as a form of "adaptability resulting in disability"[6]. The relationship between headache and somatization (a form of dissociation) and between somatization and CMDs has been evaluated to a certain extent. However, there are no studies neither about the association between dissociation and headache in CMDs, nor about dissociation and specific types of headaches. Thus, this investigation was undertaken to:

1.Assess frequency of headache in a selected population of CMDs with dissociation as compared to a CMDs No Dissociation and to a No CMDs No Dissociation subgroups

2.Evaluate what types of headaches predominate in the same populations.

3.Examine the frequency of TTH, occipital neuralgia (ON), and myofascial headache in the CMDs + Dissociation subgroup.

II. Methods

Subjects presenting CMDs signs, symptoms and BB referred consecutively to an Orofacial and CMDs unit at the University of Gurupi-School of Dental Medicine are comprehensively evaluated and their clinical recordsaresubsequently stored for future investigations. Subjects without signs and symptoms of CMDs referred with a specific complaint but without characteristics of CMDs arealso evaluated comprehensively using the

same method and their clinical recordsare stored for future studies of variable of interest. Both CMDs and BB subjects and controls no CMDs are evaluated using the protocol described as follows. The chiefcomplain in both subjects with or without CMDsis evaluated seeking information about location, type of pain, duration, frequency, intensity, factors increasing or triggering pain and thosethat reduce frequency or intensity of pain. The TMJs and masticatory muscles areassessed searching for areas of pain, tenderness andtrigger points indicating myofascial pain. Jaw movements in centric relation, maximal intercuspal position and lateral and protrusive positions are investigated searching for the presence of pain and/or limitation of jaw movements.Self-report plus diagnostic or biomechanical tests areutilized in all subjects to diagnose the presence of capsulitis/synovitis, retrodiscal pain, disk-attachment pain, disc displacement without reduction, arthralgia, and osteoarthritis (OA).A short questionnaire is also used to assess the type and chronicity of headache if present. Psychological tests including the Taylor Manifest Anxiety Scale, the Hostility Scale, the Rief and Hiller questionnaire for somatization and the Bernstein and Putnam test for dissociation are regularly used to gather information about anxiety, hostility, somatization, and dissociation. Clinical examination of the oral structures, questionnaires and self-report are used frequently to evaluate the presence, signs and symptoms of diurnal, nocturnal and mixedBB. An attempt is made to differentiate nocturnal and mix from sleep BB. Further, BB severity is determined using a clinical method described previouslyelsewhere. In the last two months, the clinical records of 73 subjects presenting CMDs and dissociation according to the information gathered from the Bernstein and Putnam questionnaire, 42 subjects with CMDs with very low scores in dissociation (no dissociation subgroup), and 37 subjects with no CMDs and no dissociation (second control subgroup=no CMDs and no dissociation), were retrieved and evaluated retrospectively to determine the presence and type of headache. Patients and controls 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 an accurate and comprehensive evaluation was necessary to obtain accurate data and diagnosis before planning and treatment, that the principal examiner, was scientifically experienced and qualified and that his or her data would provide practical clinical benefits for other patients in potential clinical or scientific studies and treatments.

Inclusion criteria for CMDs: At least three of the following signs or symptoms: A complaint of pain in the masticatory system, limitation of jaw movements, tenderness to palpation of the masticatory muscles and/or TMJs, presence of joint noises and headaches of musculoskeletal origin.

Inclusion Criteria for TTH: Pain described as dull, aching, continuous, mild, moderate, and occasionally intense, pain described in the temporal and/or frontal regions, a feeling of tightness or pressure in the anterior part of the head, pain described as continuous and usually lasting hours and rarely days, presence of nausea in some patients, absence of vomiting.

Criteria for combination-headache: Pain described as unilateral or bilateral, unilateral episodes of pain described as throbbing, presenting nausea, vomiting and visual disturbances, bilateral episodes of pain presenting the characteristics of TTH and migraine, patient' s report of having "two different types of headache"

Criteria for myofascial headache: Pain described as mild, moderate, and occasionally severe, continuous, dull, aching, lasting hours or days, occasional presence of nausea but without vomiting, pain described as exclusively unilateral and/or occurring unilateral but sometimes in the right side and sometimes in the left side of the head. A clear association between the laterality of pain and the presence of cervical trigger points in the affected side of the head with headache was an additional characteristic of this type of headache.

Criteria for migraine: Pain described as unilateral, severe, constant, and frequently throbbing, pain increased by physical effort and the throbbing characteristic observed more frequently during severe episodes of pain, presence of vomiting, nausea and photophobia.

Criteria for headache from occipital neuralgia: A complain of pain in the retroocular, vertex and occipital/suboccipital areas, pain described as very intense, presence of nausea and vomiting, pain described as shooting or burning, pulsating, lancinating, intermittent and presenting with paresthesia in the occipital area, reports of dizziness, ear stuffiness, and nasal constriction and nasal secretion.

Exclusion criteria: Subjects and controls presenting with severe psychiatric disorders, difficulties to respond properly to questionnaires, and presence of neuromuscular disorders including Parkinson' s disease, other epilepsy types, speech, and cognitive impairment, were excluded from the comprehensive initial clinical evaluation and thus, did not participate in this study.

III. Measures

The Dissociative Experience Scale (DES) is a 28-item self-reported instrument developed by Bernstein and Putnam[7]that was used as a screening device to obtain information about chronic dissociative disorders. Using this instrument, the subject or patient responds by circling any score ranging from 0% to 100% in each item of the instrument. A score of 30% is useful to screen dissociative disorders among general psychiatric patients[7]. Such cut off point separates severe from non-severe dissociative disorders.

IV. Statistical Analysis

Kruskal-Wallis nonparametric statistics was used to compared age differences among the experimental and control subgroups. Fisher' s exact test was used to compare significant differences in the presence of a particular type of headache in the comparison of pairs of subgroups. Chi-squared for independence was used to evaluate an increase in the frequency of headache from the less dysfunctional to the more dysfunctional subgroup. A statistically significant difference was accepted if $p<0,05$.

V. Outcome

This investigation evaluated a subgroup of 73 subjects presenting with signs and symptoms of CMDs and high scores in dissociation (CMDs + Dissociation subgroup); a subgroup of 42 subjects with CMDs and no dissociation (CMDs No Dissociation subgroup) and a second control subgroup of 37 no CMDs and no Dissociation subjects (No CMDs no Dissociation subgroup). Mean age in the CMDs + Dissociation subgroup was about 31,3years (SD=12,5, range=14-57), 32,4 (SD=11,4, range=17-55)in the CMDs no dissociation subgroup and 32,2 (SD=14,6, range=16-73) in the No CMDs no Dissociation subgroup (Kruskal Wallis statistics p=0,75, a nonsignificant statistical difference). There were 67 females (91,8%) and 6 males (8,2%) in the CMDs + Dissociation subgroup; 39 females (92,9%) and 3 males (7,1%) in the CMDs No Dissociation subgroup and 28 females (75,7%) and 9 males (24,3%) in the No CMDs No Dissociation subgroup. Because females predominate in subgroups of CMDs individuals, a statistical estimation comparing females and males in the three groups was considered irrelevant.

The frequency of headache was about 65/73=89% in the CMDs + Dissociation subgroup; 37/42=88% in the CMDs no Dissociation subgroup and 18/37=48,6% in the No CMDs no Dissociation subgroup. Fisher' s exact and Chi-squared for trends tests were carried out to assess potential differences and trends in the comparison of these 3 subgroups. Such comparisons yielded the results explained as follows: CMDs + Dissociation subgroup versus CMDs no Dissociation subgroup (p=1,000); CMDs + Dissociation subgroup versus No CMDs no Dissociation subgroup ($p<0,0001$); CMDs no Dissociation subgroup versus no CMDs no Dissociation subgroup ($p<0,0002$). A Chi- squared for trends test was carried out to assess a trend for a lower frequency of headache from the most dysfunctional to the less dysfunctional subgroup. Because Chi-squared for trends ($p<0,0001$), we can say that there was a statistically and significant trend for a lower frequency of headache from the most dysfunctional subgroup (CMDs + Dissociation) to the less dysfunctional one (No CMDs no Dissociation).

Among those subjects in the subgroups (CMDs + Dissociation, CMDs no Dissociation and No CMDs no Dissociation), that reported a complain of headache, the frequency of TTH was about 33/65=50,7%; 21/37=56,8% and 9=18= 50%, respectively. Thus, the frequency of TTH was very similar when the three groups were compared. Even the frequency of TTH in the no CMDs no Dissociation subgroup was considered high.

The frequency of occipital neuralgia was about 12/65=18,5% in the CMDs + dissociation subgroup; 6/37=16,2% in the CMDs no Dissociation subgroup and 0/18=0% in the no CMDs no Dissociation subgroup. Fisher' s exact test was used to compare statistical differences in these subgroups: CMDs + Dissociation subgroup versus CMDs no Dissociation subgroup (p=1,000); CMDs + Dissociation subgroup versus No CMDs no Dissociation subgroup (p=0,06); CMDs no Dissociation subgroup versus No CMDs no Dissociation (p=0,16). Thus, differences when the subgroups were compared were statistically nonsignificant.

The frequency of myofascial headache in the CMDs + Dissociation subgroup was about 9/65=13,8%; 5/37=13,5% in the CMDs no Dissociation subgroup and 5/18=27,7% in the No CMDs no Dissociation subgroup. Fisher' s exact test: CMDs + Dissociation versus CMDs no Dissociation subgroup (p=1,000, a statistically nonsignificant difference); CMDs + Dissociation subgroup versus no CMDs no Dissociation subgroup (p=0,17, a statistically nonsignificant difference); CMDs no Dissociation subgroup versus No CMDs no Dissociation subgroup (p=0,26, a statistically nonsignificant difference).

In those subjects with headache, the frequency of migraine was about 6/65=9,2% in the CMDs + Dissociation subgroup; 2/37=5,4% in the CMDs no Dissociation subgroup, and 1/18=5,5% in the No CMDs no Dissociation subgroup. Fisher' s exact test: CMDs + Dissociation versus CMDs no Dissociation (p=0,70); CMDs + Dissociation versus No CMDs no Dissociation (p=1,000) and CMDs no Dissociation versus No CMDs no Dissociation (p=1,000).

VI. Discussion

The frequency of headache was very highand equivalent when the subgroups CMDs + Dissociation and CMDs no Dissociation were compared. On the otherhand, the frequencies of headaches in both groups were higher and the difference was statistically significant whentheywere compared to the frequency in the control no CMDs no Dissociation subgroup. Headache was detected very frequently in the subgroup with CMDs and dissociation. The fact that the subgroup with CMDs no dissociation demonstrated a high frequency of headache does not mean that they had no psychiatric disorders. Thus, the outcome in the current investigation concurs with one

investigation[8] correlating headaches with psychiatric complaints reporting that there is an association between headache and psychiatric disorders. Further, one investigation[9] in adolescents complaining of headaches reported that they demonstrated higher scores in the dissociative scale for adolescents when compared to the normal controls. Chronic pain including headache may be associated with dissociative symptoms and they are important for pain physicians regarding diagnosis and treatment[10]. Because there was a very high prevalence of headaches in the subgroup of CMDs and dissociation subjects, this outcome is in accordance with one investigation reporting that "psychiatric disorders are observed very frequently among headache patients who present fortreatment[11]. According to one investigation[12], there is a close association between somatization and dissociationand a headache disorder may be a manifestation of somatization or dissociation.

The reason for a high frequency of headache in the No CMDs no Dissociation subgroup is that such subgroup was not a pure control one. Even though subjects in such a subgroup did not demonstrate characteristics of CMDs, they were referred for consultation for a dental or medical complain. It is very likely that many subjects in this subgroup presented with high scores in somatization which in some way is associated with headache. Headache was reported very frequently in the CMDs and Dissociation subgroup. Thus, this outcome is in line with a previous investigation[13] evaluating a subgroup of 50 subjects with multiple personalities indicating that most patients were females presenting with depression, history of childhood trauma and headaches.

TTH was the most common headache type in the CMDs + Dissociation, CMDs no Dissociation and No CMDs no Dissociation subgroups. This outcome indicates that CMDs individuals presenting with dissociation are no different from other dysfunctional subgroups regarding their type of headache. Because TTH was the most common headache type in the CMDs and Dissociation subgroup, and dissociation is usually associated with severe psychological trauma in childhood, the outcome in the current investigation is congruent with one study[14] indicating that childhood trauma may directly or indirectly cause TTH.Even though Coons and associates [13] did not report the type of headache in a series of 50 patients with dissociation, he reported a frequency of 50% headache, a figure which is very similar to the 50,7% TTH found in the current investigation. Patients presenting characteristics of dissociation usually demonstrate higher scores in somatization and depression in their psychopathology. Because the frequency of TTH was very high in the subgroup demonstrating signs and symptoms of CMDs and dissociation, this outcome is also in line with one investigation[15] reporting that headache and conflicts identifying and feeling emotions are the most common presentations of somatization and they are strongly associated with recurrent headache. In the current investigation, CMDs and Dissociative Disorder patients were characterized by the presence of CMDs signs and symptoms, depression, somatization, and high frequency of TTH. Thus, this outcome is supported to a certain extent by one investigation[16]evaluating characteristics of male sufferers of chronic TTH reporting that depression was closely associated with chronic TTH. Dissociation is a chroniccomplex psychiatric disorder characterized by disorders of memory, consciousness, and emotions. The subgroup demonstrating characteristics of dissociation and signs and symptoms of CMDs, presented with high prevalence of headaches in which TTH occurred very frequently. Because dissociation is a severe psychiatric disorder, the outcome in the current study is strongly supported by one study[17] indicating that psychiatric disorders may play an important role in the TTH prevalence rates and psychological functioning. The subgroup demonstrating CMDs, dissociation and TTH in the current study may be characterized as presenting higher scores in depression, somatization, and anger suppression. Thus, these considerations are in line with one study[18] on thepsychological mechanisms of TTH indicating that TTH individuals demonstrate higher scores in depression, somatization and suppression of anger. As mentioned before, CMDs and dissociation individualsare characterized by the presence of alternated personalities, depression, and somatization. Thus, this line of evidence isaccordance with one investigation[19]in TTH and migraine patients, indicating that TTH subjects in the experimental subgroup demonstrated higher scores in anxiety and depression. One previous study[20]] evaluated CMDs and BB subjects regarding frequency of headaches. Because researchers reported a high frequency of TTH, such outcome is also congruent with findings in the current investigation.

Although the frequency of occipital neuralgia (ON)was low and equivalent in the CMDs + Dissociation and CMDs No dissociation subgroups, this headache type was not observed inthe Control No CMDs No Dissociation subgroup. Even though it has been reported that multiple factors including anatomic disorders may contribute to the development of signs and symptoms of ON, it may be that biomechanical factors associated to excessive cervical tension, compression, pressure, poor posture predominate in CMDs, and dissociative disorder patients as compared to individuals without such disorders. These considerations are congruent with one investigation[21]] asserting that ON develops due to entrapment of the nerves in the trapezius and semispinalis capitis muscles, irritation due to recurrent muscle spasm and entrapment of nerves. Further, compression or tension on the greater and lesser occipital nerves by the posterior cervical muscles and their fascial attachments at the occipital ridge may cause local perineural inflammation andpain[22]. ON attacks are induced by neck movements, digital pressure over myofascial trigger points in the proximities of the occipital neve and/ or the C2 area. Additionally, abnormal position of the head or neck, poor posture of the head at work, any exertion that causes strain on the neck during work or driving a car, holding the head in an abnormal or forced position may

lead to an ON attack[23]. Additional support for the previous considerations comes from another investigation indicating that a neuralgia may be caused by compression and/or irritation of peripheral nerve structures, for instance, the greater and/or lesser occipital nerves by chronically contracted cervical muscles[24]. ON is a multiple cause disorder induced by anatomical factors including compression irritation and pinching of nerve structures in the cervical area[25]. Potential causes of irritation, damage and pain may be vascular, neurogenic, muscular, tendinous and osteogenic[26].Pain from ON frequently has a neuromuscular origin being described as "a tight band around the head, prolonged neck flexion, poor habitual static postures, trauma, prolonged postural and functional strain" [27].

VII. Conclusion

Headache types observed in subjects with CMDs and dissociation in the current study were not different from those headache types observed in populations of CMDs and/or orofacial pain patients. TTH, myofascial headache, ON and migraine were the most common headaches in such population. Headache types reported in the current study are very similar to those observed in other psychiatric and nonpsychiatric populations.TTH was the most common headache type found in CMD and dissociation subjects. More studies using similar criteria, methods, and populations with and without dissociation should be undertaken so as to replicate findings reported in the current study.

Table 1: Social and demographic data in CMDs + Dissociation subgroup (n=73), CMDs no Dissociation subgroup (n=42) and No CMDs no Dissociation subgroup (n=37).

	CMDs+ Dissociation=73	CMDs No Dissociation=42	NoCMDs No Dissociation=37
AGE			
Mean	31,3	32,4	32,2*
SD	12,5	11,4	14,6
Range	14—57	17—55	16--73
GENRE			
Females	67=91,8%	39=92,9%	28=75,7%
Males	6 =8,2%	3 =7,1%	9 =24,3
Totals	73=100%	42=100%	37=100%

*Kruskal-Wallis statistics (p=0,75), a statistically nonsignificant difference.

Table 2: Frequency of headache and headache types in the CMDs + Dissociation (n=73); CMDs no Dissociation (n=42); and No CMDs no Dissociation (n=37) subgroups.

Headache Frequency	CMDs + Dissociation=73	CMDs no Dissociation=42	No CMDs no Dissociation=37
With Headache	65/73=89%	37/42=88%	18/37=48,6*
Without headache	8/73 =11%	5/42 =12%	19/37=51,4%
Totals	73 =100%	42 =100%	37 =100%
Headache Types			
TTH	33/65=50,7%	21/37=56,8%	9/18=50%**
ON	12/65=18,5%	6/37 =16,2%	0/18=0% ***
Myofascial Headache	9/65 =13,8%	5/37 =13,5%	5/18=27,7%****
Migraine	6/65 =9,2%	2/37 =5,4%	1/18=5,5%*****
Other Headaches	5/65 =7,7%	3/37 =8,1%	3/18=16,7%
Totals	65 =100%	37 =100%	18 =100%

*Fisher' s exact test: CMDs + Dissociation subgroup versus CMDs no dissociation subgroup (p=1,000); CMDs + Dissociation subgroup versus No CMDs no Dissociation subgroup (p<0,0001); CMDs No Dissociation subgroup versus No CMDs no Dissociation subgroup (p<0,0002).

Chi-squared for trends p<0,0001: There was a positive and statistically significant trend for a higher prevalence of headache from the less dysfunctional subgroup (No CMDs no Dissociation) to the most dysfunctional one (CMDs + Dissociation)).

** The frequency of TTH in these three groups was very similar thus, no statistical test was used.

*** Fisher's exact test: CMDs + Dissociation subgroup versus CMDs no Dissociation subgroup (p=1,000); CMDs + Dissociation subgroup versus No CMDs no Dissociation subgroup (p=0,06); CMDs No Dissociation subgroup versus No CMDs no Dissociation subgroup (p=0,16).

**** Fisher' s exact test: CMDs + Dissociation subgroup versus CMDs No Dissociation subgroup (p=1,000); CMDs + Dissociation subgroup versus No CMDs no Dissociation subgroup (p=0,17); CMDs no dissociation subgroup versus No CMDs no Dissociation subgroup (p=0,26).

***** Fisher' s exact test: CMDs + Dissociation subgroup versus CMDs no Dissociation subgroup (p=0,7); CMDs + Dissociation subgroup versus No CMDs no Dissociation subgroup (p=1,000); CMDs No Dissociation subgroup versus no CMDs no Dissociation subgroup (p=1,000).

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