

Original Article

Alexithymia and Anger in Patients with Bruxism

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Abstract

Background: Bruxism is a common disorder that is frequently seen and related to psychiatric factors.

Objective: The aim of this study was to compare the levels of alexithymia and anger at individuals with bruxism against healthy volunteers and investigate the relationship with socio-demographic parameters.

Methodology: This study a case-control study where 59 of them with bruxism and 60 are healthy control group who accepted to participate in the study and applied to the psychiatry polyclinic and tooth diseases polyclinic of a university hospital. Data collected sociodemographic form, Buss-Perry Aggression Questionnaire (BPAQ) and Toronto Alexithymia Scale (TAS-20) in company with a clinician.

Results: There was a statistically significant differences between TAS-20 total scale score average (52.91 ± 9.09) of the group of individuals with bruxism and TAS-20 total scale score average (47.88 ± 9.81) of the control group. There was no statistically significant difference between BPAQ total scale score average (42.39 ± 15.65) of the group of individuals with bruxism and BPAQ total scale score average (37.68 ± 15.85) of the control group.

Conclusions: There was a statistically positive relationship between BPAQ and TAS-20 scale scores. It was shown that the patients with bruxism are highly alexithymic and there is a significant positive relationship between alexithymia and anger levels.

Key Words: Alexithymia; anger; bruxism; patients.

Introduction

Bruxism is considered as a frequent somatic disorder which is identified by the increased abnormal activity caused by particular high-pressure jaw movements manifested by grinding or/and clenching of the teeth and characterised with an ache that lowers the quality of patient's life (Clark & Ram 2007). The rate of incidence is 8% (5-10%) in adult population. It is stated that bruxism is monitored three-nine times higher in women compared to men in some publications as well as some publications states that there is no gender difference. It is indicated that occurrence of the disorder is more frequent in young individuals and decreases with age (Bader & Lavigne 2000).

Alexithymia represents difficulty at the recognition of feelings, identification of them and discernment between physical and emotional sensations. The relationship between alexithymia and psychosomatic or psychopathologic disorders are well defined (Carpenter & Addis 2000). Alexithymia, as a personal character, was initially defined as a status which is peculiar to psychosomatic disorders (Sifneos 1973, Taylor et al. 1997). Individuals with high alexithymia scores are not able to differentiate between psychological alertness and their affections. Increased levels of psychological alertness status makes contribution to the existing disorder by causing problems at processing of emotions (Kauhanen et al. 1994). This situation may include difficulty in identification and expression

of emotions in addition to excessive occupation with corporal symptoms and exogenous variables (Taylor et al. 1997).

Anger and suppressed hostility are defined as very substantial factors in somatisation development (Koh 2003). Studies show that patients with chronic pain experience anger but have a low opinion than necessary due to their denial against the pain (Sayar et al. 2004). It is found that patients with chronic pain have higher scores for suppressed anger or/and hostility related with increased pain and ability loss compared with healthy control group (Sayar et al. 2003). Suppression of intense anger causes development of chronic pain, introverted anger scores are found to be higher in comparison with healthy individuals (Sayar et al. 2003, Sayar et al. 2004). It is stated that alexithymia may cause somatisation due to its character of unrecognisable emotions and difficulty of oral expressions in addition to the fact that it may also be the resource of anger related with unrecognised emotions (Sifneos 1973, Koh 2003).

The aim of this study was to compare the levels of alexithymia and anger at patients with bruxism against healthy individuals and investigate the relationship with socio-demographic parameters.

Methods

Universe and sample of the study: This study was designed as a case-control study and includes 119 volunteers where 59 of them diagnosed with bruxism and 60 are healthy individuals of control group who accepted to participate in the study and applied to the psychiatry polyclinic and tooth diseases polyclinic of a university hospital. The ethics committee approval for this study was received from the medical faculty ethics committee commission of the related university. Volunteers who participated in this study were informed at the beginning about the aim, description and details of the study, it was explained that they have the right to reject to participate in the study or to end the interview at any point. None of the volunteers have decided to reject to participate in the study. Individuals who are under 18 or over 65, patients with chronic disease, mental deficiency, alcohol or substance addiction, neurologic disorder, pregnant and patients who got psychiatric and neurologic treatment in the last 6 months are excluded from the study. The clinical diagnosis of bruxism was made by using

the selection criterion and clinical diagnosis as suggested by Rugh and Harlan (1988) and Thorpy (1990). Volunteers who suffer from teeth grinding for at least 6 months and more than 3 nights a week and the ones with approved teeth grinding sound by other family members were included in the study. Additionally, it was considered during patient selection that whether they have tread wear with fatigue at masseter, sensibility, ache and/or masseteric muscle hypertrophy or not. The individuals between ages of 18-65 who are the visitors of acute inpatient services of Research and Application Hospital of the university, who have orally expressed that not having bruxism diagnosis and showing similar socio-demographic properties with the patient group that match the selection criteria for this study were included in the control group. A written informed consent was obtained from each participant. The study protocol was approved by the institutional Ethics Committee. The study was conducted in accordance with the principles of the Declaration of Helsinki.

Data collection tools: All participants were administered socio-demographic data form, Buss-Perry Aggression Questionnaire (BPAQ) and Toronto Alexithymia Scale (TAS-20) in company with a clinician.

Socio-Demographic Data Form: It was composed of questions that examining age, gender, education level, marital status and economical level of the patients together with their duration of disorder and psychiatric background of their families.

Buss-Perry Aggression Questionnaire (BPAQ): This scale which was adapted from the Buss-Durke Hostility Scale in 1992 by Buss and Perry is a five point Likert type scale and is composed of 29 questions. Physical aggression sub-scale includes questions of number 13, 8, 2, 11, 25, 16, 29, 22, 23, verbal aggression sub-scale includes questions of number 27, 6, 21, 14, 4, hostility sub-scale includes questions of number 20, 24, 3, 26, 10, 15, 7, 17 and anger sub-scale includes questions of number 19, 28, 1, 18, 9, 23, 12 in the scale. The rating system for the scale which has not a cutoff score was suggested as ≤ 29 : very low, 30-39: low, 40-44: low intermediate, 45-55: intermediate, 56-59: high intermediate, 60-69: high, ≥ 70 : very high (Buss & Perry 1992). Validity and confidence tests of the scale in Turkey was performed by Can in 2002. BPAQ total Cronbach alpha was determined as 0.95, it varies between 0.85 and 0.76 at sub-scales (Can 2002).

Toronto Alexithymia Scale (TAS-20): It is the scale used for the assessment of alexithymia which is described as difficulty at the recognition of emotions of oneself. It is 20-question Likert-type self assessment scale which has scores between 1-5. Cutoff score of the scale is 61. The three sub-scales of TAS-20 are defined as TAS-A: Difficulty In Recognition Of Emotions, TAS-B: Difficulty In Verbal Expression Of Emotions and TAS-C: Extrovert Thinking. The individuals held responsible for choosing the most accurate answer from the options as “Never”, “Rarely”, “Sometimes”, “Usually” ve “Always” for each question. High scores show the alexithymic level. It was designed by Bagby and friends (Bagby et al. 1994). Validity and confidence tests of the scale in Turkey was performed by Gulec and friends. TAS total Cronbach alpha was determined as 0.78, it varies between 0.80 and 0.57 at sub-scales (Gulec et al. 2009).

Statistical analysis: Data were analysed using SPSS Windows 21.0 (Statistical Package for the Social Sciences) pocket programme. Statistical assessment of the data made using definitive statistical methods (average, standard deviation, frequency). Independent Sample t test was used for the comparison of quantitative data which indicate a normal distribution and Pearson Chi-Square test was used for the comparison of qualitative data of the two groups. Pearson correlation analyses was used to investigate the relationship between BPAQ and TAS-20 scale scores. p values of <0.01 and <0.05 were considered statistically significant.

Results

There was no statistically significant differences in demographic parameters between the participant groups ($p > 0.05$, Table 1). There was no statistically significant differences ($\chi^2 = 6.205$, $p = 0.102$) between age average (29.06 ± 8.51) of the group of individuals with bruxism and age average (26.46 ± 8.25) of the control group. There were no statistically significant differences ($t = 1.817$, $p = 0.072$) between BPAQ total scale score average of the group of individuals with bruxism (42.39 ± 15.65) and BPAQ total scale score average of the control group (37.68 ± 15.85). There was also no statistically

meaningful difference between BPAQ sub-scale score average of the group of individuals with bruxism and BPAQ sub-scale score average of the control group ($p > 0.05$).

There was a statistically significant differences between TAS-20 total scale score average of the group of individuals with bruxism (52.91 ± 9.09) and TAS-20 total scale score average of the control group (47.88 ± 9.81) was successfully determined ($t = 2.901$, $p = 0.004$). There was a statistically significant difference ($t = 2.509$, $p = 0.013$) between TAS-A score average of the group of individuals with bruxism (16.84 ± 5.61) and TAS-A score average of the control group (14.38 ± 5.09). There was no statistically significant difference ($t = 1.422$, $p = 0.158$) that could be determined between TAS-C score average of the group of individuals with bruxism (22.00 ± 4.12) and TAS-C score average of the control group (20.95 ± 3.93). There was a statistically significant difference ($t = 2.235$, $p = 0.027$) between TAS-B score average of the group of individuals with bruxism (14.08 ± 3.64) and TAS-B score average of the control group (12.55 ± 3.83).

Statistical significant and positive correlation were obtained between BPAQ and TAS-20 results ($r = 0.319$, $p = 0.001$).

It was found that 14 individuals (23.7%) in the group of individuals with bruxism and 8 individuals (13.3%) in the control group were alexithymic when the number of alexithymic individuals of groups investigated. It was detected that there were 1,8-fold more alexithymic individuals in the group of individuals with bruxism compared to the control group.

A statistically meaningful difference at BPAQ total scores, physical assault sub-scale scores, oral assault sub-scale scores and anger sub-scale scores was not detected between alexithymic and non-alexithymic individuals of both groups when BPAQ scores of alexithymic individuals compared ($p > 0.05$). There was a statistically significant and positive correlation ($t = -2.118$, $p = 0.038$) at the BPAQ hostility sub-scale score for alexithymic individuals of the control group (Table 5).

Table 1. Comparison of informative properties of groups

Socio-Demographic Parameters	Patients with Bruxism(n=59)		Control Group (n=60)		Total (n=119)		Degree of Importance
	n	%	n	%	n	%	
	Gender						
Female	36	61.0	33	55.0	69	58.0	$X^2 = 0.442$
Male	23	39.0	27	45.0	50	42.0	P= 0.506
Marital Status							
Single	33	55.9	38	63.3	71	59.7	$X^2 = 0.677$
Married	26	41.1	22	36.7	48	40.3	P= 0.411
Education Level							
Primary School	8	13.6	10	16.7	18	15.1	$X^2 = 4.791$
High School	12	20.3	4	6.7	16	13.4	P= 0.091
University	39	66.1	46	76.7	85	71.4	
Level Of Income							
Low	29	49.2	41	68.3	70	58.8	$X^2 = 4.519$
Intermediate	11	18.6	7	11.7	18	15.1	P= 0.104
High	19	32.2	12	20.0	31	26.1	
Previous Psychiatric Treatment							
Yes	16	27.1	16	26.7	32	26.9	$X^2 = 0.003$
No	43	72.9	44	73.3	87	73.1	P= 0.956
Psychiatric Disorder History In Patient's Family							
Yes	15	24.4	7	11.7	22	18.5	$X^2 = 3.736$
No	44	74.6	53	88.3	97	81.5	P= 0.053

Table 2. Comparison of the score points of groups and other parameters

Parameters	Patients with	Control Group	t *	p
	Bruxism (n=59)	(n=60)		
	Mean ± SD	Mean ± SD		
Age	29.06±8.51	26.46±8.25	6.205	0.102
BPAQ Scores				
BPAQ Total Score	42.39±15.65	37.68±15.85	1.817	0.072
Physical Assault	9.86±5.41	8.66±6.30	1.111	0.269
Oral Assault	8.91±4.31	7.76±3.76	1.548	0.124
Anger	11.94±4.63	11.21±4.84	0.842	0.401
Hostility	12.20±6.07	10.33±6.40	1.894	0.061
TAS-20 Scores				
TAS-20 Total Score	52.91±9.09	47.88±9.81	2.901	0.004
TAS-A	16.84±5.61	14.38±5.09	2.509	0.013
TAS-B	14.08±3.64	12.55±3.83	2.235	0.027
TAS-C	22.00±4.12	20.95±3.93	1.422	0.158

*Independent Sample t Test, BPAQ: Buss-Perry Aggression Questionnaire, TAS-20: Toronto Alexithymia Scale-20, TAS-A: Difficulty In Recognition Of Emotions, TAS-B: Difficulty In Verbal Expression Of Emotions, TAS-C: Extrovert Thinking

Table 3. Comparison of scales

	TAS-20
BPAQ	r= 0.319
	p= 0.001*

r= Pearson Correlation, p<0.05*, BPAQ: Buss-Perry Aggression Questionnaire, TAS-20: Toronto Alexithymia Scale-20,

Table 4. Numbers and percentages of alexithymic individuals of groups

TAS-20 Score	Patients with		Control Group (n=60)		Total	
	Bruxism (n=59)				(n=119)	
	Number	%	Number	%	Number	%
<61	45	76.3	52	86.7	97	81.5
≥61	14	23.7	8	13.3	22	18.5

TAÖ-20: Toronto Alexithymia Scale-20,

Table 5. Comparison of scale scores of groups according to alexithymia existence

Parameters	Alexithymia Existence	Patients with		Control Group	
		Bruxism(n=59)	t*/p	(n=60)	t*/p
		Mean± SD		Mean ± SD	
Physical Assault	<i>Existent</i>	11.71±6.70	-1.478*	9.37±5.18	-0.339*
	<i>Non-Existent</i>	9.28±4.89	0.145	8.55±6.49	0.736
Oral Assault	<i>Existent</i>	8.14±4.53	0.764*	8.00±4.62	-0.187*
	<i>Non-Existent</i>	9.15±4.26	0.448	7.73±3.36	0.852
Anger	<i>Existent</i>	13.21±4.67	-1.173*	13.37±4.62	-1.364*
	<i>Non-Existent</i>	11.55±4.60	0.246	10.88±4.83	0.178
Hostility	<i>Existent</i>	14.57±4.68	-1.169*	14.37±5.82	-2.118*
	<i>Non-Existent</i>	11.46±6.31	0.095	9.36±6.28	0.038
BPAQ Score	<i>Existent</i>	47.64±14.87	-1.297*	45.12±15.84	-1.139*
	<i>Non-Existent</i>	41.46±15.76	0.200	36.53±15.69	0.156

*Independent Sample t Test, BPAQ: Buss-Perry Aggression Questionnaire,**Discussion**

This study was conducted in order to detect the relationship of bruxism with alexithymia which is an indicator for the regulation of an affectivity in individuals and anger that is one of the results of this regulation disorder.

A statistically significant difference between TAS-20 total scale score average of the group of individuals with bruxism (52.91±9.09) and TAS-20 total scale score average of the control group (47.88±9.81) was successfully determined (t=2.901, p=0.004) in this study. Additionally, a statistically significant difference was detected

between TAS-A and TAS-B score averages of the group of individuals with bruxism and TAS-A and TAS-B score averages of the control group. It was detected that there were 1,8-fold more alexithymic individuals in the group of individuals with bruxism compared to the control group. A previous study emphasizes that the rate of psychiatric diagnoses which accompany bruxism was 66-76% and most of those psychiatric diagnoses were anxiety ongoing with a dull depression intensively, atypical depression, somatoform disorder and hypochondriasis cases (Miyachi et al. 2007). Several researcher stated that the rate of incidence for alexithymia was widespread in psychosomatic disorders group (Bastiaans 1977, Freyberger 1977). Bogutyn and friends (1999) expressed that somatic symptoms are the most frequently seen complaint reasons for the patients with alexithymia. It was emphasized in previous studies that patients who somatize their problems in the same manner with bruxism are not able to express their emotions orally due to fixations on developmental periods, usage of pathological defence mechanisms, subliminal conflicts and traumatic experiences at early life phases (Bogutyn et al. 1999, Greenberg & O'Neill 1988). The literature studies above are presenting a supportive manner for this study although they are not directly investigating the relationship between bruxism and alexithymia up to the present. The findings of our study give rise to thought that alexithymia can be a factor for the development of bruxism.

It can be seen in this study that BPAQ score average degree of the individuals with bruxism (40-44: low intermediate) is higher compared to BPAQ score average degree of the control group (30-39: low) although a statistically meaningful difference could not be determined between BPAQ total scale score average of the group of individuals with bruxism (42.39 ± 15.65) and BPAQ total scale score average of the control group (37.68 ± 15.85). It is well known that stress and anxiety promote grinding or/and clenching of the teeth by increasing muscle strain and affect bruxism negatively (Grzesiak 2002). Some studies in literature stated that patients who suffer from bruxism are more aggressive, anxious, hyperactive and in a self-punishing behaviour against frustration (Pavone 1985, Pierce et al. 1995). It was detected in the studies related with psychological factors in bruxism that there was a strong relevance between bruxism

and anxiety, hostility and hyperactivity (Miyachi et al. 2007). Bayar and friends (2012) found that SCL-90-R anger sub-scale score of patients with bruxism was statistically meaningful and higher than that of the control group by using Symptom Checklist-90-Revised (SCL-90-R) with 85 patients in their study.

A statistically meaningful and positively related difference was revealed when BPAQ and TAS-20 scale scores of the group of patients and control group compared with each other. It was stated in the literature that alexithymic individuals experience further anger, confront more problems at verbal expression of anger and express their anger in a non-verbal manner due to this problem (Berenbaum & Irvin 1996). It was found in the study of Demet and friends that alexithymic individuals manifest significantly more anger and hostility compared with non-alexithymics (Demet et al. 2002). The correlation of the hostility part of anger expression styles with the emotional dimension of alexithymia by demonstrating a similar pattern is an important finding which is expectable for psychosomatic disorders (Koh 2003). The positive correlation of anger scores with sub-scores and total score of alexithymia indicates that alexithymia has a regulatory role at anger management of those patients. Literature studies and this correlation have a supportive quality for our study in which the relation between alexithymia and anger was anticipated.

There are some limitations in our study such as the minority of sample size, absence of a previous study related with alexithymia-bruxism connection and application of clinical diagnosis instead of polysomnographic recording for bruxism diagnosis.

Conclusions: Consequently, it was detected that factors such as age, gender, education level and marital status do not interact with alexithymia and anger when the relation of clinical variables and demographic data with each other investigated in both of the two groups. It has been determined that the patients with bruxism are highly alexithymic and there is a meaningful relationship with a positive correlation between alexithymia and anger levels. A psychiatric examination is suggested for the patients with bruxism who diagnosed in different clinics in terms of the diagnosis of a possible psychiatric situation.

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