

Original Article

The Relationship between Bruxism in Children and the Psychosocial Status of their Parents

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Background : Bruxism is a disorder characterized by abnormal tooth wear due to grinding, which harms children. The leading cause of Bruxism is unknown; however, children often do it in stressful situations.

Aims and Objectives : This study aimed to investigate the relationship between Bruxism in children aged 4-10 years and the Psychosocial status of their parents.

Methods: A total of 200 children aged 4 to 10 years referred to the paediatric ward of Ahvaz Dental School together with their parents (either mother or father) were randomly selected to complete the questionnaires and entered into the present cross-sectional study. The researchers used DASS21 and Rozenberg questionnaires to collect data. They performed Statistical analysis using Chi-square, t-test and SPSS 20.

Results : The mean scores of depression, anxiety and stress in parents of children with Bruxism were significantly higher than in parents with a healthy child ($P < 0.001$). Also, there was a statistically significant relationship between the degree of Depression, Anxiety and Stress of parents and the incidence of bruxism in children ($P < 0.001$). There was no significant relationship between parents' education level and the incidence of bruxism in children. In contrast, parents' employment status can significantly play a role in the incidence of Bruxism in their children ($P = 0.01$).

Conclusion : Considering the relationship between parents' psychosocial status and children with Bruxism disorder, it seems necessary to provide educational programs and counseling to parents in this field.

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Key words : Bruxism, Children, Psychosocial Status.

Oral habits such as bruxism (tooth grinding) are a kind of dental disorders in children under ten years old¹. Bruxism is characterized by abnormal tooth wear resulting from grinding and clenching of the jaw muscles. Bruxism multiplies harm to oral health by damaging oral tissues². Bruxism may be caused by Genetic, Physiological, Environmental and Psychological conditions. The latest studies rejected the theory that occlusal interactions can cause Bruxism³. Kato and Rompre⁴ reported the role of autonomic nerves in people's jaws with Bruxism using electroencephalogram measurements. Vanderas and Manetas⁵ reported that catecholamine levels in urine and the incidence of Bruxism in children were directly related to their stress levels. Stress and anxiety can cause both types of Bruxism; however, depression is associated only with awake Bruxism⁶. One of the reasons for stress in children is the psychological condition of their parents. Studies show that mental

Editor's Comment :

- The level of Depression, Anxiety and Stress in parents of children with bruxism were significantly higher than those with healthy children.
- In contrast, the mean self-esteem score was lower in parents of children with bruxism.
- Due to the impact of poor psychosocial status of parents on the incidence of bruxism in their children, it seems necessary to provide educational programs by dental and mental health professionals to parents.

disorders in parents can directly cause mental disorders in their children^{7,8}. Accordingly, the poor mental state of the parents can develop Bruxism in children. Thus, the present study aimed to investigate the relationship between bruxism in children aged 4-10 years referred to the paediatric ward of Ahvaz Dental School with psychosocial issues of their parents.

MATERIALS AND METHODS

Participants :

The Research Ethics Committee approved this cross-sectional study of Ahvaz Jundishapur University of Medical Sciences. Among the children referred from other general or specialist dentists or they had come for treatment or check-ups themselves to the dental school during one year, 597 were eligible for the study.

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Inclusion Criteria :

The inclusion criteria in the study were clinically healthy children aged between 4 to 10 (This group is the most referred to the faculty) with or without Bruxism. One of the reasons for bruxism is toothache and periapical infection. Concerning the aim of study, we excluded cases with disorders such as caries in dentin, children with systemic diseases or parasitic disease, history of trauma, dental pain, extensive stage caries (distinct cavitation exposing visible dentin)⁸, having prosthetic or orthodontic appliance which causes functional movements of the Mandible, Allergic Rhinitis, Sleep Obstructive Apnea, Malocclusion, Mental Retardation, Autism or Cerebral Palsy; taking medications that may affect the muscular activity such as antihistamin, anxiolytic, homeopathic or medications with suppressive effect on the Central Nervous System, uncooperative behavior, undergoing orthodontic treatment, otorhinolaryngological treatment or speech therapy and reluctance of parents to complete the questionnaire.

Instrumental and self-reported evaluation of Bruxism are primary tools in Bruxism studies and clinical practice^{9,10}.

According to the parents' reports, 135 of the eligible participants in the study had Bruxism, 100 of them completed the questionnaire so, children were randomly selected as the control group (n=100).

Data were collected using DASS21 and Rozenberg questionnaires. To evaluate the validity of the study content, questionnaires were distributed among 9 Assistant professors and Bruxism experts at Pedodontics Department of Jundishapur Dental School.

Parents filled out questionnaires being guided by a final year psychology student (who was not part of the research team) to complete it correctly. He helped them during this process.

Research Tools :

Researchers have used The DASS21 and Rozenberg questionnaires to measure Depression, Anxiety, Stress and Self-esteem, respectively. The DASS 21 questionnaire includes 21 questions for three components of depression, anxiety and stress with 7 questions each component asks. The final scores are obtained through the sum of the scores. A score of zero (is not applied to me at all) to 3 (is applied to me) was considered for each question. Lovibond and Lovibond¹¹ reported a 77% validity of the DASS-21 questionnaire. The reliability of the questionnaire by alpha-Cronbach was 0.89, 0.84 and

0.82 for Depression, Anxiety and Stress, respectively. The self-esteem questionnaire consists of 10 four-scale (strongly agree, agree, disagree and strongly disagree) questions (min= 10, max= 40) In previous studies⁷, Cronbach's alpha coefficient for the Rosenberg questionnaire was 0.74. In the present study, Cronbach's alpha coefficient for DASS21 and Rozenberg questionnaires were 0.80 and 0.77, respectively, which indicates their appropriate reliability.

Statistical Analysis :

The data collected in this study were analyzed by SPSS 20 using Chi-square, t-test, and logistic regression. The mean scores of Depression, Anxiety, Stress and self-esteem were compared between parents of children with Bruxism and those with healthy children using t-test. Chi-square test was used to investigate the relationship between parents' psychosocial status and the incidence of Bruxism in their children. Significance level of comparisons was considered to be $P < 0.05$.

RESULTS

Table 1 displays the demographic characteristics of the participants and suggests that 100 (50%) of children had bruxism, 50% of the children were female, 58% of parents were women (mothers),

Table 1 — Demographic characteristics of the participants		
Variable	N	%
Child's		
Bruxism disorder		
Bruxism- Yes	100	50.0
Bruxism- No	100	50.0
Gender		
Female	100	50.0
Male	100	50.0
Age (years)		
4-6	52	26.0
6-8	93	46.5
8-12	55	27.5
Parent's		
Gender		
Female	116	58.0
Male	84	42.0
Age (years)		
<25	27	13.5
25-35	121	60.5
>35	52	26.0
Levels of education		
Middle school or high school	19	9.5
Diploma and an associate's degree	86	43.0
Bachelor's degree or higher	65	32.5
Master's degree or higher	30	15.0
Employment status		
Employed	108	54.0
Unemployed	92	46.0

60.5% of the parents were 25 to 35 years old, 54% of the parents of the children in the study were unemployed.

Table 2 shows the results from comparing the mean scores of depression, anxiety, stress and self-esteem between parents of children with Bruxism and those with healthy children based on t-test are.

Its shows that the mean scores of Depression, Anxiety and Stress in parents of children with Bruxism were significantly higher than those with healthy children ($P < 0.001$). The mean score of self-esteem in parents of a child with Bruxism was significantly lower than those with a healthy child ($P < 0.001$, Table 2).

The results of the relationship between parents' psychosocial status and Bruxism disorders in children based on the Chi-square test are presented in Table 3. It shows that 3%, 35% and 12% of parents of a child with Bruxism and 88% and 2%, parents with a healthy child had normal and severe depression, respectively. There was a statistically significant relationship between the level of parental depression and the child with Bruxism disorder ($P < 0.001$). Besides it shows that 29% and 28% of parents with children with bruxism and 66% and 2% of parents with healthy child had normal and very severe anxiety, respectively. Therefore, there was a statistically significant relationship between the level of parental anxiety and Bruxism in their children ($P < 0.001$). Also, 45% of parents with a child with Bruxism and 89% of parents with a healthy child had normal stress, respectively. Further, 13% of parents with a child with bruxism were in a very severe state of stress, while this rate was zero in the parents of a healthy child. There was a statistically significant relationship between parent's stress status and incidence of Bruxism in their children ($P < 0.001$).

The present study showed that 37% of parents with a child with Bruxism and 7% of parents with a healthy child had low self-esteem, respectively. There was a significant relationship between parents' self-esteem status and incidence of Bruxism in children ($P < 0.001$). The results showed that there is no significant relationship between parents' education level and incidence of Bruxism in their children ($P > 0.05$). On the other hand, parents' employment status can significantly affect the incidence of Bruxism in their children ($P = 0.01$). Accordingly, 63% of parents of children with bruxism were unemployed, compared to 45% of parents with a healthy child. The logistic regression analysis results of the variables that cause Bruxism in children are shown in Table 4. Beta value of parents' self-esteem and stress scores is significantly higher than other variables ($P < 0.05$, Table 4).

Table 2 — The comparison of Depression, Anxiety, Stress and Self-esteem Scores in Parents of Children with Bruxism and Parents of Healthy Children

	Parents of children with bruxism	Parents of healthy children	P-value
Psychological disorder score			
Depression	15.0 ± 10.3	5.28 ± 5.06	0.0001
Anxiety	12.7 ± 8.25	5.46 ± 4.50	0.0001
Stress	18.5 ± 11.3	7.80 ± 6.31	0.0001
Self-esteem score	18.1 ± 5.89	22.8 ± 4.05	0.0001

Values are means ± SD

Table 3 — Association between Parent's Psychosocial Status and Bruxism Disorders in Children

Variable	Children		P-Value
	Bruxism - Yes	Bruxism - No	
Psychological status of parents			
Levels of Depression			
Normal	35.0	88.0	0.0001
Mild	14.0	10.0	
Moderate	21.0	0.00	
Extreme	18.0	0.00	
Severe	12.0	2.00	
Levels of Anxiety			
Normal	29.0	66.0	0.0001
Mild	9.00	22.0	
Moderate	24.0	10.0	
Extreme	10.0	0.00	
Severe	28.0	2.00	
Levels of Stress			
Normal	45.0	89.0	0.0001
Mild	10.0	4.00	
Moderate	15.0	3.00	
Extreme	17.0	4.00	
Severe	13.0	0.00	
Self-esteem status			
Low	37.0	7.00	0.0001
Medium	49.0	69.0	
High	14.0	24.0	
Social status of parents			
<i>Levels of parental education</i>			
Middle school or high school	6.00	16.0	0.146
Diploma and an associate's degree	50.0	36.0	
'Bachelor's degree or higher	30.0	35.0	
'Master's degree or higher	14.0	16.0	
<i>Employment status</i>			
Employed	37.0	55.0	0.011
Unemployed	63.0	45.0	

Values are percentage (%)

DISCUSSION

The mean scores of depression, anxiety and stress in parents of children with bruxism were significantly higher than those with healthy children. In contrast, the mean self-esteem score was lower in parents of children with Bruxism. Moreover, there was a significant relationship between the level of Depression, Stress and Anxiety of parents and the incidence of bruxism in children. Thus, the poor

Table 4 — Multivariate Logistic Regression Analysis for Predicting Bruxism among Children

Variable (predictors)	B	SE	Df	Sig.	Exp(B)
Levels of parental education	-0.031	0.116	1	0.791	0.970
Employment status of parents	0.651	0.367	1	0.076	1.918
Self-esteem score of parents	0.143	0.044	1	0.001	1.154
Psychological score of parents					
Depression	-0.075	0.041	1	0.066	0.927
Anxiety	0.018	0.053	1	0.739	1.018
Stress	-0.092	0.038	1	0.015	0.912

mental state of the parents can develop Bruxism in children. Previous studies have shown that parents with psychological symptoms can transmit these symptoms and emotions to their children through learning patterns. Thus, the resultant anxiety and stress in the child can lead to the emergence of behavioral disorders such as Bruxism^{7,12,13}. Studies show that maternal depression increases the risk of behavioral disorders and anxiety in children¹⁴⁻¹⁶.

On the other hand, behavioral disorders and potential emotional problems and mental disorders (such as stress and depression) in children are directly related to the development of Bruxism^{1,9}. Studies reported a strong correlation between the level of anxiety and stress and behavioral disorders in children with Bruxism^{9,17,18}. In general, mental disorders in children are appears as the etiopathogenesis of parafunctional functions such as bruxism, nail biting, finger sucking habits and sleep disorders¹⁹. El la, *et al*, found a statistically significant association between bruxism and stress ($p < 0.001$), with or without craniofacial dystonia and without identification of the bruxism type²⁰. Therefore, according to the results of previous and present studies, mental disorders in parents cause stress and anxiety in children resulting in Bruxism²¹. Goettems, *et al*²² reported that the prevalence of Bruxism was higher in children of mothers with symptoms of anxiety and depression which is consistent with the results of this study. Seow, *et al*²³ also reported a correlation between the degree of Depression and Anxiety in mothers with the severity of children's oral diseases.

Sampaio, *et al*²⁴ did not find a relationship between stress of mothers and the incidence of Bruxism in their children, which is inconsistent with the results of the present study. Genetic factors can develop Bruxism in children whose parents have stress and anxiety⁴. The present study showed no statistically significant relationship between the level of education of parents and the incidence of Bruxism, which is consistent with the results of the study of Serra-Negra *et al*²⁵. Laberge, *et al*²⁶ reported no association

between parents' socio-demographic variables and the incidence of Parasomnias disorder in children. In contrast, Cheifetz, *et al*²⁷ reported that most children with bruxism have parents with low levels of education, either father or mother (without a college degree). Socio-economic and cultural characteristics may be associated with the occurrence of SB. On the other hand, Tsitadze, *et al*²⁹ stated that this disorder are

common among children from families with a better socioeconomic status, which may be related to the higher number of daily duties and demands by children than children from a poor level. The difference between both studies arise from different nature of the studied societies²⁴.

There was a statistically significant relationship between parent's occupational status and incidence of Bruxism in their children, so parents of children with this disorder were mostly unemployed. Serra-Negra, *et al*²⁵ reported that fathers of children with Bruxism are low-income. In fact, the economic inability of parents to meet the needs of the child and the financial worries of parents as a stressful situation can develop Bruxism in their children²⁷. Regarding the relationship between parents' occupations and children with bruxism, Seraj, *et al*²⁸ reported that higher levels of social awareness among employee fathers rather than farming fathers made their children less prone to Bruxism. In contrast, Halvani, *et al*²⁹ reported that children with employed mothers had a higher rate of Bruxism rather than housewife mothers, which may be due to spending more time on children's emotional welfare.

CONCLUSION

The present study shows that the mean scores of depression, anxiety and stress in parents of children with Bruxism were significantly higher than those with healthy children. In contrast, the mean self-esteem score was lower in parents of children with Bruxism. Although no statistically significant relationship was found between parents' education level and the incidence of bruxism, the prevalence of bruxism was higher in children with unemployed parents. Due to the impact of poor psychosocial status of parents on the incidence of Bruxism in their children, it seems necessary to provide educational programs by dental and mental health professionals to parents.

The potential limitations in the present study include coronavirus pandemic, decreased clients, shortage of Bruxism parameters and improper diagnosis of Bruxism in children. Also, because

sampling was done based on questions from parents, it was possible to lose some samples.

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Conflict of interests : Authors have no conflict of interest to declare.

Ethics : The Research Ethics Committee approved this descriptive-survey research of Ahwaz Jundishapur University of Medical Sciences

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