Knowledge of Parents about Bruxism in their Children

Conocimiento de los padres sobre el bruxismo en sus hijos

Secil Calıskan DDS, PhD[1]; Ebru Delikan DDS, MDs[2]; Ayse Ozcan-Kucuk DDS, MDs[3]

1. Department of Pediatric Dentistry, Faculty of Dentistry, Osmangazi University, Eskişehir, Turkey.
2. Department of Pediatric Dentistry, Faculty of Dentistry, Nuh Naci Yazgan University, 38100, Kayseri, Turkey.
3. Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Mersin University, 33343, Mersin, Turkey.

Correspondence to: Dr. Ayse Ozcan-Kucuk - ayseozcan89@hotmail.com

Received: 1-VII-2019 Accepted: 5-VIII-2019 Published Online First: 20-VIII-2019

DOI:

ABSTRACT

Objective: Bruxism is a jaw muscle activity disorder characterized by clenching or grinding of the teeth and can be seen in both children and adults. The purpose of this study is to evaluate the parental knowledge about bruxism in children. Methods: A cross-sectional study was conducted with 265 parents whose children were attended at University of Mersin pediatric dentistry and oral and maxillofacial surgery clinics. Children's ages varied from 6 months to 16 years old. A 20-questioned questionnaire was used to collect the data. IBM SPSS Statistics 22 for statistical analysis (SPSS IBM, Turkey) program was used for the analysis. Results: A total of 265 parents (159 were female and 106 were male) participated in the study. The majority of the parents were between the ages of 31-40 (60.8%). The rate of clenching and grinding of teeth during sleep (21.5%) was higher than the rate when they were awake (7.2%). The ratio of the parents seeking treatment for their children because of this harmful habit was very low (3.8%). The majortiy of parents (37.7%) reported that they seek help from dentists. The participants believed that bruxism was associated with dental problems (33.6%) and emotional factors (32.8%). A significant difference was found between the educational background of the parents and the ability to define bruxism. Conclusion: Parents had inadequate knowledge about bruxism in children and this was mostly related to the educational background of the parents.

KEYWORDS

Bruxism; Parents; Knowledge; Awareness; Child; Surveys; Questionnaires.

RESUMEN

Objetivo: El bruxismo es un trastorno de la actividad muscular de la mandíbula que se caracteriza por apretar o rechinar los dientes y se pueden ver tanto en niños como en adultos. El propósito de este estudio es evaluar el conocimiento de los padres sobre el bruxismo en sus niños. Métodos: se realizó un estudio transversal con 265 padres cuyos hijos fueron atendidos en las clínicas de Odontología Pediátrica y Cirugía Oral y Maxilofacial de la Universidad de Mersin. Las edades de los niños variaron de 6 meses a 16 años. Se utilizó un cuestionario de 20 preguntas para recopilar los datos. Para el análisis estadístico de los datos se utilizó el programa IBM SPSS Statistics 22 (SPSS IBM, Turquía). Resultados: Un total de 265 padres (159 mujeres y 106 hombres) participaron en el estudio. La mayoría de los padres tenían entre 31 y 40 años (60.8%). La tasa de niños que aprietan y rechinan los dientes durante el sueño (21.5%) fue mayor que la tasa de los que lo hacen cuando están despiertos (7,2%). La proporción de padres que buscan tratamiento para sus hijos debido a este hábito dañino fue muy baja (3.8%). La mayoría de los padres (37.7%) informaron que buscan ayuda de los dentistas. Los participantes creían que el bruxismo estaba asociado con problemas dentales (33,6%) y factores emocionales (32,8%). Se encontró una diferencia significativa entre la formación académica de los padres y la capacidad de definir bruxismo. Conclusión: Los padres tenían un conocimiento inadecuado sobre el bruxismo en niños y esto estaba relacionado principalmente con la formación educativa de los padres.

PALABRAS CLAVE

Bruxismo; Padres; Conocimeinto; Conciencia; Niño; Encuestas; Cuestionarios.

INTRODUCTION

Bruxism is a jaw muscle activity disorder characterised by clenching or grinding of the teeth and can be seen in both children and adults (1,2). Unintentional teeth grinding and clenching during daytime is called “diurnal bruxism” or “daytime bruxism”, while its night time version is called “nocturnal bruxism” or “sleep bruxism” (3). Teeth grinding is usually observed during sleep, while clenching occurs when the person is awake and especially at tense, anxious, excited, or stressful times (2,4).

Contrary to functional behaviors such as chewing, swallowing, or speaking, jaw and tooth movements in bruxism are defined as parafunctional habits due to the absence of any functional purpose (5). Although bruxism is common in the community, the majority of individuals with this habit are generally unaware of their parafunction (6).

Generally, dentists worry about the harmful effects of bruxism on oral/perioral structures and the temporomandibular joint. For the diagnosis of this parafunction, detailed anamnesis and intra/extraoral examination are essential (7,8). In the past, bruxism was considered as a habit only seen in adults and consequently, almost all of the bruxism studies were done in these groups. However, it was later shown to be also common in children, even during the early childhood (9). Studies showed that the prevalence of nocturnal bruxism decreases with age (10,11).

The bruxism is more common among children than adults, and the prevalence of bruxism in children ranges from 3.5% to 40.6% and it has no gender preference (12). Childhood bruxism may persist in adulthood (13). Early detection prevents the chewing system components from being damaged and promotes well-being and comfort (14). Therefore, it is very important for parents to

seek help when they suspect their children to exhibit tooth grinding and clenching (15).

It is challenging to assess and diagnose bruxism. Clinical signs and symptoms including pain, masticatory muscular hypertrophy, pain, temporomandibular joint disorders and headache can confirm bruxism diagnosis in adults. However, these signs and symptoms have not been established in pediatric populations (16). Therefore, parental reports is one of the most important parameters in the diagnosis of bruxism in the absence of quantitative data (eg, sleep recordings) (15,16), because teeth grinding results in characteristic sounds that are easily recognized by the family members (17). In studies conducted in USA and Brazil, the prevalence of sleep bruxism in children based on parental reports was reported to be 38% and 35.3%, respectively (18,19). In addition, some researchers have reported that keeping the room doors open increased the parents' reports of bruxism (18). Moreover, it is important for the parents to have the knowledge and to be aware of these parafunctional habit symptoms and to seek appropriate treatment in such cases. However, the number of studies evaluating family knowledge about bruxism of their children is quite small (17,20,21). To the best of the authors' knowledge, there is no study reporting data of parents knowledge about bruxism in their children in Turkey. Therefore, the purpose of this study was to evaluate the knowledge of parents about bruxism in their children at the pediatric dentistry and oral surgery clinics in the Faculty of Dentistry of the Mersin University, Mersin, Turkey.

MATERIALS AND METHODS

The study protocol was approved by the Clinical Research Ethics Committee of Mersin University (2018/90) and was performed in accordance with the Declaration of Helsinki. Parents who agreed to participate in the study answered the questionnaire individually after they were informed about its contents. Informed consent was obtained from all individual participants included in the study. This cross-sectional study was conducted on parents in the waiting room during their children's appointments recruited at both the pediatric dentistry and oral surgery clinics in the Faculty of Dentistry of the Mersin University, Mersin, Turkey, in the period of March to November 2018.

According to the power analysis, a total of 172 participants were found to be sufficient (power: 0.95, effect size: 0.3 and 5% standard error). Finally, 300 participants were included to the study to compensate possible dropouts. A flow diagram to describe the study process is presented in Figure 1. We conducted a pilot study with 20 parents to test the questionnaire which was modified from a questionnaire that was validated by Serra-Negra *et al* (13). The results of the pilot study demonstrated that there is no need to change the questionnaire and the participants of the pilot study were not included in the present study.

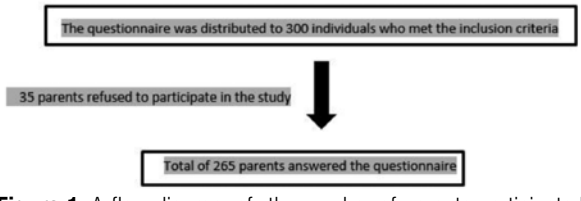

Figure 1. A flow diagram of the number of parents participated in the study.

Only the parent/caregiver who accompanied the child filled out the questionnaire. The questionnaire was given to the parents and they were asked to read and fill it. The inclusion criteria for parents were as follows: parents with children aged 6 months – 16 years, parents accompanying their children in the dental visit, parents with a child, parents agreed to participate in the survey. The exclusion criteria for patients were as follows:

non-literate parents, parents who refused to take the survey, guardians other than the parents.

In the 20-question questionnaire, 18 questions were closed-ended and 2 of them were open-ended. The first six questions were about the demographic data of parents and their children, while the questions 7-16 were related to awareness and attitude of parents about bruxism in their children, and the questions 17-20 were aimed to determine the bruxism knowledge of parents.

IBM SPSS Statistics 22 for statistical analysis (SPSS IBM, Turkey) program was used for the analysis. Chi-Square and Spearman correlation tests were used to compare the qualitative data as well as descriptive statistical methods (frequency). Statistical significance was $p<0.05$.

RESULTS

The questionnaire was distributed to 300 individuals who met the inclusion criteria and a total of 265 parents (159 were female and 106 were male) participated in the study and answered the questionnaire (88.33% participation rate). Most of those parents (60.8%) were between the ages of 31-40 and only 2.6% were over 51 years old. Information on educational backgrounds of the participants is shown in Table 1.

The age of the children ranged from 6 months to 16 years with a mean age of 8.15±2.71 years and the majority of the children were male (%54.7) (Table 1). Most of them were sleeping alone (66.4%) and for more than 8 hours a night (79.2%). Sleep patterns of only 6% of the children were defined as restless by their parents. The rates of children who were easily distressed or stressed/anxious were 40.8% and 35.8%, respectively (Table 2).

The rate of clenching and grinding of teeth during sleep (21.5%) was higher than the rate when they were awake (7.2%). Interestingly, the ratio of the parents seekied treatment for their children because of this harmful habit was very low (3.8%). It was observed that in case of bruxism, 37.7% of the parents would seek help from the dentist, 18.5% from a medical doctor and 11.3% from a psychologist. However, 32.1% of the parents stated that there was no need for treatment for teeth clenching and grinding (Table 2).

Most of the parents stated that bruxism was caused by dental problems and emotional factors (33.6% and 32.8%), and that tooth clenching and grinding would negatively impact the health of children (%77.4). On the other hand, only 8.3% of the parents were able to correctly define bruxism (Table 3).

There was a statistically significant difference between the educational background of the parents and the ability to define bruxism ($p<0.001$). The paired comparisons showed that the ratio of parents who defined bruxism correctly was significantly lower among primary school graduates (1%) compared to high school (15.7%) and university (13.8%) graduates (Table 4).

Table 1. Demographic characteristics of parents and their children.

Variables		**n**	**%**
Parent's gender	Female	159	60
	Male	106	40
Parent's age range (year)	20-30	39	14.7
	31-40	161	60.8
	41-50	58	21.9
	>51	7	2.6
Educational status of the parent	Primary School	103	38.9
	Middle School	34	12.8
	High School	70	26.4
	University	58	21.9
Child gender	Female	120	45.3
	Male	145	54.7
Child age		Mean±SD	Min-max
		8.15±2.71	6 months-16 years

SD: standart deviation, Min-max: minumum-maximum.

Table 2. Descriptive analysis of the variables reported by parents about their children.

Variables		n	%
Total night sleep time	Less than 8 hours	51	19.2
	8 and more than 8 hours	210	79.2
	Not known	4	1.5
Type of sleep	Restless	16	6
	Normal	248	93.6
	Not known	1	0.4
Sleeps alone	Yes	176	66.4
	No	89	33.6
Child state of being easly irritated	Yes	108	40.8
	No	145	54.7
	Not known	12	4.5
Child state of being stressed or worried	Yes	95	35.8
	No	158	59.6
	Not known	12	4.5
Nocturnal bruxism status of child	Yes	57	21.5
	No	181	68.3
	Not known	27	10.2
Diurnal bruxism status of child	Yes	19	7.2
	No	233	87.9
	Not known	13	4.9
Parent bruxism status	Yes	47	17.7
	No	211	79.6
	Not known	7	2.6
Parent's request for help about child's bruxism	Yes	10	3.8
	No	255	96.2
Person requested help from	Medical doctor	49	18.5
	Dentist	100	37.7
	Psychologist	30	11.3
	Other	1	0.4
	No need for treatment	85	32.1

Table 3. Causes of child's bruxism reported by parents.

Variables			**n**	**%**
Cause of bruxism	Emotional factors	Yes	87	32.8
		No	46	17.4
		Not known	132	49.8
	Dental problems	Yes	89	33.6
		No	42	15.8
		Not known	134	50.6
	Parasites	Yes	39	14.7
		No	56	21.1
	Neurological problems	Yes	41	15.5
		No	50	18.9
		Not known	174	65.7
	Mystical / religious influences	Yes	13	4.9
		No	101	38.1
		Not known	151	57
	Medical problems	Yes	42	15.8
		No	68	25.7
		Not known	155	58.5
The effect of bruxism on the health of the child		Yes	205	77.4
		No	60	22.6
What the bruxism is		Correct	22	8.3
		Not correct	243	91.7

Table 4. The comparison of the parental bruxism knowledge and educational status.

	Bruxism defined by parents	
	Correct	**Wrong**
Educational Status of the Parents	n (%)	n (%)
Primary School	1 (%1)	102 (%99)
Middle School	2 (%5.9)	32 (%94.1)
High School	11 (%15.7)	59 (%84.3)
University	8 (%13.8)	50 (%86.2)
p	0.000*	

DISCUSSION

Bruxism is a parafunctional habit that has increased in children in recent years and can also be transferred from childhood to adulthood (13). If diagnosed and treated early, the damage of teeth, temporomandibular joint, and chewing muscles can be prevented (14). Children with bruxism, especially children with nocturnal bruxism, are not aware of these habits (6, 22). Therefore, getting information from family members is an effective way for early diagnosis of this habit (15). In this study, we aimed to evaluate the parents' knowledge and awareness of bruxism in their children.

The rate of prevalence of nocturnal bruxism in children (21.5%), which was calculated based on the information obtained from parents participating in the present study, was consistent with the previous findings (17,23). However, in some studies, the prevalence of nocturnal bruxism was found to be higher (19,20,24,25). The difference between these studies may be explained by the application of different methodologies and/or the differences between the age groups of the patients.

The data obtained from the parents through the questionnaire are subjective and may be affected by memory biases (6). The audio and video recordings performed through the night, measurement of chewing muscle activity by electromyography (EMG) and polysomnographic (PSG) recordings provide more definitive results in the evaluation of bruxism (26). But these are expensive and time-consuming techniques for children. For this reason, in epidemiological studies, the option is to use information obtained from parents according to World Helath organizaiton (WHO) guidelines (27).

In the study by Serra Negra *et al.* (20), 95% of the parents defined bruxism correctly, while in the study by Tavares Silva *et al.* (17), only 38.1% of the parents provided a correct definition for bruxism. In contrast to the previous studies, the rate of correct definition of bruxism was found to be 8.3% in the present study. Authors believed that the reason for the low rate of identification of bruxism in this study was due to the difference in educational background of the parents. In this study, majority of the parents were primary school graduates and the rate of the parents with primary school graduates that were able to correctly define bruxism were significantly lower than those of high school and university graduates. This is the first study to compare the relationship between parents' education levels and the correct definition of bruxism.

Being informed about bruxism and early recognition of the symptoms may help parents to seek treatment which can enable prevention of the development of more important problems in children. In the current study, the rate of the parents who seek treatment for bruxism in children was very low (3.8%). However, in such condition, it was determined that they would mostly consult dentists. In a previous study, it was reported that 10.4% of the parents whose children exhibited teeth clenching and grinding would seek treatment from a dentist, 0.7% from a medical doctor and 0.7% from a psychologist (17). Another study suggested that parents seek help for bruxism more from medical doctors (54.1%) and religious/mystical authorities (26.8%), and less from dentists (19.1%) (20). Authors think that the reason for the high rate of parents seeking treatment from a dentist in this study is due to the fact that the study was conducted in the faculty of dentistry.

Bruxism, which has multifactorial etiology, has been found to be associated with metabolic causes, psychosocial effects or environmental factors (6). In a study in which parents' knowledge about bruxism in children was investigated, parents believed bruxism to be caused by emotional factors (63.8%), religious/mystical influences (20.4%), and dental problems (10.4%) (20). In the study by

Tavares Silva *et al.* (17), the most common cause of bruxism in children according to the parents was the emotional factors, and to a lesser extent religious/mystical effects. In the present study, the most common causes of bruxism according to the parents were dental problems (33.6%) and emotional factors (32.8%). Differences among the parents' cultural backgrounds, education and beliefs may affect the results of different studies. In addition, the fact of the study being conducted in the dental school may lead to the high rate of selection of dental problems as the etiological factor in this study.

There were several limitations in this study. First, this survey-based study results were subjective and might be affected by memory biases. Second, questionnaire did not include questions about whether parents sleep in the same room with their children, if they were staying in separate bedrooms whether the rooms were close to each other, whether the children's room door was open or how often parents checked their sleeping children. Another potential limitation of this study was that children were not clinically examined for symptoms of bruxism such as attrition, temporomandibular joint problems and tenderness in the chewing muscles. Therefore, further studies involving multiple observers and EMG or PSG records are needed to overcome these limitations.

CONCLUSION

Parents play an important role in the diagnosis of bruxism in their children by recognizing the sounds that occur during grinding of teeth. More parental knowledge and awareness about these symptoms would enable seeking appropriate treatment. In this study, it was observed that some parents had inadequate knowledge about bruxism in children and this was mostly related to the educational background of the parents.

REFERENCES

1. Buysse D. J., Young T., Edinger J. D., Carroll J., Kotagal S. Clinicians' use of the International Classification of Sleep Disorders: results of a national survey. Sleep. 2003; 26 (1): 48-51.
2. Katayoun E., Sima F., Naser V., Anahita D. Study of the relationship of psychosocial disorders to bruxism in adolescents. J Indian Soc Pedod Prev Dent. 2008; 26 (Suppl 3): 91-7.
3. Lobbezoo F., Ahlberg J., Raphael K. G., Wetselaar P., Glaros A. G., Kato T., Santiago V., Winocur E., De Laat A., De Leeuw R., Koyano K., Lavigne G. J., Svensson P., Manfredini D. Assessment of bruxism: the international consensus revisited. J Oral Rehabil. 2018;45(11):837-844.
4. Bader G., Lavigne G. Sleep bruxism; an overview of an oromandibular sleep movement disorder. Review article. Sleep Med Rev. 2000; 4 (1): 27-43.
5. Ahlberg J., Rantala M., Savolainen A., Suvinen T., Nissinen M., Sarna S., Lindholm H., Könönen M. Reported bruxism and stress experience. Community Dent Oral Epidemiol. 2002; 30 (6): 405-408.
6. Shetty S., Pitti V., Satish Babu C. L., Surendra Kumar G. P., Deepthi BC. Bruxism: a literature review. J Indian Prosthodont Soc. 2010; 10 (3): 141-8.
7. Glaros A. G. Incidence of diurnal and nocturnal bruxism. J Prosthet Dent. 1981; 45 (5): 545-9.
8. Emodi-Perlman A., Eli I., Friedman-Rubin P., Goldsmith C., Reiter S., Winocur E. Bruxism, oral parafunctions, anamnestic and clinical findings of temporomandibular disorders in children. J Oral Rehabil. 2012; 39 (2): 126-35.
9. Hachmann A., Martins E. A., Araujo F. B., Nunes R. Efficacy of the nocturnal bite plate

in the control of bruxism for 3 to 5 year old children. J Clin Pediatr Dent. 1999; 24 (1): 9-15.
10. Ohayon M. M., Li K. K., Guilleminault C. Risk factors for sleep bruxism in the general population. Chest. 2001; 119 (1): 53-61.
11. Carlsson G. E., Egermark I., Magnusson T. Predictors of bruxism, other oral parafunctions, and tooth wear over a 20-year follow-up period. J Orofac Pain. 2003; 17 (1): 50-7.
12. Reis L. O., Ribeiro R. A., Martins C. C., Devito K. L. Association between bruxism and temporomandibular disorders in children: A systematic review and meta-analysis. Int J Paediatr Dent. 2019 Mar 19. doi: 10.1111/ipd.12496. (Article in Press)
13. Serra-Negra J. M., Ramos-Jorge M. L., Flores-Mendoza C. E., Paiva S. M., Pordeus I. A. Influence of psychosocial factors on the development of sleep bruxism among children. Int J Paediatr Dent. 2009;19 (5): 309-17.
14. Diniz M. B. S. R., Zuanon A. C. Bruxismo na infancia: um sinal de alerta para odontopediatras e pediatras. Rev Pauli Pediatr. 2009; 27: 329-34.
15. Koyano K., Tsukiyama Y., Ichiki R., Kuwata T. Assessment of bruxism in the clinic. J Oral Rehabil. 2008; 35 (7): 495-508.
16. Huynh N. T., Desplats E., Bellerive A. Sleep bruxism in children: sleep studies correlate poorly with parental reports. Sleep Med 2016; 19: 63-68.
17. Tavares Silva C., Calabrio I. R., Serra-Negra J. M., Fonseca-Goncalves A., Maia L. C. Knowledge of parents/guardians about nocturnal bruxism in children and adolescents. Cranio. 2017; 35 (4): 223-7.
18. Cheifetz A.T., Osganian S. K., Allred E. N., Needleman H. L. Prevalence of bruxism and associated correlates in children as reported by parents. J Dent Child 2005; 72 (2): 67-73.
19. Serra-Negra J. M., Paiva S. M., Seabra A. P., Dorella C., Lemos B. F., Pordeus I. A. Prevalence of sleep bruxism in a group of Brazilian schoolchildren. Eur Arch Paediatr Dent. 2010; 11 (4): 192-195.
20. Serra-Negra J. M., Tirsa-Costa D., Guimaraes F. H., Paiva S. M., Pordeus I. A. Evaluation of parents/guardian knowledge about the bruxism of their children: Family knowledge of bruxism. J Indian Soc Pedod Prev Dent. 2013; 31 (3): 153-8.
21. Duarte J., Serra-Negra J. M., Ferreira F. M., Paiva S. M., Fraiz F. C. Agreement between two different approaches to assess parent-reported sleep bruxism in children. Sleep Sci. 2017; 10 (2): 73-77.
22. Vanderas A. P., Manetas K. J. Relationship between malocclusion and bruxism in children and adolescents: a review. Pediatr Dent. 1995; 17 (1): 7-12.
23. Tachibana M., Kato T., Kato-Nishimura K., Matsuzawa S., Mohri I., Taniike M. Associations of sleep bruxism with age, sleep apnea, and daytime problematic behaviors in children. Oral Dis. 2016;22(6):557-65.
24. 24. Soares KA, Melo RM, Gomes MC, Perazzo MF, Granville-Garcia AF, Menezes VA. Prevalence and factors associated to bruxism in preschool children. Journal of Public Health. 2016; 24 (3): 209-14.
25. Clementino M. A., Siqueira M. B., Serra-Negra J. M., Paiva S. M., Granville-Garcia A. F. The prevalence of sleep bruxism and associated factors in children: a report by parents. Eur Arch Paediatr Dent. 2017; 18 (6): 399-404.
26. Lobbezoo F., van der Zaag J., van Selms M. K., Hamburger H. L., Naeije M. Principles for the management of bruxism. J Oral Rehabil. 2008; 35 (7): 509-23.
27. Bonita R., Beaglehole R., Kjellström T. Basic epidemiology. Geneva: World Health Organization; 2006.