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## Knowledge, attitude and practices regarding bruxism and its management in general population of western India: a questionnaire study

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### Abstract

**Introduction:** Bruxism refers to repetitive clenching/grinding of teeth that may lead to occlusal trauma. Symptoms of bruxism include abnormal tooth wear, neck pain, jaw pain, failure of dental restorations, etc. A key challenge of bruxism is that it is harder to diagnose since many people are unaware of it. The aim of the study was to assess the knowledge, attitude and awareness regarding bruxism and its treatment among general population.

**Materials and Methods:** A study was conducted in general population of Western India with three months study duration. The data was collected by a structured, self-administered and pre-tested questionnaire and analyzed. The questionnaire consisted of 29 questions along with demographic details like age, gender, occupation of the participants.

**Results:** In the present study, 80% of the participants were familiar with the term bruxism, out of which only 73.7% know the correct meaning of it. The results of this study show that less individuals are aware about the treatment of bruxism.

**Conclusion:** The general population of Western Indian region had average knowledge regarding bruxism and poor knowledge about its treatment.

**Keywords:** Bruxism, Clenching, Etiology, Dental Management, Sleep Bruxism

### 1. Introduction

Bruxism can be described as repetitive muscle activity characterized by clenching or grinding of teeth [1]. It is a detrimental motor activity which may be a potential risk factor for oral hard tissue and dental restorations. According to glossary of prosthodontics term (GPT 8) bruxism is defined as parafunctional grinding of teeth or an oral habit consists of involuntary rhythmic or grinding, clenching of teeth in any other chewing movements of the mandible which may lead to occlusal trauma [2]. Several classifications of bruxism has been proposed based on different criteria. However, the two main types of bruxism are sleep bruxism (nocturnal bruxism) and awake bruxism (diurnal bruxism). The exact etiology of bruxism is still not clear and may be multifactorial in nature. Stress and psychological factors are known to influence bruxism in some cases. Bruxism can only be diagnosed clinically when unaware. The most common clinical symptom of bruxism is abnormal wear of teeth (attrition) [3]. Other symptoms include jaw pain after waking up, tooth fracture, hypersensitivity of teeth, temporomandibular disorders, failure of dental restorations, headache, pain in the neck, etc. Some parafunctional activities that may occur along with bruxism are cheek biting, [4] indentations of teeth on the tongue, burning sensation of tongue, etc [5]. The treatment plan depends on the symptoms and its severity. Most commonly used appliance for prevention is occlusal night guard. It helps to prevent the condition from worsening further. Other treatment may include management of stress and anxiety, drugs, physical therapy, dental restorations, etc. This condition is of great importance to the dentist because of the damage to tooth, failure of dental restorations, temporomandibular disorders and other symptoms like facial pain. There were several studies related to bruxism, but studies related to bruxism and its treatment plan were limited in Western India. Therefore the purpose of this present study was to create awareness regarding

bruxism and its treatment amongst the general population of Western India especially in those people who are unaware.

### Materials and Methods

A questionnaire study was conducted among the general population of western India. The study aimed to assess the knowledge, attitude and awareness of the general population regarding bruxism. The participants were selected based on the following inclusion criteria: a) age group ranging from 18 to 65 years and above, b) individuals who were willing to participate at the time of the study, c) residents of western India. However, individuals with edentulous jaws and physically or mentally challenged were excluded from this study. The input parameter for sample size calculation using G\*power software version 3.1.9.2 as follows: 80% power of the study, alpha error 0.05, effective size 0.5 and degree of freedom 5. Calculated sample size was 144. Hence, the considered sample size for study population was 152. The convenient sampling technique was used in this study. The questionnaire was prepared in English language. The questionnaire was pre-tested and validated among 20 subjects to assess the knowledge, clarity and responsiveness. The reliability, statistics were calculated and the Cronbach Alpha value was 0.672. The Performa was designed to collect data and consisted of different sections with 29 questions regarding the knowledge, attitude and practice regarding Bruxism. Section one included the demographic data of the subjects such as name, age, gender, occupation, income, etc. The second section included questions related to knowledge of the participants and the third section was related to attitude whereas the final section included practice based questions. The questionnaire was designed on Google form (Google LLC, Mountain View, California United States) and the link was distributed among the study population via email, WhatsApp and other social media platform. The statistical analysis was done using descriptive statistics using statistical package for the social science (SPSS) 23.0 version software (IBM, Chicago, Illinois, United States). The p-value was set at 5%.

### Results

In table 1, a total of 152 individuals between the age of 18 to 60 years and above had participated in this study. Out of the 152 participants who volunteered in this questionnaire, 49.7% belonged to the age group of 18 to 25 years whereas the remaining 39.7% individuals belonged to 26 to 45 years age group. In table 2, 80% of the participants were familiar with the term 'bruxism', out of which only 73.7% individuals knew the correct meaning of the term. Awareness regarding the etiology of bruxism was reported in about 61.6% of the participants and around 57.2% participants had the accurate knowledge of the common symptoms associated with bruxism. Approximately 38.8% individuals were aware of the types of bruxism but very few participants were aware of the difference between awake and sleep bruxism. Knowledge regarding treatment options available for bruxism was reported in 34.8% of the individuals who participated in this study. In table 3, majority of the participants agreed that it is important to treat this condition. In table 4, 35.5% of the participants reported the habit of clenching/grinding their teeth consciously or unconsciously but only 21.7% of the participants knew that they suffer from diurnal bruxism which may be suggestive of lack of awareness of this habit. Headache was the most common symptom experienced constituting of 51.7% followed by neck pain. Moreover,

42.1% participants do not use any home remedies to overcome pain associated with this habit. In addition, 53.3% individuals believed that lifestyle modifications like regular dental check-ups, maintaining good oral hygiene can help treat this condition.

### Discussion

Various definitions of bruxism have been proposed. Regardless of the definition, etiology or symptoms it is mainly characterized by repetitive clenching or grinding of teeth and these patients are often referred to as bruxists. The etiology of bruxism is still unclear. Oral symptoms of bruxism include abnormal tooth wear, fractured teeth, damage to dental restorations and temporomandibular disorders. Together with oral consequences bruxism seems to be at least to some degree associated with alterations in psychological moods such as depression, anxiety through disturbances in the central neurotransmitter system. Diagnosis of bruxism can be accidental as most bruxers are unaware of their habit. At present, studies related to awareness regarding etiology, types and management of bruxism are limited in western part of India, although there are several studies being conducted worldwide.

According to the study conducted by Eswaran *et al.*, around 36% of the participants were well aware about bruxism [6]. On the contrary, this study revealed better results as 80% of the participants had awareness regarding the same. The study conducted by Lavigne G J *et al.* estimated 22% of the general population of Canada grind their teeth at night which matches with the results of the present study constituting of 21.7% participants who reported sleep bruxism [7]. In addition to this, 21.7% of the participants have also reported diurnal bruxism. The exact prevalence of bruxism is hard to determine as most population studies are usually based on self-reported questionnaires due to technical/cost constraints and also because most bruxers are usually unaware about their habit [8]. Around 61.6% of the participants believed that stress/anxiety is the most common cause of bruxism. This is similar to the findings of Ahlberg K *et al.* in which 56.6% of the employees working at Finnish Broadcasting Company also believed the same [9]. In the present study, 51.7% of the participants complained of headache as the most commonly experienced symptom. This contradicts the results found in the study conducted by Winocur E *et al.* where 46.6% individuals reported neck pain as the most common symptom [10]. Among the signs and symptoms of dysfunction used for diagnosis of bruxism, tooth wear (70.3%) and pain in masticatory muscles (44%) were most frequently reported by the study in Rio city, Brazil conducted by Pontes LDS *et al.* [11]

The treatment plan mainly depends on the severity of the symptoms and does not necessarily eliminate the cause. According to Eswaran *et al.*, only 56.7% of their study population believed that occlusal therapy and behavioural therapy can be used to treat bruxism [6]. On the contrary, the participants of the present study had less awareness about occlusal therapy used as a treatment option and 14.5% of them believed that management of stress is more effective in treating this condition. A positive attitude was seen among 53.3% of the participants towards incorporating lifestyle changes which can help reduce the symptoms associated with bruxism. The limitation of this study were the sample sizes are limited to the population of Western India and hence the results based on the used sample size cannot be generalized to the population of India, although it can certainly help the various parts of the country to enhance awareness regarding

bruxism and its treatment in the present times.

**Table 1:** Demographic data of the study population (N=152).

SR. NO	Demographic Data	Responses	Number N	Percentage%	Total N (%)
1	Age (years)	18-25	75	49.7%	152 (100%)
		26-45	60	39.7%	
		46-60	15	9.9%	
		Above 60	1	0.7%	
2	Gender	Male	60	39.4%	152 (100%)
		Female	92	60.5%	
3	Education	10 <sup>th</sup>	8	5.3%	152 (100%)
		12 <sup>th</sup>	13	8.7%	
		Graduate	102	68%	
		Others	29	18%	
4	Family income	Below 1 lac per annum	39	21.6%	152 (100%)
		1-5 lac per annum	64	44.4%	
		5-10 lac per annum	33	22.9%	
		Above 10 lac per annum	16	11.1%	

**Table 2:** Knowledge related responses of study participants (N=152)

SR. NO	Questions	Responses	Number	%	Total (N)
1	Do you know the term bruxism?	Yes	80	53%	152 (100%)
		No	54	35.8%	
		May be	18	11.3%	
2	What is bruxism?	Clenching and grinding of teeth consciously or unconsciously	112	73.7%	152 (100%)
		Bleeding gums	19	12.5%	
		Improper aligned teeth	11	7.2%	
		None of the above	10	6.6%	
3	What are the causes of bruxism?	Stress/anxiety, malocclusion Oral habits	93	61.6%	152 (100%)
		Accident, trauma	37	6.6%	
		By birth	12	7.3%	
		I don't know	10	24.5%	
4	What are the common symptoms of bruxism?	Facial/jaw pain, tooth wear, Sensitivity, jaw soreness	87	57.2%	152 (100%)
		Disrupted sleep	78	11.8%	
		Watering eyes	6	0	
		Drooling	10	6.6%	
		I don't know	31	20.4%	
5	What is normal average duration of sleep?	Less than 6 hours	17	11.2%	152 (100%)
		6-8 hours	118	77.6%	
		Other	4	0	
		I don't know	13	8.6%	
6	Which age group is more commonly affected by bruxism?	Children	40	26.3%	152 (100%)
		Adult	27	17.8%	
		Both	56	36.8%	
		I don't know	29	19.1%	
7	What oral habit can be contributing factor for bruxism?	Nail biting, chewing gum	52	34.2%	152 (100%)
		Eating sticky or hard food	25	16.4%	
		Improper oral hygiene	34	22.4%	
		I don't know	41	27%	
8	What type of pain do you think are associated with bruxism?	Face/jaw pain	104	68.4%	152 (100%)
		Stomach pain	9	0%	
		Body pain	11	7.2%	
		I don't know	28	18.4%	
9	How many types of bruxism are you aware of?	Awake bruxism	11	7.2%	152 (100%)
		Sleep bruxism	34	22.4%	
		Both	59	38.8%	
		I don't know	48	31.6%	
10	Do you know the difference between awake and sleep bruxism?	Yes	41	27%	152 (100%)
		No	50	32.9%	
		Maybe	29	19.1%	
		I don't know	32	21.1%	
11	If yes, which of the following differences are you aware of between sleep and awake bruxism?	Sleep bruxism-occurs unconsciously during sleep only	56	36.8%	152 (100%)
		Awake bruxism-occurs consciously			
		Sleep bruxism-teeth become loose or move when sleep	18	11.8%	
		Awake bruxism-teeth do not become loose			
		Both	24	15.8%	

		I don't know	54	35.5%	
12	Does jaw make clicking or popping sound while opening /closing the mouth or while chewing food in bruxism?	Yes	42	27.6%	152 (100%)
		No	29	19.1%	
		Maybe	39	25.7%	
		I don't know	42	27.6%	
13	Who can help treat bruxism?	Dentist	104	68.4%	152 (100%)
		At home/home remedy	16	10.5%	
		Gets cured on its own	13	8.6%	
		I don't know	19	12.5%	
14	Which of the following treatment plans are you aware of?	Occlusal therapy	6	3.95%	152 (100%)
		Drugs	11	7.2%	
		Management of stress, anxiety	22	14.5%	
		Physical therapy	16	10.5%	
		All of the above	53	34.9%	
15	What is most commonly used appliance for bruxism?	I don't know	44	28.9%	152 (100%)
		Night guard	28	18.5%	
		Occlusal splint	11	7.3%	
		Bite plate	18	11.9%	
		All of the above	34	22.5%	
		I don't know	61	39.7%	

**Table 3:** Attitude related responses of participants (N=152)

SR. NO	Questions	Responses	Number	%	Total (N)
1	Ear pain is also a symptom of bruxism.	Strongly Agree	18	11.8%	152 (100%)
		Agree	63	41.4%	
		Neutral	51	33.6%	
		Disagree	15	9.9%	
		Strongly disagree	5	0	
2	One can develop bruxism anytime during their life.	Strongly Agree	19	12.5%	152 (100%)
		Agree	70	46.1%	
		Neutral	42	27.6%	
		Disagree	17	11.2%	
		Strongly disagree	4	0	
3	It is important to treat this condition.	Strongly Agree	38	25%	152 (100%)
		Agree	67	44.1%	
		Neutral	34	22.4%	
		Disagree	10	6.6%	
		Strongly disagree	3	0	
4	Lifestyle changes can help treat/reduce symptom of bruxism.	Strongly Agree	22	14.5%	152 (100%)
		Agree	78	51.3%	
		Neutral	35	23%	
		Disagree	13	8.6%	
		Strongly disagree	4	0	
5	Have you been aware that you clench /grind your teeth when awake or asleep?	Yes	54	35.5%	152 (100%)
		No	49	32.2%	
		Maybe	29	19.1%	
		I don't know	20	13.2%	

**Table 4:** Practice related responses of study participants (N=152).

Sr. No	Questions	Responses	Number	%	Total (N)
1	Did someone tell or did you notice by yourself that you grind/clench your teeth when awake or sleep?	Myself	34	22.4%	152 (100%)
		Relative	26	17.1%	
		Other	32	21.1%	
		Not sure	60	39.5%	
2	Do you feel pain in your neck after waking up in the morning?	Yes	43	28.5%	152 (100%)
		No	68	45%	
		Maybe	21	13.9%	
		I don't know	20	12.6%	
3	Which symptom have you commonly experienced?	Headache	78	51.7%	152 (100%)
		Ear pain	20	13.2%	
		Neck pain	29	19.2%	
		Jaw pain/soreness/noises	25	15.9%	
4	When do you think you clench your teeth the most?	Daytime	29	19.1%	152 (100%)
		Night time	33	21.7%	
		Both	33	21.7%	
		I don't know	57	37.5%	

5	What remedies do you use to overcome pain caused by bruxism?	Hot water pack/warm water gargle	39	25.7%	152 (100%)
		Over the counter pain killer	21	13.8%	
		Jaw exercises	28	18.4%	
		None of the above	64	42.1%	
6	Do you use any tooth paste for relieving sensitivity of teeth?	Yes	68	44.7%	152 (100%)
		No	45	29.6%	
		Maybe	16	10.5%	
		I don't know	23	15.1%	
7	How will you describe your sleep schedule?	Take regular daytime naps	6	0%	152 (100%)
		6-7 hours sleep during the night daily	102	67.1%	
		Sleep more than 7 hrs in the night daily	28	18.4%	
		Less than 6 hrs of sleep daily	16	10.5%	
8	Which of the following lifestyle changes do you think will help?	Adequate sleep (6-7 hrs)	15	9.9%	152 (100%)
		Healthy diet	17	11.2%	
		Regular dental check-up	22	14.5%	
		Maintaining good oral hygiene	10	0%	
		All of the above	81	53.3%	
9	What activities do you perform to relieve stress?	None of the above	7	0%	152 (100%)
		Meditation	39	25.7%	
		exercise	23	15.1%	
		Listening to music	38	25%	
		Watching TV /online content	21	13.8%	
		Religious practise	20	13.2%	
	None of the above	11	7.2%		

### Conclusion

Although the current study concluded that majority of the population had fair knowledge about bruxism, very few were aware about its treatment. Since Bruxism can cause negative effects on oral health, more comprehensive awareness programs should be conducted on treatment options available for bruxism in India.

### Recommendation

1. The comprehensive awareness regarding bruxism and its treatment among the population needs to be increased through various awareness programs.
2. Periodic dental check-up followed by health education can improve attitude and practices of the general population regarding bruxism and its symptoms.

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