Bruxism Prevalence in a Selective Lebanese Population

Youssef S. Abou-Atme, DDS, MS* Marcello Melis, DMD, RPharm† Khalid H. Zawawi, BDS.§

Statement of the problem: In recent years, many Lebanese dentists reported an increase in night-time parafunctional activity of their patients.

Purpose of the study: To investigate night bruxism awareness in a selective Lebanese population.

Materials and Methods: 868 visitors of a shopping mall in the city of Beirut (Lebanon) were interviewed about their habit of clenching and grinding their teeth at night, and about their age and gender. Gender distribution was as follows: 530 females and 338 males, mean age was 34.9 (±11.6 SD) and 37.8 (±14.6 SD) respectively.

Results: Overall prevalence of bruxism was 35.8% for males and 32.6% for females with no statistically significant difference between the two groups. Bruxism was found to increase with age for both genders. Bruxism awareness per age and gender was as follows: <26 years (F: 24.1%; M: 19.4%), 26-35 years (F: 26.1%; M: 27.2%), 36-45 years (F: 41.1%; M: 41.6%), 46-55 years (F: 41.5%; M: 50%) and >55 years (F: 63.6%; M: 53.5%).

Conclusion: Night bruxism prevalence in this Lebanese group seems to be higher than in reported western studies and a deeper socio-economic investigation is needed. Future larger scale studies might be needed to confirm if bruxism awareness increases with age.

The American Academy of Orofacial Pain defines bruxism as a diurnal or nocturnal parafunctional activity including clenching, bracing, gnashing, and grinding of the teeth.\(^1\)

The prevalence of oral parafunction in the general population is very variable, different studies report different results also according to the method used to assess the pathology. Generally, awareness of bruxism ranges from 6% to 27.2%.\(^2,6\) but EMG nocturnal recordings during sleep show masticatory muscles activity in 100% of the subjects.\(^2\) The most common way of evaluating the presence of tooth grinding in dental patients is to look at dental wear, and data show that using such analysis we can find positive results in about 50% of them.\(^2\)

To date, what causes bruxism is not clear. Although many theories have been proposed none of them has proved a cause-and-effect relationship with the onset of oral parafunctions.

Occlusion has been anecdotally correlated to tooth grinding, yet clinical studies give controversial results.\(^7-13\) Interesting is the role of stress in determining increase of bruxism, in fact some studies show a clear temporal association between the two variables.\(^7,14\) but others fail to confirm such data.\(^15,16\)

A different issue is the presence of neurological disorders that can be associated with involuntary muscular movements involving the oral structures, such as extrapyramidal disorders,\(^17,19\) or chronic use of medications that can elicit bruxism as side effect: SSRIs,\(^20-24\) amphetamines,\(^25\) fenfluramine,\(^25,26\) L-dopa,\(^25,27\) phenothiazine,\(^25\) and other neuroleptics.\(^28\)

Damage to the oral structures caused by oral...
Parafunctions includes teeth (attrition, fractures), periodontium (tooth mobility, abrasions), temporomandibular joints (noises, pain, bone remodeling), and masticatory muscles (pain, fatigue, stiffness), that can be variably affected.

Since etiology of bruxism is unknown, treatment is designed to prevent its effects on the masticatory system. Use of occlusal appliances limits the damage to the teeth, periodontium, temporomandibular joints and the masticatory muscles; in addition to that, other procedures can be effective reducing overall parafunctions. Most reported are stress management, biofeedback modalities and eventually medications.

**PURPOSE OF THE STUDY**

The purpose of this study was to detect the prevalence of night bruxism awareness in shopping mall visitors in the Lebanese capital Beirut, exploring the relationship between bruxism and two factors: age and gender.

**MATERIALS AND METHODS**

During the summer of 2001, a total of 868 adult subjects among the visitors of a shopping mall in the city of Beirut (population 1.1 million) the capital of Lebanon (population 4.3 million mid 2001) were interviewed regarding their age and gender, as well as any habit of teeth clenching or grinding at night. Questions regarding oral parafunctions were the following:

1- Do you clench your teeth at night?
2- Do you wake up in the morning with your jaws braced together?
3- Were you told that you make noises with your teeth while asleep?

No effort was made to verify the data and to distinguish symptomatic from asymptomatic people. Two investigators in a shopping mall area, but without standardized randomization, recruited the subjects. Answering positively to one question was interpreted as presence of nocturnal oral parafunctions. The response rate was not recorded by the investigators.

**STATISTICAL ANALYSIS**

Subjects were divided by gender and grouped in four age categories for each gender. Age categories are similar to those used previously; i.e., less than 26 years, 26-35, 36-45, 46-55 and more than 55 years. Chi square ($\chi^2$) test was performed to study the relationship between gender and bruxism, and age and bruxism. The level of significance was accepted for $p<0.01$.

**RESULTS**

A total of 868 subjects participated in the study, 530 females and 338 males, mean age was 34.9 (±11.6 SD) and 37.8 (±14.6 SD) respectively. 294 (33.9%) reported being aware of night bruxism.

No significant association was found between gender and reported bruxism, $\chi^2_{df=1} = 0.4$, $p>0.1$, (35.8% for males and 32.6% for females). On the other hand, there was a significant association between age groups and bruxism, $\chi^2_{df=4} = 45.8$, $p<0.0001$.

Table 1 shows the distribution of Bruxism by age and gender.

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Gender</th>
<th>Bruxism</th>
<th>No Bruxism</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 26 years</td>
<td>Females</td>
<td>28 (24.1%)</td>
<td>88 (75.9%)</td>
<td>116</td>
</tr>
<tr>
<td></td>
<td>Males</td>
<td>14 (19.4%)</td>
<td>58 (80.6%)</td>
<td>72</td>
</tr>
<tr>
<td>26-35 years</td>
<td>Females</td>
<td>53 (26.1%)</td>
<td>150 (73.9%)</td>
<td>203</td>
</tr>
<tr>
<td></td>
<td>Males</td>
<td>25 (27.2%)</td>
<td>67 (72.8%)</td>
<td>92</td>
</tr>
<tr>
<td>36-45 years</td>
<td>Females</td>
<td>51 (41.1%)</td>
<td>73 (58.9%)</td>
<td>124</td>
</tr>
<tr>
<td></td>
<td>Males</td>
<td>32 (41.6%)</td>
<td>45 (58.4%)</td>
<td>77</td>
</tr>
<tr>
<td>46-55 years</td>
<td>Females</td>
<td>27 (41.5%)</td>
<td>38 (58.5%)</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>Males</td>
<td>27 (50.0%)</td>
<td>27 (50.0%)</td>
<td>54</td>
</tr>
<tr>
<td>&gt; 55 years</td>
<td>Females</td>
<td>14 (63.6%)</td>
<td>8 (36.4%)</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Males</td>
<td>23 (53.5%)</td>
<td>20 (46.5%)</td>
<td>43</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>294</td>
<td>574</td>
<td>868</td>
</tr>
</tbody>
</table>
DISCUSSION

In the population we examined 294 subjects reported nocturnal bruxism, which is 33.9% of the individuals. This result is higher than the percentages that are usually reported in the literature, even though the studies show very different values according probably to different populations examined and different ways to evaluate bruxism awareness. Prevalence ranges from 6 to 27.2%. The results are even more evident considering the fact that our questions were asked to detect only nocturnal parafunction, which usually occurs without the subjects being aware of it. We cannot exclude and we can even expect that adding to our results overall bruxism occurring day and night, or bruxism occurring during the day only, the percentage of people that reported parafunction would increase further.

The reason for this high percentage of individuals affected by night bruxism is unknown, but one might suspect the effect of the worsening socio-economical crisis in Lebanon at the time of the survey. We should say that our study was performed without any attempt to reach a population that was a representative sample of the entire Lebanese population: subjects were interviewed casually and we cannot exclude bias coming from involuntary selection of the individuals. The shopping mall itself where the subjects were recruited is geographically situated in the middle of Beirut, and is routinely visited by middle and high social and economical classes of shoppers. The actual study may be used as a pilot for future nation-wide bruxism surveys in Lebanon.

Referring to the theories on the etiology of bruxism we should say that we do not have elements to assess the factors eventually playing a role in the pathogenesis of bruxism in the population surveyed. We did not gain any information regarding occlusion, neurological diseases and medications, and psychological factors of the subjects we examined, because finding the cause of parafunction was not the purpose of the study. Yet, these conditions might have altered our results.

Based on the outcome of this study, gender seems not to make a difference in the overall awareness of nocturnal bruxism, and the same results were found by Glaros in a study where overall parafunctions where equal in men and women. On the other hand, age was found to correlate with bruxism: whether genders were combined or separate, bruxism awareness tended to increase with age (Table 1). This is the first time such age related parafunctional awareness is reported. It might be due to life experience, including an increase of responsibility with age, exposure to stressful events and pain experiences, along with increase of general health awareness because of great availability of new means of divulgation such as television, radio and internet. Life experience would also mean a great contribution from psychological factors in the etiopathogenesis of bruxism, but that is still controversial.

CONCLUSIONS

The present study seems to show a higher prevalence of nocturnal bruxism in the Lebanese population compared to other previous studies in western populations. Awareness of nocturnal parafunction was found to increase with age for both genders. This new finding should be investigated in future studies. Larger surveys are needed to find out the relationship between the Lebanese socio-economic situation and bruxism.

REFERENCES

Dr. Youssef Abou-Atme
Medawar St, Akar Bldg, Badaro,
Beirut, Lebanon 2058-7017
Email: youssef aa@yahoo.com
Phone: +961-3-853556 - +961-1-612761
Phone/Fax: +961-1-612762
E-Fax: +1-509-351-3240