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Survey of Bruxism and Effect on Teeth (Anbar Patient Samples)

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Abstract: Bruxism events can lead to several sequelae, including tooth wear, temporomandibular disorders, headaches, toothache, loose teeth, and problems with dental restorations and prostheses. Bruxism significantly affects the longevity and performance of prosthetic restorations on natural teeth, particularly fixed dental prostheses (FDPs). Material and methods: A survey observational study was carried out with 70 participants between 10 and 70 years of age from the University of Anbar and the special clinic. They were divided into 44 females and 26 males. Results: Based on the mean results, the results for the selected sample show that dental attrition in women is more than in men in all stages, and the percentage of the first stage appearing is higher than the rest of the stages. Also, the appearance of the third stage appeared more in the ages of 50 to 70. Statistically, it appears that there is a non-significant relationship between stage and tooth wear at different age groups for both males and females. Conclusion: In this study, during clinical examination of teeth, we found more females than males at all stages. In addition, stage 1 is most frequently observed. Also, the third stage appeared more often in the age range of 50 to 70.

Keywords: bruxism; wear; parafunctional habit.

1.Introduction

Bruxism is the most common parafunctional activity of the masticatory system, causing damage to teeth and restorations. While its etiology remains debated, it likely has multifactorial causes, requiring comprehensive management. Bruxism events can lead to several sequelae, including tooth wear, temporomandibular disorders, headaches, toothache, loose teeth, and problems with dental restorations and prostheses .

Relationships may exist between bruxism and prosthetic treatment, both directly and indirectly. Historically, some believed that certain occlusal irregularities or incorrect prosthetic modifications could trigger bruxism, but this notion has been largely dismissed. Similarly, the idea that "correcting" these occlusal issues could reverse bruxism has also been disproved. The primary consideration is the potential impact of bruxism on prosthetic restorations .

One phenomenon identified as a component of arousal during sleep is sleep bruxism. In 2014, the American Academy of Sleep Medicine As the architecture of sleep has been gradually clarified, rhythmic masticatory muscles activity (RMMA), a strange form of electromyographic activation in the masseter muscles, has been identified as the last neurovegetative indicator of a series of events known as the arousal response Polysomnography has been used to measure these rhythmic masticatory muscle activity events, which have been used as indicators of sleep bruxism episodes .

Several studies, both dental and non-dental, have begun to view bruxism as a masticatory muscle activity that can also happen while a person is awake. The primary method of awake bruxism (AB) is mandible bracing, often known as teeth clenching, which is the analogue of clenching without tooth contact . Bruxism and excessive occlusal loading were often mentioned as reasons for implant failures in early research on the longevity of fixed prostheses on osseointegrated implants. However, smoking and poor oral hygiene significantly affected bone loss in a prospective 15-year follow-up study of mandibular implant-supported fixed prostheses. In contrast, occlusal loading factors such as cantilever length, maximum bite force, and bruxism had little effect .

2. Material and method

A cross-sectional observational study was conducted with 70 people aged 10-70 years from Anbar University and the special clinic. They were divided into 44 females and 26 males. The survey continued for one month. The dental students examined the person and asked him about his bruxism. In addition the clinical characteristics, the presence of lip sealing, clicking, teeth marks on mucosa, and the side of the tongue was evaluated, tooth wear or attrition, muscle spasm, TMJ problem, and pain and The survey included a multiple the concerned the persons details of the respondents (gender, age, marital status, place of residence and voivodship). Another detail was directly related to bruxism (its causes, effects, duration, general health, TMJ problems, muscle effects, and treatment methods). During the survey, we found that females were more affected than males in all stages of bruxism in children and adults. For example, the patient is a male. He is 60 years old. He has a systemic disease, diabetes, and hypertension. Social status is normal. The patient automatically grinds his teeth when he is nervous, and this triggers nervous tension. There are problems with temporomandibular joint pain and clicking, as shown in Figures 1 and 2.



Figure 1. Picturing and historical data with bruxism stages.



Figure 2. Teeth Grinding.

3. Result and Discussion

The results for the selected sample show that dental attrition in women is greater than in men across all stages, and the percentage of first-stage events is higher than in the other stages. Also, the appearance of the third stage appeared more in the ages of 50 to 70, as described in table 1 and figures(3- 4 -5):

Table (1): Shows the results of samples of patients suffering from teeth bruxism according to the mentioned stages:

<i>Descriptive Statistics</i>						
	<i>N</i>	<i>Mini- mum</i>	<i>Max- imum</i>	<i>Mean</i>		<i>Std. Deviation</i>
	<i>St ati sti c</i>	<i>Sta- tistic</i>	<i>Statis- tic</i>	<i>Sta- tistic</i>	<i>Std. Error</i>	<i>Statistic</i>
<i>Stage 3</i>	4	25.00	43.00	36.25 00	4.30842	8.61684
<i>Stage 2</i>	13	24.00	80.00	50.61 54	4.66512	16.82032
<i>Stage 1</i>	53	21.00	70.00	44.43 40	2.15164	15.66415
<i>Valid N (list wise)</i>	4					
<i>Descriptive Statistics</i>						
	<i>N</i>	<i>Mean</i>	<i>Std. Deviation</i>	<i>Minimum</i>	<i>Maxi- mum</i>	
<i>Age</i>	70	45.1143	15.74667	21.00	80.00	
<i>Stage</i>	70	1.5429	.65244	1.00	3.00	
<i>Gender</i>	70	1.3857	.49028	1.00	2.00	

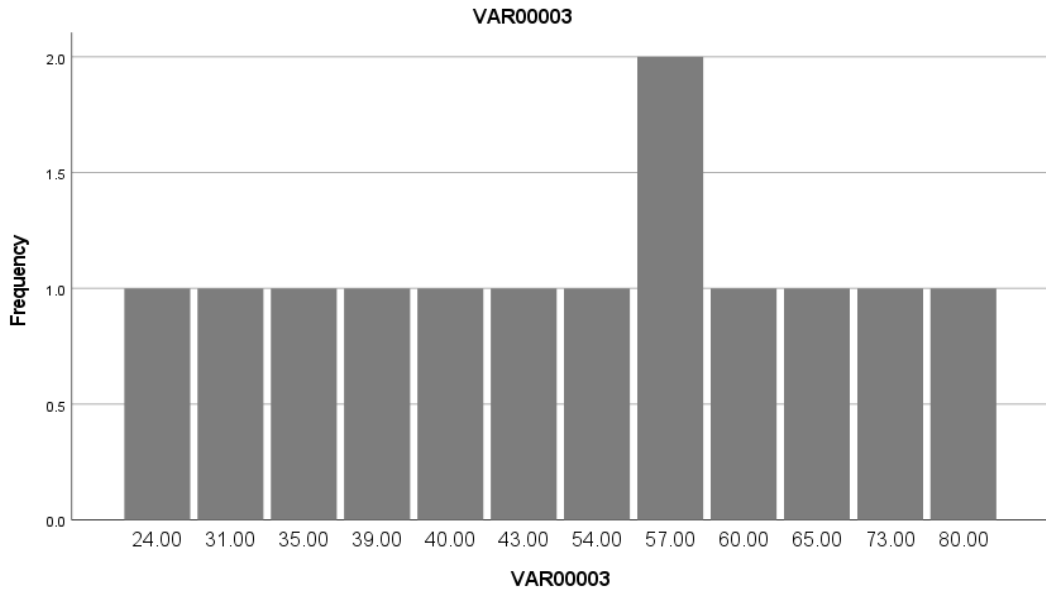


Figure 3: Stage 1 (mild attrition).

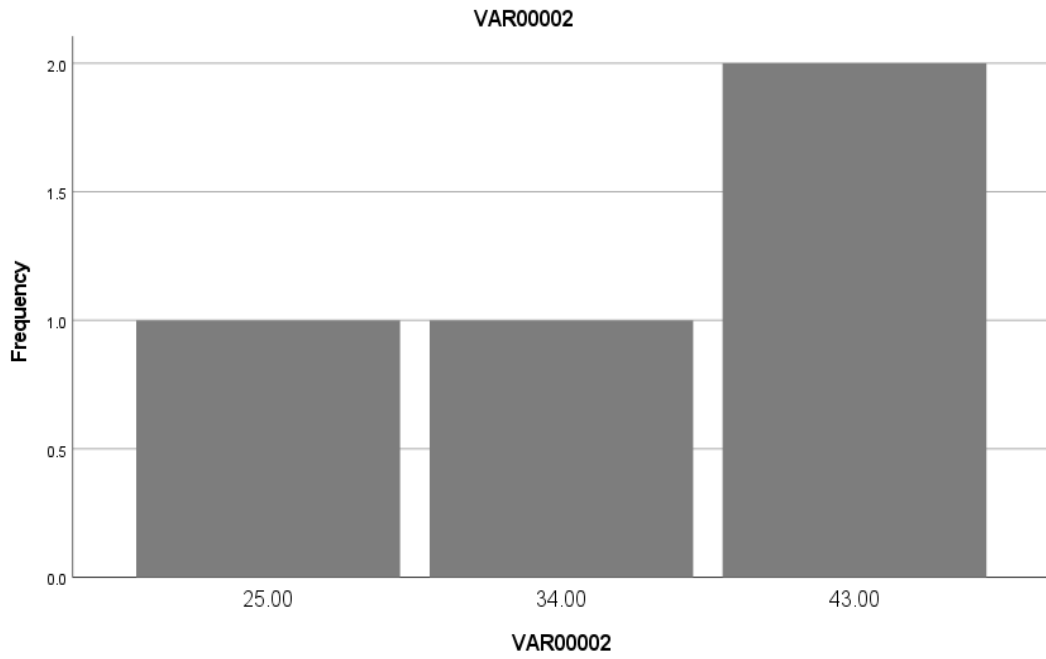


Figure 4: Stage 2 (moderate attrition).

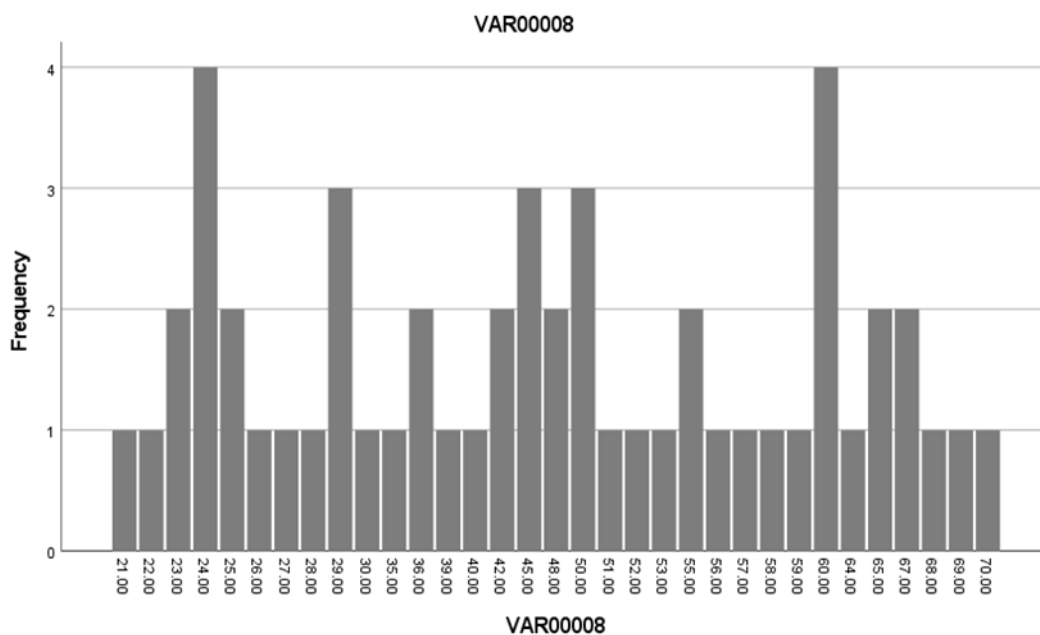


Figure 5: Stage 3 (severe attrition).

Statistically, it appears that there is a non-significant relationship between stage and tooth wear at different age groups for both males and females

Table (2): Shows the results of samples of patients suffering from teeth bruxism according to the mentioned stages:

ANOVA					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	719.372	2	359.686	1.470	.237
Within Groups	16389.714	67	244.623		
Total	17109.086	69			

Table (3): Shows the results of samples of patients suffering from teeth bruxism according to the mentioned stages:

Multiple Comparisons						
LSD						
(I)	(J)	Mean	Std.	Sig.	95% Confidence Interval	
VAR00006	VAR00006	Difference (I-J)	Error		Lower Bound	Upper Bound
Stage 1	Stage 2	-6.82389	3.98070	.091	-14.7694	1.1216
	Stage 3	-2.46491	6.87080	.721	-16.1791	11.2493
Stage 2	Stage 1	6.82389	3.98070	.091	-1.1216	14.7694
	Stage 3	4.35897	7.08371	.540	-9.7802	18.4981
Stage 3	Stage 1	2.46491	6.87080	.721	-11.2493	16.1791
	Stage 2	-4.35897	7.08371	.540	-18.4981	9.7802

The results of this study indicate a higher prevalence of dental attrition among women than among men across all stages. Additionally, Stage 1 attrition is the most frequently observed, while Stage 3 is more common in older individuals (50–70 years old). However, statistical analysis does not establish a strong relationship among tooth wear, age, and gender, which is consistent with Colonna et al. (2022) and Crout (2017).

1. Gender Differences in Tooth Wear

The findings suggest that women experience more dental attrition than men. This could be attributed to various biological and behavioral factors:

Dietary Habits: Women might consume more acidic foods or have different eating patterns that contribute to tooth wear.

Hormonal Influence: Hormonal fluctuations, particularly estrogen levels, can affect saliva production and enamel protection, thereby influencing attrition rates. These agree with Kanathila et al. (2018) and Kanno and Carlsson (2006). (13-14).

2. Age and Progression of Tooth Wear

The data indicate that Stage 3 attrition is more common in older individuals (50–70 years). This aligns with the natural aging process, as prolonged exposure to mechanical forces, diet, and oral hygiene habits contribute to gradual tooth wear. However, the statistical analysis (ANOVA) does not show a significant correlation between age and tooth wear progression, suggesting that factors beyond age—such as individual habits, oral health care, and genetic predisposition—may play a crucial role.

3. Lack of Statistical Significance

Despite observable gender- and age-related patterns, the ANOVA test indicates no statistically significant differences in tooth wear stages across age groups ($p = 0.237$). The multiple-comparison test (LSD) also confirms that the differences between Stage 1, Stage 2, and Stage 3 are not significant (p -values > 0.05). This suggests that:

The sample size may not be large enough to detect significant differences. Other confounding factors, such as oral hygiene habits, genetics, and environmental influences, might play a bigger role in tooth wear than age alone. These results agree with Manfredini et al. 2015, Manfredini et al. 2011, Manfredini et al. 2020, and Orthlieb et al. 2013 (15-16-17-18).

Tooth wear may not progress linearly, meaning individuals may exhibit varying degrees of attrition regardless of age.

4. Conclusions

It is evident that knowledge of bruxism has increased compared to other studies mentioned. The higher proportion of women in the research aligns with the elevated awareness of bruxism noted by these studies. Consequently, women have a greater awareness of bruxism compared to men. The findings from this study need to be validated in a different age demographic to corroborate the higher awareness of women compared to men. Moreover, the research indicates a stronger focus on teaching young males about bruxism. To obtain more reliable data, additional research is needed on a larger sample of respondents, ensuring an even distribution of participants across regions and universities, while accounting for the aforementioned limitations. Additionally, it would be highly beneficial to merge the survey findings with the medical history and clinical evaluations of participants to identify any connections between their understanding of bruxism and their actual behavior patterns related to it. The results of this study, during clinical examination of teeth, showed that females were more than males at all stages. In addition, stage 1 was most frequently observed.

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