# Role of Bruxism in Prosthetic Treatments- A Survey

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## Abstract

Bruxism is a parafunctional habit of grinding of teeth and it results in an overload of occlusal loading that puts on more pressure on the teeth and the subsequent prosthetics causing them to fail, it is a common phenomenon affecting nearly 30% of the general population but is not looked into with deep detail. A survey of 16 questions was sent to 114 respondents. The questionnaire was made on Google Forms, it had several options for each question to get a response as accurate as possible. The incomplete responses were rejected and the data was collected and compiled using SPSS software. The compiled data was compared with the results of other studies and the important questions were discussed. This study conclusively found that the awareness of Bruxism and its effect on prosthetic treatments is high and that the data can be used in future treatments resulting in reduced failure of prosthetics due to habits such as

***Keywords:*** *Bruxism, prosthetics, survey, effect on treatment*

## Introduction

Bruxism is an action that involves the individuals grinding or clenching their teeth.[1] This habit increases the amount of occlusal loading. The additional pressure makes the prosthetic lose its integrity, which makes it unusable. Considering that dentures are used primarily by patients who are edentulous, to replace the functions of the teeth lost, their unhealthy habit means that they have an unsatisfactory final product that will with use, get severely damaged. [2,3]

Bruxism is surprisingly common and with the research conducted so far does not seem to have had serious side effects.[4] While not being a major cause of harm, it does cause its fair share of discomfort during prosthetic treatments.and in the long severe damage to dentures and in cases of implant, even implant failure and results in complications late on, especially after treatment finishes.[5], [6,7] While there are factors like misplacement of the Temporomandibular joint or in some cases an uncorrected habit from childhood, stress also plays a role in Bruxism. Stress comes in various types such as pathophysiological, psychosocial or even hormone related as there is a link between urinary catecholamine and the levels of salivary cortisol, and bruxism , or it is simply because of psychological stress experienced by the person.

The topic of bruxism has long been characterized as an unacceptable or an disgusting habit but the true cause of this parafunctional habit is because of one of three reasons which are anxiety , hormonal imbalance and even misalignment of jaws and it is surprisingly common with 3% of the general population having symptoms of the same and the fact that it's effect on a variety is unknown and for this reason further research is needed. This will only help to increase the awareness among patients and Doctors through which it will find better means of treatment.

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## Materials and Methods

### Study Design

The survey has a large variety of answers to choose from for the answers of the respondent to be more specific. The survey was conducted in the month of April 2020 and the respondents were aged between 17-23, all were dental undergraduates.

Survey Instrument

The questionnaire was prepared after an extensive review with amendments further made to improve clarity of the questions. The survey was structured and had close ended questions. 16 questions were prepared and were sent to the participants via Google Forms.

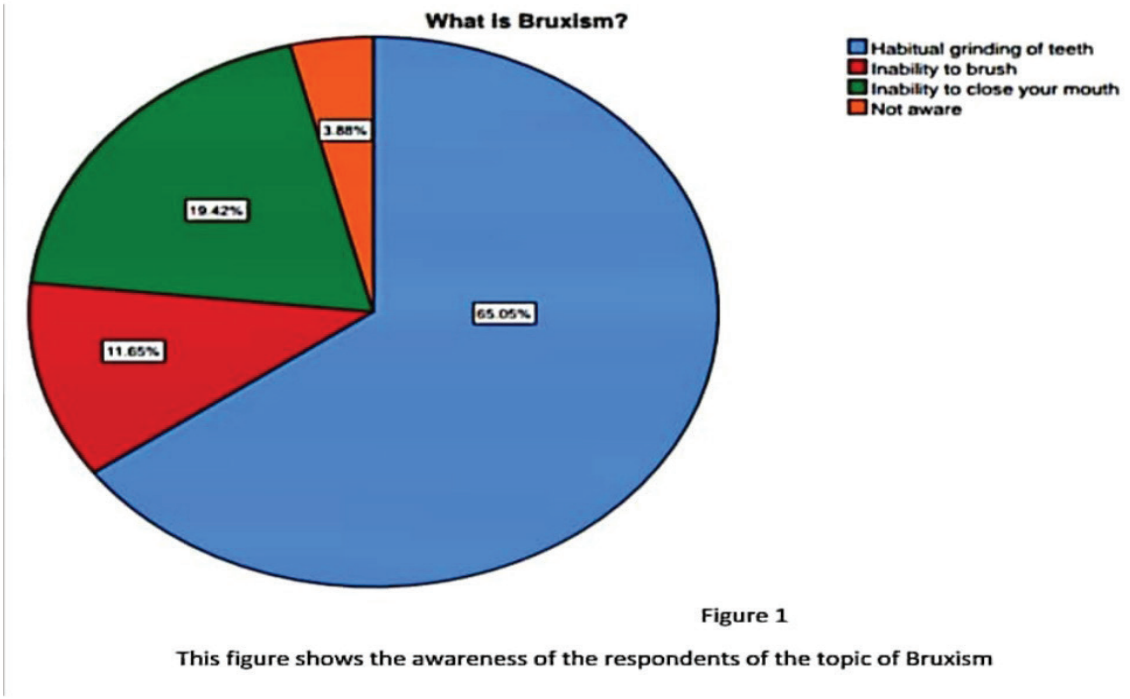
Analytics

The consisted of incomplete responses which were rejected and was reviewed if the data collected was entered the same day. The collected data was analysed using SPSS statistics 19 Descriptive analysis was performed to calculate frequencies of suitable variables and to create pie charts. [89101112]

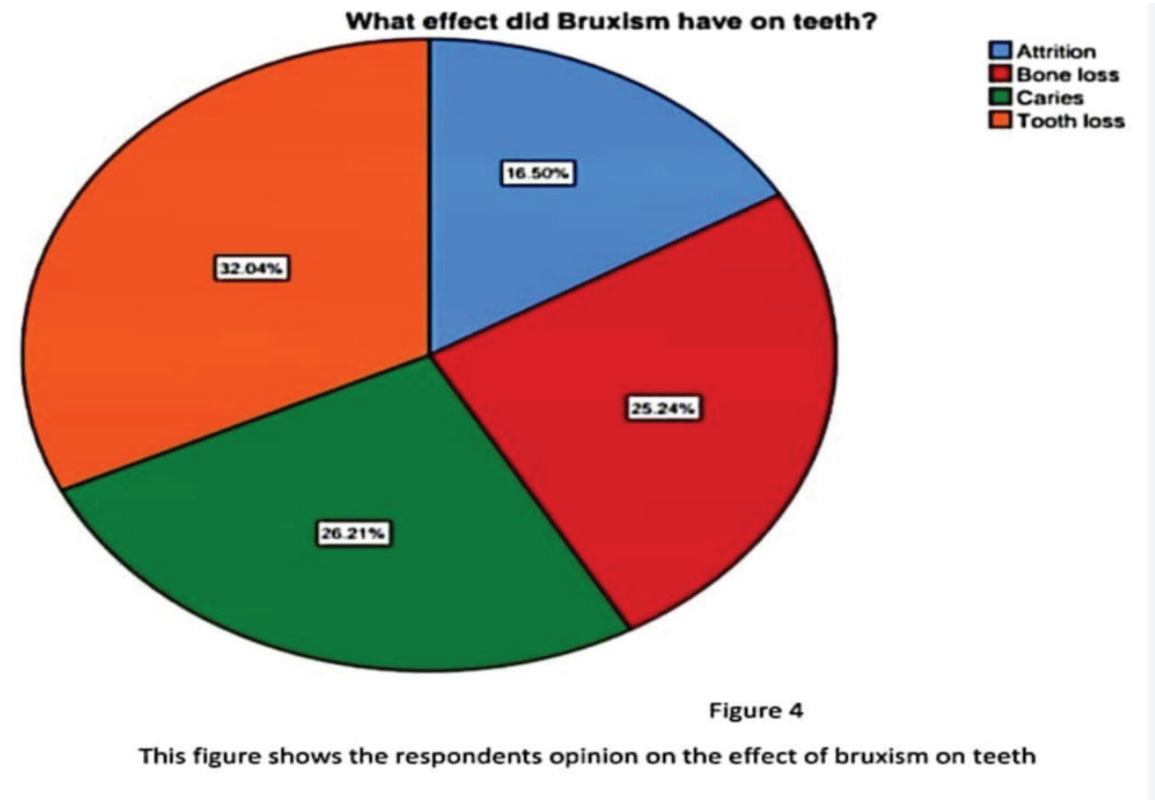
The individual graphs made for each question help to determine the percentage of the responded for its further analysis. Some important questions are discussed below

## Results and Discussions

To know the significance of this study, we had to know the familiarity of the respondent's with the topic of Bruxism. 65.05% were aware that it is the grinding of teeth (Graph 1). (Graph 2) shows the respondents opinion on the effect of Bruxism on teeth. 32.64% chose tooth tooth loss, represented by orange colour, 26.21% chose caries that are represented by green, 25.24% chose bone loss as a possible effect of bruxism which is represented by red and 16.50% chose attrition which is represented by blue. To counter Bruxism as a phenomena, 35.92% felt it would be more effective to place the implant in a more medial position to the actual position of the tooth[13] . To counter the effects of Bruxism, 57.28% would prefer to use mouth guards but this was not similar to the findings of Michelle Omerbornn et al 2011, who said only 8% preferred mouth guards [14] and the 26.21% preferring medication is similar to Shilpa Shetty et al 2010 who found 20%.[2]. (Graph 3). (Graph 4) depicts the association between gender and the awareness about the familiar features of Bruxism X-axis represents Gender Y-axis represents number of respondents awareness on familiar features of Bruxism. Habitual grinding of teeth was the most selected option across both the genders showing no statistical significance. Pearson's Chi square value= 0.551, p value=0.907, (>0.05) hence statically non significant. (Graph 5) depicts the association between gender and the awareness of the possible causes of Bruxism. The X-axis represents Gender and the Y-axis represents the number of respondents aware of the possible causes of Bruxism. Even though most of the males have opted childhood habits but the options seem to be equally distributed among women for the possible cause of bruxism but on analysis there seems to be no statistical significance. Pearson's Chi square value= 5.914, p value= 0.116 (>0.05) hence statically not significant. (Graph 6) depicts the association between gender and the awareness of the effect of Bruxism on teeth. The X-axis represents Gender and Y-axis represents the number of respondents familiarity with the effect of Bruxism on teeth. Most of the males opted carries while the females opted tooth loss but there seems to be no statistical significance among genders on various effects of Bruxism on teeth. Pearson's Chi square value= 5.007, p value= 0.171, (>0.05) hence statically non significant.




**Graph 1: This figure shows the awareness of the respondents on the topic of Bruxism. 65.05% were aware that bruxism meant the habitual grinding of teeth (Blue).**




**Graph 2: This graph shows the respondents opinion on the effect of Bruxism on teeth. 32.64% chose tooth tooth loss, represented by orange colour, 26.21% chose caries that are represented by green, 25.24% chose bone loss as a possible effect of bruxism which is represented by red and 16.50% chose attrition which is represented by blue.**

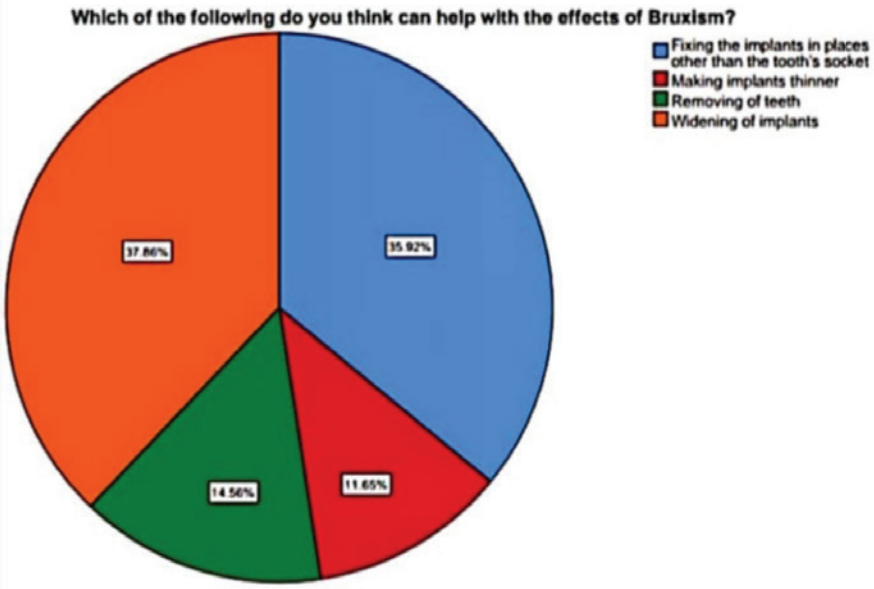
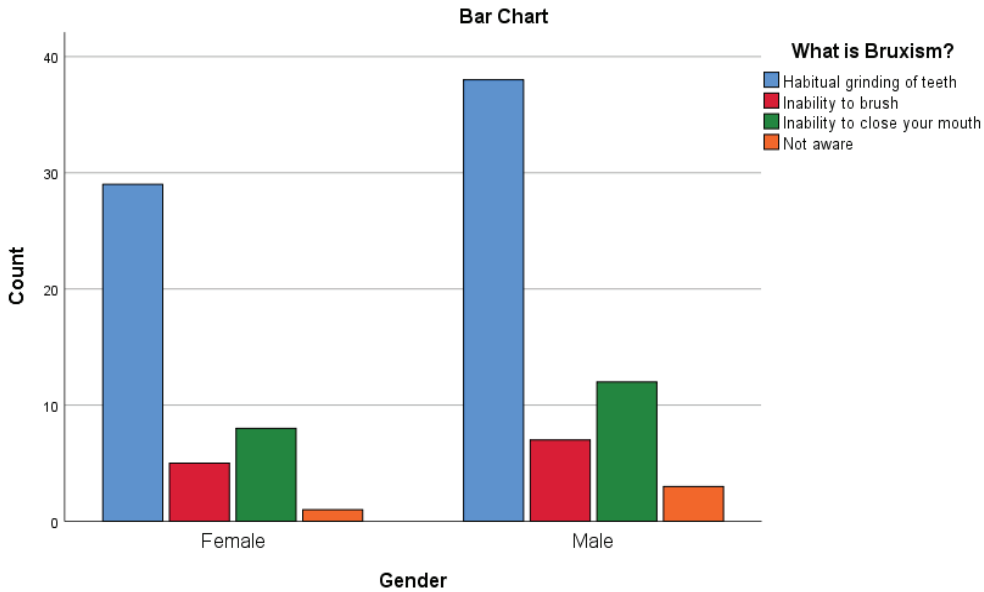


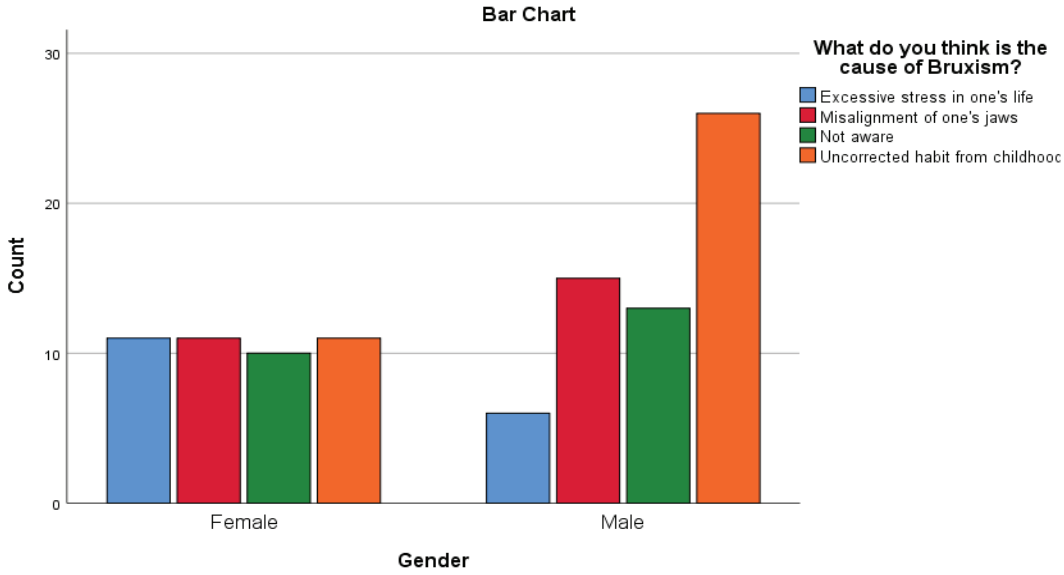

Figure 11

This graph shows the result to which the respondents thought would help the most with effects of bruxism

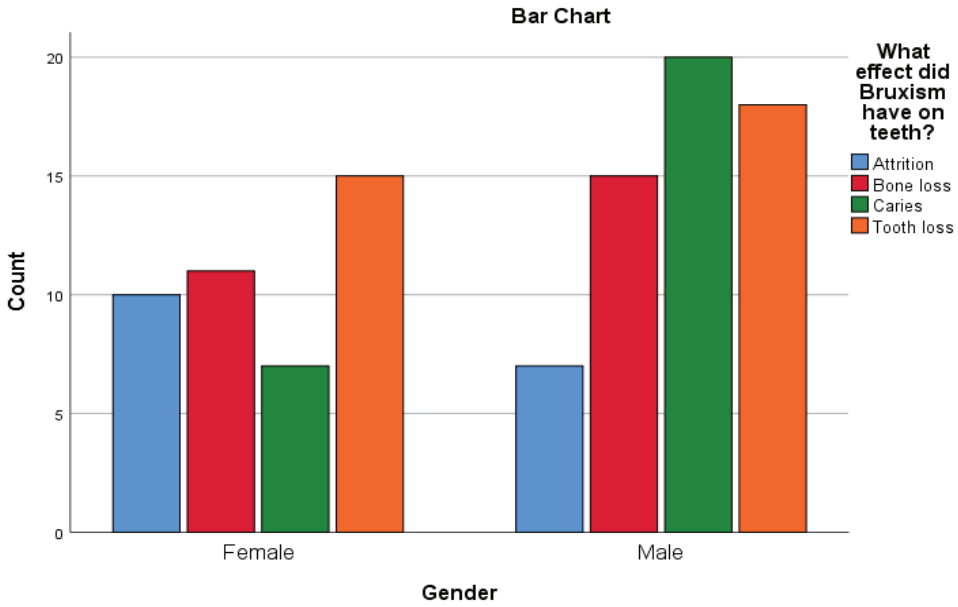
**Graph 3: This graph shows respondents' opinion as to what would help with the effects of Bruxism. 35.92% chose fixing the implants mesial to their actual position, represented by blue, 14.56% chose the removal of teeth and it is represented by green. 37.86% felt widening of the occlusal surface of the implant would help, represented by orange and 11.65% felt making the implant thinner would help and it is represented by red.**




**Graph 4: Bar graph depicts the association between gender and the awareness about the familiar features of Bruxism X-axis represents Gender Y-axis represents number of respondents awareness on familiar features of Bruxism. Habitual grinding of teeth was the most selected option across both the genders showing no statistical significance. Pearson's Chi square value= 0.551, p value=0.907, (>0.05) hence statically non significant.**




**Graph 5: Bar graph depicts the association between gender and the awareness of the possible causes of Bruxism. The X-axis represents Gender and the Y-axis represents the number of respondents aware of the possible causes of Bruxism. Even though most of the males have opted childhood habits but the options seem to be equally distributed among women for the possible cause of bruxism but on analysis there seems to be no statistical significance. Pearson's Chi square value= 5.914, p value= 0.116 (>0.05) hence statically not significant.**




**Graph 6: Bar graph depicts the association between gender and the awareness of the effect of Bruxism on teeth. The X-axis represents Gender and Y-axis represents the number of respondents familiarity with the effect of Bruxism on teeth. Most of the males opted carries while the females opted tooth loss but there seems to be no statistical significance among genders on various effects of Bruxism on teeth. Pearson's Chi square value= 5.007, p value= 0.171, (>0.05) hence statically non significant.**

**Table 1: Questionnaire regarding the awareness of Bruxism and the responses in %**

| S.No | Questions | Results in percentage | |
|---|---|---|---|
| | | Yes | No |
| 1. | Awareness of the respondents on the topic of Bruxism, that bruxism meant the habitual grinding of teeth | 65.00% | 35% |
| 2. | Bruxism could be fatal ? | 59.22% | 40.78% |
| 3. | Do any slight modifications to the denture could help with Bruxism | 69.90% | 30.10% |
| 4. | Bruxism had a major role in tooth wear and loss. | 64.08% | 35.92% |
| 5. | Do enzyme levels cause Bruxism . | 30.10% | 69.90% |
| 6. | Is Bruxism self curable? | 51 .4% | 48.6% |

Table 1 shows the Awareness of the respondents on the topic of Bruxism and the response, that bruxism meant the habitual grinding of teeth , Will the habit Bruxism could be fatal. 59.22% said yes and 40.78% chose no. Slight modifications to the denture could help with Bruxism, respondents' opinion on 69.90% chose yes and 30.10% chose no. Respondent's opinion as to if Bruxism had a major role in tooth wear and loss, 64.08% said yes and 35.92% said no. any change in enzyme levels cause Bruxism, responses were 30.10% Yes and 69.90% No. Is Bruxism self curable? 51 .4% responses were Yes and 48.6% No. The present research has origins from the team of investigators where previous studies were done based on clinical reports, interventional studies [12,16,17], in vitro studies [9,18] and systemic reviews [15, 19, 20,21, 22, 23].

The limitations of this study is we used a small sample size, upon using a larger sample size the results can turn out to be very different.

In the future, this study can be used for increasing awareness and finding new methods for treatments of patients who are suffering from Bruxism.

## Conclusion

This study shows that the awareness of bruxism and its effect on prosthetic treatments is high. This data can be used in future treatments, resulting in reduced failure of prosthetics due to habits such as Bruxism.

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**Ethical Clearance**: Not required

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