

Correlation between Perceived Stress and Bruxism in Students

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Abstract

To find the correlation between stress and bruxism in students, a detailed analysis of stress and bruxism is done. Stress is one of the main triggering factors of bruxism and shows a strong correlation with bruxism and this is the main idea of this research conducted. This study shows gender-based co-relation between stress and bruxism by finding out the percentage of bruxism and stress in affected students. The study also points out the high ratio of bruxism with stress in the particular gender. The study is conducted on undergraduate students enrolled in a four-year college program and the research concludes by comparing and relating the stress and bruxism of the students in these four years.

Keywords: Bruxism; Undergraduate; Stress

Introduction

Stress is a body's reaction to a challenge. There are four primary types of symptoms of stress; physical, emotional, cognitive and behavior [1]. Students experience more stress as compared to the general population [1]. Reference [1] studied the sources of stress in students and these sources were diagnosed to be change in sleeping habits, increase in workload, financial pressure and new responsibilities. Reference [2] concluded that females exhibit more stress as compare to males and the particular idea was also implemented in this paper. Emotional stress is the main triggering factor of bruxism [3,4] and Stress has a great impact on the life of a student. This study shows the correlation between stress and bruxism in students as bruxism is characterized as one of the physical symptoms of stress [5]. Bruxism is Grinding and clenching of teeth, it's a parafunctional disorder with various etiologies [6,7]. The three main etiological factors of bruxism were the Occlusal, Pathophysiological and Psychological factor [8]. Occlusal factors include factors such as tooth interferences in dental occlusion, while Pathophysiological factors involve the release of brain neurotransmitter [8]. Certain medications like SSRIs (Serotonin Reuptake Inhibitor) and Amphetamine also lead to increase in bruxism [8]. Cigarette smoking leads to bruxism as well; smokers report bruxism two times more than non-smokers [8]. The Psychological factors such as anxiety and stress, which is common among students, leads to bruxism and this analysis on students, had been the focus of this paper. In another study [9], it was reported that Asian students have the highest incidence of stress-related bruxism that is 24.6%, as compared to students of Euro-American, African-American, and Hispanic background. This research had been conducted in Pakistan, a country in South Asia to find and relate to the percentage of bruxism and stress. In a gender-based analysis, women reported a higher level of stress as compared to males [10]. This research had also pointed out the gender-based effects of stress leading to bruxism in female students. Bruxism affects the quality of life through multiple dental problems such as attrition of teeth, cracks in dentition [11,12], muscle and temporomandibular joint pain [13].

It displays two circadian manifestations; one is sleep bruxism and the other one is awake bruxism. The study we conducted showed the prevalence of bruxism, and its correlation with apparent stress in a group of Pakistan college students at Margalla Institute of Health Sciences (MIHS) was inspected.

Methods

A Cross-sectional study was conducted among 256 undergraduate students of Margalla Institute of Health Sciences with a group of 64 students each from the first year, the second year, third year and final year. Participants of the study were selected in an equal amount from different departments. Informed consent was taken, and the questionnaires were distributed among randomly chosen individuals on the campus (Table 1).

Students	Numbers
Male Students	128
Female students	128
Total no of students	256

Table 1: Number of participants.

The questionnaire elicited information on-

- 1) Demographic characteristics (age, gender)
- 2) Experience of grinding teeth during day and night time
- 3) Stress evaluation through the Perceived Stress Scale

Perceived Stress Scale (PSS), a classical stress assessment tool, was selected to measure stress in any individual as per standards [14]. Ten questions were given to the participant from PSS tool, and answers were given with 4 points on a scale on that.

- Never (0)
- Almost never (1)
- Sometimes (2)

- Fairly often (3)
- Very often (4)

The 10 questions asked targeted the stress in the last 4 weeks' time of participant. Scoring was given according to PSS scale from 0-40. A higher score indicated more perceived stress and lower score indicated less perceived stress. Whereas, Bruxism was investigated using the following questionnaire:

- 1) Do you grind or clench your teeth during sleep or has anyone heard you grinding your teeth when you sleep?
- 2) Do you grind or clench your teeth when you are awake or has anyone seen you grinding or clenching your teeth when you are awake?
- 3) Do you feel soreness or fatigue of jaw when you wake up?
- 4) Does the temple area of your head aches, when you wake up?
- 5) Have you noticed any worn-down dentition?
- 6) Do you have any difficulty opening the mouth?

The answers were scored on a Likert-type scale [13], ranging from "never" to "always", from 1 to 5. The demographic character questionnaire investigated the age and gender of the participant. The aim of these methods was to investigate the following:

- The occurrence of Bruxism in students at MIHS
- Prevalence of Stress in students at MIHS
- Correlation between perceived stress and bruxism in students at MIHS, Pakistan
- Gender-related association between stress and bruxism in students at MIHS, Pakistan

Results

The contributors of the study were divided into two groups of Males and Females. 128 males were selected, and 128 females were selected. The study further divided the group of males and females' students according to their year of study and selected 32 males and females each from 1st year, 2nd year, 3rd year and final year of MIHS.

Table 2 shows a correlation between stress and bruxism in male students in 4 years of the undergraduate program. In 1st year undergraduate students, 62.5% percent student exhibited stress with 30% of male students with stress showed the prevalence of bruxism and 25% male students showed the prevalence of bruxism without stress. In 2nd year undergraduate students, 56.25% of male students displayed stress, while 22.2% male students showed the prevalence of bruxism with stress and 14.28% showed bruxism without the stress factor.

Year	Males	Stress	No Stress	Bruxism	No Bruxism
1st	32	20	12	6	3
2nd	32	18	14	4	1
3rd	32	19	13	3	1
4th	32	26	6	7	1

Table 2: Stress and bruxism in male student.

In 3rd year undergraduate male students, 59.3% of males exhibited stress with 15.7% males showing the prevalence of bruxism with stress and 15.38% showed bruxism without stress. In final year undergraduate students, the stress level in males was increased to 81.25% according to study. 26.9% of the students showed bruxism with stress, while 16.6% showed bruxism without stress. Altogether 64.8% male students showed stress and 24% showed bruxism along with stress and 15.5% showed bruxism without stress.

In Table 3, a correlation between bruxism and stress in female students is displayed. 128 female students were selected, and 32 female students were selected from each 1st year, 2nd year, 3rd year and final year of undergraduate studies at MIHS.

In the study conducted from 1st year undergraduate female students, 78.1% exhibited stress, while 48% of female students with the prevalence of stress-related bruxism and 28.5% with bruxism without stress.

Year	Female	Stress	No Stress	Bruxism	No Bruxism
1st	32	25	7	12	2
2nd	32	21	11	10	2
3rd	32	22	10	11	2
4th	32	28	4	12	1

Table 3: Stress and bruxism in female student.

The study on 2nd year female student showed 65.6% female students in stress with 47.6% female students exhibiting stress-related bruxism and 18.1% showed bruxism without stress. In the 3rd year of study 68.7% female students showed stress, the percentage of female students with stress-related bruxism was 50%, while female students who showed bruxism without stress was 20%. In final year undergraduate female students, the stress level was comparatively high as compared to other year students. 87.5% of the female students exhibited stress. 50% of female students showed bruxism with stress and 25% of female students showed bruxism without any stress factor. The altogether combined result of four years of female students showed 75% of female students exhibiting stress. 48.95% percent of female students had bruxism with stress and 21.8 % showed bruxism without stress (Figures 1 and 2).

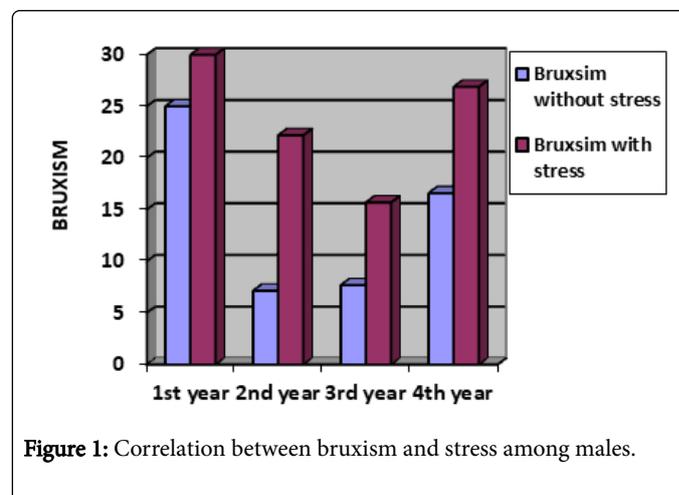
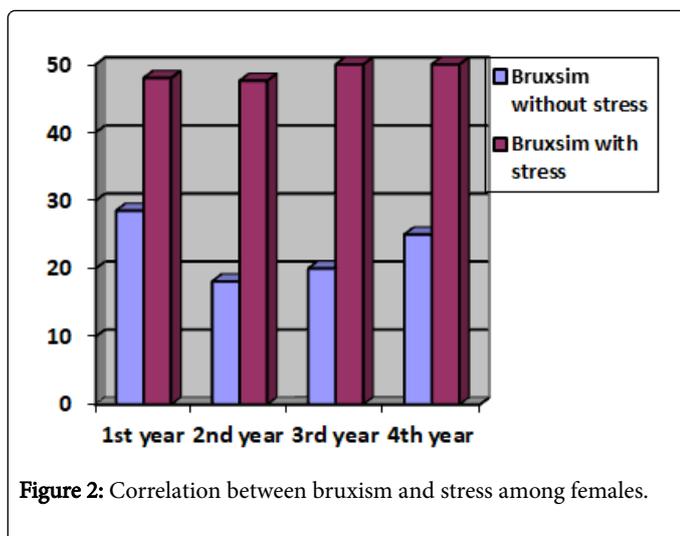


Figure 1: Correlation between bruxism and stress among males.



Discussion

College students are prone to stress. Some students face challenges being away from home as well, maintain the academic record, and economic crisis are one of the few factors that cause the stress aggravation in students.

The study conducted in this paper showed that bruxism was more prevalent in male and female students with perceived stress. The male students showed 24% prevalence of bruxism along with stress, while 15.5% showed bruxism without stress. In female's 48.95% of females had bruxism with stress, while 21.8% had bruxism without stress.

The finding proved the relationship of bruxism and stress as bruxism was more prevalent in students who exhibited stress.

The study also showed that female students showed more prevalence of bruxism as compare to the male students, 40.62% of female students complained of bruxism, whereas 20.31% of male students had bruxism.

The female students also showed a higher level of stress in the four years of undergraduate education as compare to the male students, 75% of female students exhibited stress in four years of study whereas 64.8% male students exhibited stress. The result showed that female students had a high prevalence of stress as well.

In a survey in [14], it was demonstrated that stress reduction skills have an impact on reduction in bruxism, thus strengthening the argument that stress plays a vital role in bruxism.

Limitations

The study conducted has limitations as it was a prevalence study, and the study has been led through the questionnaire, the dental

examination was not conducted in the student for diagnosis of bruxism.

Moreover, a big limitation is the differences in culture and life experience between university settings in different countries. These differences suggest careful analysis in results even if they could possibly inspire further studies.

Conclusion

The study showed a strong correlation between stress and bruxism, it was also concluded that college students that showed the high level of stress suffered more with bruxism as compared to students with no stress. There was also a gender difference in the prevalence of stress. As noted, female students exhibit more stress as compared to male students.

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