

# Bruxism: Prevalence among Software Professionals

Roopa G.S,<sup>1</sup> Maansi.B.Yalamalli,<sup>2</sup> Shweta.K.M<sup>3</sup>

## ABOUT THE AUTHORS

### 1.Roopa G.S

Sr.lecturer, Department of Public Health Dentistry, KLE'S Institute of Dental Sciences, Bangalore, Karnataka.

### 2.Maansi.B.Yalamalli

Sr.lecturer, Department of Public Health Dentistry, KLE'S Institute of Dental Sciences, Bangalore, Karnataka.

### 3.Shweta.K.M

Sr.lecturer, Department of Public Health Dentistry, M.S.Ramaiah Dental College and Hospital, Bangalore.

## Corresponding Author:

### Dr. Roopa G.S,

#3428, 1<sup>st</sup> F cross,  
RPC Layout, Vijaynagar,  
Bangalore, Karnataka-76  
Phone : 9886300659

E-mail:  
roopa\_gsv@yahoo.com

## Abstract

**Background:** Software professionals perform boundary-spanning activities and are always at the fear of job security and cost cut-offs. These characteristics of the software professionals are bound to have massive impact on their healthy living. Many studies have related bruxism with stress. Thus, this study is conducted to know the prevalence of bruxism among software professionals.

**Aims:** To know the prevalence of bruxism among software professionals.

**Methods:** A total of 232 randomly selected software professionals working for NASSCOM registered Bangalore based software companies were considered for the study. A questionnaire was specially developed to know the study subject's demographic data, self reported bruxism data, details on personal habits and other details. The bruxism was recorded as per the ASDA clinical research diagnostic criteria for bruxism. The data was subjected to statistical analysis.

**Results:** In the study sample, prevalence of bruxism was 35.5% with no difference between genders. Bruxism rarely occurs alone.

**Conclusion:** The prevalence of bruxism in the study population is 35.5%.The results of this study raise an important concern about the prevalence of bruxism among software professionals.

KEYWORDS: Bruxism, Software professionals, Prevalence.

## Introduction

The software industry with its effective strengths and potentials has been recognized all over the world due to its outstanding technological advancements as well as for receiving significant impacts of global recession. India being the forerunner in the software development and testing, the software industry was touted as a magic wand that will ward off unemployment and on the other hand, it has led to emergence of new spurts of occupational health problems. These health problems if ignored can prove debilitating and can cause crippling injuries forcing one to change one's profession.

Number of studies has argued that software profession has become an increasing stressful place to work because of the increasing demands and constraints.<sup>1-4</sup> Software professionals perform boundary-spanning activities, and thus need strong interpersonal, technical, and organizational knowledge to be professionally competent as the field demands it. They have to perform in a demanding work environment characterized by strict deadlines, differing time zones, interdependency in teams, increased interaction with clients, and extended work hours. They are always at the fear of job security and cost cut-offs. These characteristics of the software profession are bound to have massive impact on their healthy living.<sup>2</sup>

Stress research has significantly added to the medical literature over the past twenty years. It is known now that work can be an exciting source of challenge, where potentials of self are discovered and utilized. Recent models of stress have incorporated an understanding of the relationship between a person and his/ her environment. The outcome of a stressor depends very much on whether the individual perceives the situation as stressful, and whether he or she can cope with the situation<sup>5,6</sup>. Hence, in the present study, the psychosocial stress level depending on the work character of the software professionals is determined.

**Mouth is the mirror of the body**, where even stress related changes can be identified. One such factor is Bruxism. Many studies have related bruxism with stress<sup>7-10</sup> and some studies relate bruxism to mainly work related stress.<sup>9-13</sup>

Thus, this study is conducted to know the prevalence of bruxism among software professionals.

## OBJECTIVES

- To know the prevalence of bruxism among software professionals.

## METHODOLOGY

A total of 232 randomly selected **software** professionals working for NASSCOM registered Bangalore based software companies were considered for the study. Every participant signed a consensus module prior to the start of the study.

### **Inclusion criteria:**

Software professionals with minimum 1 year experience  
Software professionals with maximum 5 year experience  
Software professionals working for ongoing projects.

### **Exclusion criteria:**

Less than 1 year experience (Most of them will be in training period), More than 5 years experience (Most of them will be in entering different work profile-administration) Bench pool workers.

A pilot study was conducted to know the practical difficulties while conducting study in examining this group of subjects, to know the appropriateness of study design, questionnaire and to determine the sample size for the study. The study was systematically scheduled to cover the randomly selected companies according to the convenience of the software professionals. The survey period extended from December 2009 to July 2010. A detailed schedule was prepared well in advance by informing and obtaining consent from authorities of respective companies. Although a detailed schedule plan was prepared meticulously few adjustment and changes were called for while working it out practically.

### **Proforma details and method of obtaining data:**

In this study the required data was collected and recorded using printed proforma which consisted of

three parts: **1<sup>st</sup> part** is the questionnaire specially developed to know the study subject's demographic data, self reported bruxism data. **2<sup>nd</sup> part** was provided to record the details of the clinical examination. The bruxism was recorded as per the ASDA clinical research diagnostic criteria for bruxism.<sup>14</sup>

The criteria for the presence of bruxism accordingly are as follows;

- Retruded-contact position (RCP) to Intercuspal contact position (ICP) slide length (normal value <2mm).
- Dental attrition, Degree of attrition, Location of attrition.
- Correlation of subject's bruxing pattern in the clinical examination to the attrition pattern.
- Occlusal disturbances.
- Cross bite.
- Muscular tension in relation to: Lateral pterygoid and Temporalis

The examiner visited the software companies on the predetermined dates as according to the schedule, where the questionnaire was distributed to know the general information, work characters and stress level and this was followed by interview of the study subject regarding medical and drug history by the investigator. Finally, the clinical examination was carried out to confirm the diagnosis.

Clinical examinations were carried out at the company's rest room or lounge with sufficient natural light. Subjects were examined in the resting chair where the subjects were made to sit upright for examining the Retruded-contact position (RCP) to Intercuspal contact position (ICP) slide length and then made relax on the chair for further examination. The chair was placed in front of a well-lighted window, but not in direct sunlight, with the subject facing the window. No artificial dental illumination was used. The examinations were carried out with the aid of an ordinary mouth mirror and a graduated probe. The data was subjected to statistical analysis.

## RESULTS

A Cross-sectional analytical study consisting of 232 software professionals was undertaken to assess the prevalence of bruxism and its associated risk factors among the study subjects.

The prevalence of bruxism based on both questionnaire and clinical analysis was 35.8% among the study population. (Table I)

The prevalence of bruxism based on the onset of bruxism was analyzed and 26.8% of the bruxers revealed the onset of bruxism was recent, 6.4% of the bruxers

**Table I: Prevalence of Bruxism (Using both questionnaire and Clinical method)**

Prevalence of Bruxism	Number	%
Nil	149	64.2
Bruxism	83	35.8

**Table II: Prevalence of bruxism based on the onset of bruxism**

BRUXISM	Number	%
From childhood	15	6.4%
From college days	6	2.5%
Recently	62	26.8%

**Table III: Mean pattern of basic characteristics in relation to the incidence of bruxism**

Basic characteristics	Bruxism		P value
	Absent	Present	
Results are presented in Mean ± SD			
Age in years	25.18 ± 2.29	26.46 ± 2.77	<b>0.081</b>
Sex	Male=80(53.6%) Female=69 (46.3%)	Male=44(53%) Female=39(46.9%)	<b>0.088+</b>
Job Experience	2.55 ± 1.84	2.79 ± 1.05	<b>0.081+</b>
Work Experience	1.01 ± 0.68	1.02 ± 0.92	<b>0.868</b>
Working hours	9.29 ± 0.25	9.33 ± 0.24	<b>0.275</b>

revealed the onset of bruxism from childhood, 2.5% of the bruxers revealed the onset of bruxism from their college days. were both questionnaire and clinical analysis was 35.8% among the study population. (Table II)

The mean ± SD age of bruxers was 26.46 ± 2.77, the percentage of male bruxers in the study was 53 and the percentage of female bruxers in the study was 46.9, the mean ± SD job experience among the bruxers was 2.79

± 1.05, the mean working hours among the study group was 9.33 ± 0.24. (Table III)

## DISCUSSION

Tooth grinding during sleep is classified as being in the parasomnia group of sleep disorders by the ICSD. It occurs usually in non-rapid eye movement sleep (NREM) sleep stages, mostly in stage 2 sleep, and during sleep-stage shifts. However, it can also occur during REM sleep and, in that case, is associated with facial and dental pain more frequently.

"Bruxism" is defined as: Jaw clenching, with or without forcible excursive movement, where the intensity of the clenching dictates the severity of the grinding according to International classification of sleep Disorders (ICSD).<sup>14</sup> "Bruxism" therefore is the battle between two specific muscles which work in 90 degree opposition to each other, the temporalis' and the lateral pterygoids.

A number of methods such as questionnaires, tooth wear evaluation, interviews, and electromyography and muscle symptoms have been proposed for diagnosing bruxism.

Unfortunately, every assessment procedure presents some shortcomings. Some examples include possible the possible bias due to subjective evaluation during an interview like underreporting of the phenomenon in individuals living alone, since no one can witness their symptoms and difficulties distinguishing between functional and non-functional tooth wear during a clinical evaluation.

At present validated diagnostic criteria exist only for poly somnographic investigation of bruxism but as it is not possible to do this in epidemiological survey, this was not considered. Although such measures are desirable, they are not frequently incorporated into community-based epidemiologic studies because they would substantially raise the costs of the surveys, thus posing important logistic problems and many more practice difficulties. Keeping this in mind, diagnosis of bruxism in this investigation, was based upon the presence of a clinical and at least one perceived indicator as suggested by Manfredini D et al (2003).<sup>15</sup>

In the study sample, prevalence of bruxism was 35.8% with no difference between genders. The lack of standardized assessment procedures makes it difficult to compare these results with those reported in other studies. However, findings from the present study are consistent with those of Matsuka *et al*<sup>16</sup> whose interview-based survey found an overall bruxism prevalence 30 per cent of clenching and 34 per cent of teeth grinding in a Japanese adult population and with the previous findings of Ahlberg et al<sup>9, 12</sup> who claimed the percentage occurrence of bruxism in the media professionals ranged from 37 – 43%. The percentage occurrence of bruxism in the study population is not in line with the percentage occurrence of bruxism in the general population which range from 8-12%, bearing in mind the data regarding the onset of bruxism from childhood(6.4%) and college days(2.5%) , this statement can be explained.

As regards sex differences, our observations are comparable with results of other investigations on poly somnographically-diagnosed sleep bruxism, which reported no gender predilection.<sup>17</sup>

Further, it is found that, in the present study, the prevalence of bruxism is unrelated to gender, age and other background features, in the study population and is in line with the previous findings of Ahlberg et al<sup>9, 12</sup>.

## CONCLUSIONS

The prevalence of bruxism in the study population is **35.8%**. The results of this study raise an important concern for individuals with bruxism about the risk of highly stressful life with job demanding for skills , hard and fast work. However, studies on broader samples are needed to confirm associations described in this investigation.

## REFERENCES

1. K. S. Rajeswari, R. N. Anantharaman Role of Human-Computer Interaction Factors as Moderators of Occupational Stress and Work Exhaustion International Journal of Human-Computer Interaction 2005, Vol. 19, No. 1, Pages 137-154 .
2. K.S.Rajeshwari, R.N.Ananthraman. Development of an instrument to measure stress among software professionals: factor analytic study, ACM Press, New York, USA.
3. V.P.Sudhashree, K.Rohith, K.Shrinivas Issues and concerns of health among call center employees Indian Journal of Occupational and Environmental Medicine December 2005, vol. 9, issue 3, page 129-131.
4. K.Suparna,A.K.Sharma, J.Khandekar Occupational health problems and role of ergonomics in information technology professionals in national capital region. Indian Journal of Occupational and Environmental Medicine December 2005, vol. 9, issue 3, page 111- 114.
5. Raija Kalimo , Mostafa. A. El-Batawi, Cary.L .Cooper ( 1987) Psychosocial factors at work and their relation to health; WHO series 1987.
6. Giedrius Vanagas Work charecteristics and work related psychosocial stress among general practitioners in Luthunia Essay submitted to Nordic School of public health, MPH 2005: 8.
7. S.Yassaei, M.Rafieian, R Ghafari Abnormal oral habits in the children of war veterans The journal of clinical pediatric Dentistry 2005, Vol. 29. 3, 189-192.
8. Daniele Manfredini, Antonio Ciapparelli, Liliana Dell'Osso Moods disorders in subjects with bruxing behaviour Journal of Dentistry 2005, Vol 33, 485 - 490.
9. Jari Ahlberg, Rantala M, Savolainen A. Reported bruxism and stress experience. *Community Denta Oral Epideilogy* 2002;30:405-8.

10. Kristina Ahlberg, Jari Ahlberg, et al. Perceived orofacial pain and its associations with reported bruxism and insomnia symptoms in media personnel with or without irregular shift work. *Acta Odontologica Scandinavica*, 2005;63:213-217
11. Ahlberg K, Ahlberg J, Kononen M, et al *Reported bruxism and stress experience in media personnel with or without irregular shift work. Acta Odontol Scand.* 2003 Oct; 61(5):315-8.
12. Ahlberg J, Savolainen A, Rantala M et al Reported bruxism and biopsychosocial symptoms: a longitudinal study. *Community Dent Oral Epidemiol.* 2004 Aug; 32(4):307-11.
13. Ahlberg K, Ahlberg J, Kononen M, et al *Reported bruxism and restless legs syndrome in media personnel with or without irregular shift work. Acta Odontol Scand.* 2005 Apr; 63(2):94-8.
14. American Sleep Disorders Association, Diagnostic Classification Steering Committee. International classification of sleep disorders: diagnostic and coding manual (ICSD). Rochester, MN: American Sleep Disorders Association, 1990
15. D Manfredini, N Landi, M Romagnoli et al. *Psychic and occlusal factors in bruxers. Australian Dental Journal* 2004; 49 :( 2):84-89
16. Matsuka Y, Yatani H, Kuboki T, Yamashita A. *Temporomandibular disorders in the adult population of Okayama City, Japan. Cranio* 1996; 14:158-162.
17. Ohayon MM, Li KK, Guilleminault C et al(2001) *Risk factors for sleep bruxism in the general population. Chest.* 2001 Jan; 119(1): 53-61.