Research Article

SLEEP BRUXISM BETWEEN WORKING AND NON WORKING WOMEN IN NORTH MADRAS

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Abstract

Background: Sleep bruxism is a periodical, stereotype movement disorder characterized by an involuntary, parafunctional, excessive grinding of the teeth during sleep. This disorder is common among general population and represents the third most parasomnia**. Aim**: The aim of this epidemiological study was to examine the relationship between psychological job stress, general health between the sleep bruxism among working and non working women residing at North Madras.

Methods: The study was undertaken to assess the sleep bruxism among working and non working women in North Madras. Subjects were assessed by the demographic data, their general health, general job information in the form of questionnaire and they have been examined for the tooth wear index.

Results: A total of 200 females participated of which 100 were working and 100 were non working women. Overall implication of study shows that the bruxism increases with increase in the stress. The non working women who were under higher stress showed increased bruxism rate.

Conclusion: We conclude that sleep bruxism was highly associated with some aspects of stress in working women but not in non working women residing in North Madras.

Key Words: Epidemiology, general job information, general health, tooth wear index, sleep bruxism

I. Introduction

Bruxism is a destructive habit that is defined as the nonproductive diurnal or nocturnal clenching or grinding of the teeth. It is a periodical, stereotype movement disorder characterized by an involuntary, parafunctional, excessive grinding of the teeth during sleep. The American Academy of Orofacial Pain (1996) defined bruxism as diurnal or nocturnal parafunctional activity, including clenching, bracing, gnashing, and grinding of teeth. Although its pathophysiology is still unclear, two major factors, occlusal interferences and emotional disturbances, have classically been regarded as the main Causes. [1]

A person's subjective belief is that susceptible to a condition or health threat, the severity of the threat, the benefits that would be acquired by adopting a recommended behaviour change, and the barriers which encounters in adopting the behaviour change, the degree to which people believe that personal actions will have an effect on a health outcome [2]. There are reports that the dental patients visit the dentist only when they experience the pain and fails to return for the follow up in their treatment. To improve oral health outcomes, adequate knowledge of the utilization of dental services is essential [3].

Psychological job stress has been associated with sleep disturbances, commonly bruxism. In healthy people, masticatory muscle activities can be divided into two categories: functional (e.g. chewing, swallowing, and speaking) and parafunctional (e.g. tooth clenching and grinding, and various oral habits). Tooth grinding and clenching have generally been characterized as bruxism in the literature. Bruxism has commonly been associated with temporomandibular disorder (TMD), which affects millions of people. [4] This disorder is common among general population and represents the third most parasomnia.

On the other hand, stress has been increasingly considered as an initiating, predisposing and perpetuating factor for bruxism, although their implicit relationship has remained unclear. Stress experiences reportedly arise from multifactorial work and life issues. [4] The phenomenon of bruxism (grinding or clenching of teeth during sleep or awake) affects millions of people throughout the world. It has been thought that bruxism may be genetic in origin, affected psychosocially or pathophysiologically, as well as caused or perpetuated by occlusal discrepancies. At present, however, bruxism tends to be considered as centrally regulated, with peripheral factors playing only a minor role in its etiology.

Sleep bruxism may occur in all sleep stages but is most often detected in non-REM sleep one and two and towards arousal .[5]The consequences of this sleep bruxism include excessive tooth wear, fractures of the teeth, TMJ discomfort, muscle pain, inflammation and recession of the gums, increased risk of periodontal problems and overloads of dental implants. Bruxism has been considered as an underlying factor for TMD, but these associations are not fully accepted. Temporomandibular disorders (TMD) are signs and symptoms in temporomandibular joints or masticatory muscles, or both. Of these, the most presented symptom among populations is facial muscle pain. These symptoms are associated with headaches, facial pain, tightening and stiffness of the shoulder, oral infection, and frequent arousal with altered day time functioning and obstructive sleep apnea. Several studies have been demonstrated that demographic and

lifestyle factors such as young age, higher educational status, smoking, caffeine intake and heavy alcohol drinking are associated cofactors of sleep bruxism. Psychological stress has also been discussed as a predisposing, precipitating and perpetuating factor for sleep bruxism. For example: an epidemiological study conducted in three European countries including 13057 subjects revealed that people with a highly stressful life and those with anxiety had respective 1.3 times higher prevalence of SB as compared with either low stress or non anxiety counterparts.

The Etiological Factors Of Bruxism Are The Following:

Besides peripheral (i.e. morphological) factors, central (i.e. pathophysiological and psychosocial) factors can be distinguished. In the past, morphological factors, like occlusal discrepancies and deviations in the anatomy of the bony structures of the orofacial region, have been considered the main causative factors for bruxism. Nowadays, these factors are thought to play only a small role, if at all. Recent focus is more on the pathophysiological factors. For example, bruxism has been suggested to be part of a sleep arousal response, the oral motor event either preceding or following the arousal. In addition, bruxism appears to be modulated by various neurotransmitters in the central nervous system. More specifically, disturbances in the central dopaminergic system have been described in relation to bruxism. Further, factors like medication, (illicit) drugs, and genetics, and trauma, neurological and psychiatric diseases may be involved in the etiology of bruxism. Psychosocial factors like stress and personality are frequently mentioned in relation to bruxism as well. However, research to these factors comes to equivocal results and needs further attention. [6]

The Risk Factors That Are Associated With Bruxism:

At higher risk of reporting sleep bruxism were subjects with obstructive sleep apnea syndrome, loud snoring, moderate daytime sleepiness, heavy alcohol consumption, caffeine consumption, tobacco consumption, highly stressful life with anxiety.

In summary, sleep bruxism is common in the general population and represents the third most frequent parasomnia. It has numerous consequences, which are not limited to dental or muscular problems. Among the associated risk factors, patients with anxiety and sleep-disordered breathing have a higher number of risk factors for sleep bruxism, and this must raise concerns about the future of these individuals .[5]

The aim of this epidemiological study was to examine the relationship between psychological job stress, general health between the sleep bruxism among working and non working women residing in North Madras.

Materials and Methods:

It was a cross sectional, descriptive study and the data was collected by self rated questionnaire and the study period was from February to June, 2011. In the present study there were 200 samples of women who participated of which 26 of them were working and 32 were not working under the age group of 18-30 years. The working and non working women under the age group of 30-40 years were 47 and 41 respectively.27 working and 27 not working women were categorized above 40 years of age. Subjects were divided into 2 groups: 1. the non working women 2: The full time or the part time workers. The samples were selected by simple random sampling method. The samples that did not show interest to fill the

questionnaire were excluded. The National Institute for Occupational Safety and Health (or NIOSH) is the UnitedStates federal agency responsible for conducting research and making recommendations for the prevention of work-related injury and illness. NIOSH is part of the Centers for DiseaseControl and Prevention (CDC) within the U.S. Department of Health and Human Services, the Occupational Safety and Health Act.

The NIOSH questionnaire was distributed to 100 working women in various departments and 100 non working women. The questionnaire was elicited on demographic data, their general health, and general job information. This questionnaire includes 10 questions based on the general job information, 17 questions based on the general health. This questionnaire was modified from NIOSH generic job stress questionnaire given by the division of behavioral and biomedical sciences. The questionnaire also contains the tooth wear index. This index was assigned as 0,1,2,3. It also had the scores x, m, f. The teeth examined were maxillary and mandibular anteriors and all the first molars. The ethical clearance was obtained from the ethical committee of department of public health dentistry. Informed consent was obtained from the subjects before the questionnaires were obtained.

Table 1: distribution of responses among working and non-working women.

Tooth Wear Index Scores	Significance
0	No wear into dentin
1	Dentin just visible (including cupping) or dentine exposed for less than 1/3 of surface
2	Dentin exposure greater than 1/3 of surface
3	Exposure of pulp or secondary dentin
X	No wear
M	Missing
F	Fracture

Statistical analysis:

Data collected was entered into the spread sheets; statistical package for social sciences (SPSS) version 15.0 was used for data analysis.

Results:

The present study included 200 samples of women out of which 26 of them were working and 32 were not working under the age group of 18-30 years. The working and non working women under the age group of 30-40 years were 47 and 41 respectively. 27 working and 27 not working women were categorized above 40 years of age.

Table 1 shows the distribution of responses among working and non-working women.

Figure 1 shows, the above mentioned teeth were examined. The amount of score-0 showed by non working women were 311, score-1 were 20 and score-2 were 2.

Figure 2 shows the amount of score-0 showed by working women were 364, score-1 were 12 and score-2 were 2.

Discussion:

Everyone knows that stress is harmful and can cause severe health problems. But what we don't know is that stress-related health problems also include oral health concerns. The purpose of the present study was to examine the bruxism between the working and non working women residing in North Madras. The subjects were dichotomized into two equal sized groups as working and non working women and compared the prevalence of sleep bruxism.

It is an open truth that working women have to face problems just by virtue of their being women. As working women are more exposed to the high stress levels than the non working women they are highly exposed to the stress related disorders not only in the oral cavity but also systemically. They are more prone because they have to face really the tough tasks both at their job or office and in their home as the home makers do (i.e.) they should play a dual role like a working male and as a home maker.

Bruxism can occur during the day or night. Generally, patients clench their teeth throughout the day and gnash and clench them during sleep. However, nocturnal bruxism is more frequent. It varies with the individual and has been related to emotional or physical stress.

Bruxism usually causes tooth wear as evidenced by wear facets that can range from mild

to severe and can be localized or found throughout the dentition. [7]

Stress related disorders in the oral cavity can be:

Bruxism, Canker Sores, Dry Mouth, Burning Mouth Syndrome, LichenPlanus, TMJ/TMD, Gum Disease. Not only the stress which affects the oral activity but also some hormonal changes will affect. Hence women both working and non working are prone to this hormonal changes but working are more affected as they are exposed to stress too. The hormonal changes that cause changes in the oral cavity are puberty, pregnancy, menopause, Use of oral contraceptives.

The results revealed that the working women are more prone to the exposure of stress and high levels of tooth wear mainly in the mandibular incisors were .On contrast we could detect only lesser amount of stress and tooth wear in the non-working women. The results suggest that sleep bruxism is highly associated with aspects of job stress in the working women which is not seen in the non-working women. The strength of our study is that we evaluated the job information and general health with a well established and a validated questionnaire (i.e.) NIOSH questionnaire The previous study which was done by Ahlberg J, shows that the experience of severe stress was the most significant factor associated with frequent bruxism among the multiprofessional media personnel. [4]Hence it was significant for our study. Similar type of study done by Omar Franklin Molina1, showed that scores in hysteria increased with the severity of bruxism, thus, those temporomandibular disorder patients with higher scores in hysteria are more likely to be found in those presenting with severe bruxism [8].

The associations between work stressors and the frequency of sleep disturbances were more complex than expected. Only work overload was associated with all three types of poor sleep quality. The poor sleep quality may definitely lead to sleep bruxism. This was the study done by Dr. Hannah Knudsen .[8]Pierce CJ, Christman K, Bennett ME said that research in a research which was on 1339 employees of a Finnish broadcasting company, frequent bruxism was significantly associated with severely stressful situations at

work. Furthermore, frequent bruxism was significantly positively associated with the number of occupational health care and dental visits. It was concluded that bruxism may reveal ongoing stress in normal work life. [9]

Manfredini D, Landi N, Romagnoli M, Bosc M hsd done the study which was published on 2004 revealed that the prevalence of bruxism was 40 per cent, with a strong difference between females (57.8 per cent) and males (25.5 per cent). The prevalence of bruxism is seen with the altered psychic and occlusal factors. [11]

The study made by Johansson A showed that the Three TMD-related symptoms and reported bruxism were used as dependent variables. Impaired general health was the strongest risk factor for reported TMD symptoms. Along with female gender and dissatisfaction with dental care, impaired general health was significantly associated with all three TMD symptoms. A few more factors were associated with pain from the TMJ only. In comparison, reported bruxism showed more significant associations with the independent variables. [12]

G.J. Lavigne in the study named neurological mechanisms involved in sleep bruxism said that sleep bruxism (SB) is reported by 8% of the adult population and is mainly associated with rhythmic masticatory muscle activity (RMMA) characterized by repetitive jaw muscle contractions. The pathophysiology of SB is becoming clearer, and there is an abundance of evidence outlining the neurophysiology and neurochemistry of rhythmic jaw movements (RJM) in relation to chewing, swallowing, and breathing. Several brainstem structures (*e.g.*, reticular pontis oralis, pontis caudalis, and parvocellularis) and neurochemicals (*e.g.*, serotonin, dopamine, gamma amino butyric acid [GABA], and noradrenalin) are involved in both the genesis of RJM and the modulation of muscle tone during sleep. It remains unknown why a high percentage of normal subjects present RMMA during sleep and why this activity is three times more frequent and higher in amplitude in SB patients.[13]

Multiple regression analyses made by Ota A showed that psychological job stress factors of poor appropriateness of work and high qualitative workload were associated with insomnia. The psychological stress response of depression and physical stress responses were also related with insomnia. Depression was also related to appropriateness of work. The present results showed that insomnia was closely related with the psychological job stress factor of appropriateness of work and the psychological response of depression. These mutual relationships between insomnia and poor mental health. [14]

Insomnia affects 5–45% of non-shift workers, making it a serious public health concern. High perceived stress was associated with all types of insomnia with odds ratios (95% confidence interval) of 2.27 (1.58–3.26), 2.15 (1.57–2.95), and 2.96 (2.19–3.99), for DIS, DMS, and PQS, respectively. This was the study made by Chiyoe Murata. [15]

Conclusion:

The result of the study shows that sleep bruxism was highly associated with some aspects of stress in working women but not in non working women residing in North Madras. The oral health of working women showed many abnormalities like attrition etc., especially in the mandibular incisors than the non working women.

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