



Influence of Type of Personality and Bruxism in Children

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ABSTRACT

Bruxism is a repetitive jaw-muscle movement characterized by grinding or clenching of teeth in an unconscious manner while awake or in sleep. Bruxism is mostly found in children aged between 3-10 years, it gradually reduces with increase in age. Bruxism has a multifactorial etiology, which includes morphological, pathophysiological and psychosocial factors. Psychosocial factors include anxiety, stress and characteristics of personality. The aim is to do a survey on the influence of personality and bruxism in children. The questionnaire-based study was carried out among parents with children between the ages of 1-17 years. The questionnaire comprised 15 questions which were used to detect the personality changes of children with bruxism. The questionnaire was uploaded on to an online survey platform (google forms) and the link was shared to the parents. Results show that 39.5% of the parents were aware about the clenching habits of their children and 60.47% parents were not aware. 60.5% clenched their teeth during the night whereas only 30.2% children were clenching their teeth due to stress and 9.3% clenched their teeth during the day. 23.3% of the children who clenched their teeth during stress mostly played on their own and 18.6% of the children who clenched their teeth played with a group of friends this shows the trait called extraversion. 39.5% of the children were worried this shows the trait called Neuroticism, 41.9% were dependent on their parents for work this shows the trait called Conscientiousness, 41.9% of the children who clenched their teeth during stress were responsible this shows the trait called agreeableness and 25.6% of the children were interactive with others. Within the limits of this study it is conclusive that personality traits are important factors that influence bruxism among children.

Key words: Bruxism, Clenching, Personality

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INTRODUCTION

Bruxism is a repetitive jaw-muscle movement characterized by grinding or clenching of teeth in an unconscious manner while awake or in sleep [1,2]. But this condition is more commonly observed during sleep, in which case it is considered as sleep movement disorder (sleep bruxism) [3]. Bruxism can cause severe attrition which results in shorter teeth, or fractured, and

clenching increases the pressure on the mandible which strains the muscles, tissues around the jaw. This leads to orofacial pain, attrition, abfraction of teeth, degenerative temporomandibular disease, muscular hypertrophy, periodontal tissue injury and headache [4,5].

Bruxism is mostly found in children aged between 3-10 years, it gradually reduces with increase in age [6,3]. It is uncertain on how Bruxism starts, there are various physical and psychological causes affecting bruxism. Allergic reaction by asthma and respiratory airway infection may cause Bruxism by resulting in a reflex of the central nervous system [7]. It is mostly believed that children with bruxism develop this habit because of the influence of

emotional factors, such as having to deal with various tasks, expectations, conflict, self-image, self-esteem, and anxiety [8] The capacity to deal with stress is unique to each individual and may be directly related to the formation of individual personality [9].

Bruxism has a multifactorial etiology, which includes morphological, pathophysiological and psychosocial factors. Psychosocial factors include anxiety, stress and characteristics of personality [10]. Feelings of frustration, anxiety or fear may trigger tooth clenching. According to Manfredini et al. [11], bruxism is related to repression of aggressiveness. Bruxers present higher levels of hostility, depression and susceptibility to stress [12].

Due to its multifactorial nature, it is important to establish the diagnosis of bruxism based on the possible etiological factors of this condition. This way, the identification of behavioral problems and emotional stress may improve the understanding of the interaction of these factors in the development or worsening of bruxism. Each child has different abilities and all the children are not capable of doing the same tasks [13]. Personality of the child influences the performance of the tasks. Personality traits are mostly related to individual ways of dealing with different situations, traits of neuroticism may result in anxiety and anger, whereas, conscientiousness is expressed through self-discipline and a sense of duty [14]. Personality traits developed in childhood are generally carried into adulthood. Depending on the various personality traits present during childhood, the child may have difficulty dealing with pressure and conflict and subsequently they may suffer from stress. Personality traits can also be associated with physical health such as nutritional disorders and sleep disturbance [15].

Our department is passionate about child care, we have published numerous high quality articles in this domain over the past 3 years [16-28]; Ramakrishnan, Dhanalakshmi and Subramanian, [29-32]. With this inspiration we planned to pursue research on the influence of type of personality on bruxism in children.

MATERIALS AND METHODS

The questionnaire-based study was carried out among Parents with children between the

ages of 4-10. The questionnaire comprised 15 questions, which were used to detect the personality changes of children with bruxism. The questionnaire was prepared and approved by the scientific review board of the institution. The questionnaire was uploaded on to an online survey platform (google forms) and the link was shared to the parents. The questionnaire was just a screening questionnaire and cannot be used for diagnostic purposes.

Part 1 of the questionnaire was developed to include questions about the child's age and sex.

Part 2 of the questionnaire was developed to include questions about clenching of teeth, jaw pain after waking up in the morning and if the parents were aware of the various treatment options available for bruxism.

Part 3 of the questionnaire was concerned with the personality. The questions were taken from the big five standardized personality test. The main five components of the personality scale are extraversion, neuroticism, conscientiousness, agreeableness and openness.

Based on the responses from the subjects, the statistics was done and the results were obtained in a systematic manner. The statistics was carried out using the IBM SPSS software.

RESULTS AND DISCUSSION

The total number of responses were 85, the age of the participants ranged from 1 to 17 years (Figure 1) where 48.8% of the participants were in the age group 5-8 years. Out of the total participants 55.8% were females and 44.2% were males (Figure 2). 39.5% of the parents

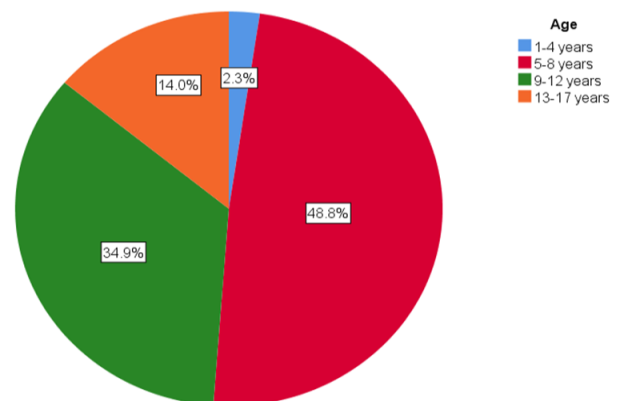


Figure 1: Pie chart showing the age of the children in this study (Blue represents 1-4 years, red represents 5-8 years, green represents 9-12 years, and orange represents 13-15 years). The highest number of participants were from the age group 5-8 years with 48.8%

were aware about the clenching habits of their children and 60.47% parents were not aware (Figure 3). 60.5% clenched their teeth during the night whereas only 30.2% children were clenching their teeth due to stress and 9.3% clenched their teeth during the day (Figure 4). The incidence of jaw pain after waking up was

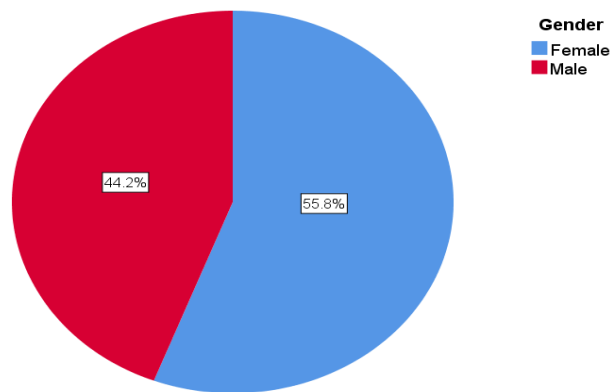


Figure 2: Pie chart showing the gender of the children in this study (Blue represents Female participants and red represents male participants). The most common gender noticed in the survey was females with 55.8%.

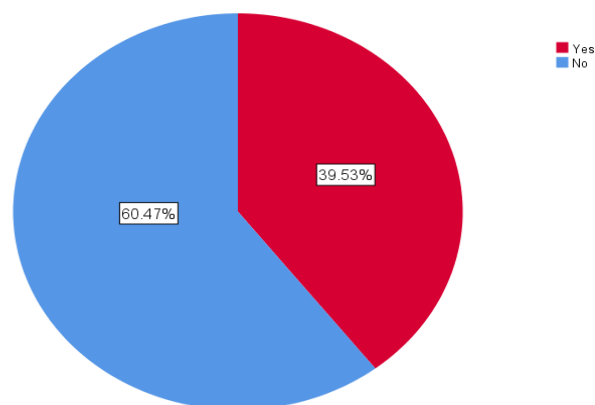


Figure 3: Pie chart showing parents response to the incidence of clenching in children where red colour represents yes and blue colour represents no. 60.47% of the parents did not notice any parafunctional activity.

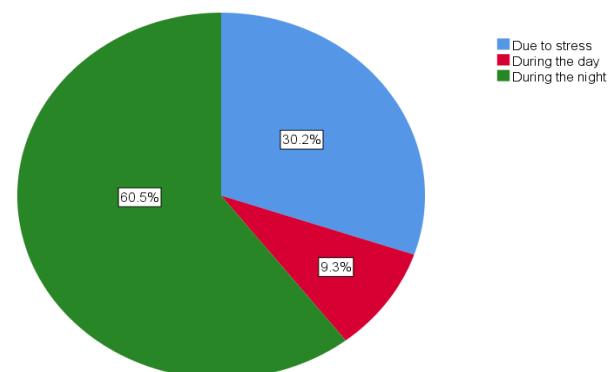


Figure 4: Pie chart showing the time period of clenching of teeth where blue represents clenching of teeth under stress, red represents clenching during the day and green represents clenching during night. Most participants clenched their teeth during the night (60.5%).

seen in 50% of the participants and 40.5% of the participants did not have any pain (Figure 5). 39.5% of the parents were aware about the various treatment options available, 32.6% were not aware and 27.9% had a vague idea about it (Figure 6).

The main five components of the personality scale (extraversion, neuroticism, conscientiousness, agreeableness and openness) were compared with the incidence of clenching of teeth under stress by children. 23.3% of the children who clenched their teeth during stress mostly played on their own and 18.6% of the children who clenched their teeth played with a group of friends this shows the trait called extraversion. (Figure 7). 39.5% of the children were worried this shows the trait called Neuroticism (Figure 8), 41.9% were dependent on their parents for work this shows the trait called Conscientiousness (Figure 9), 41.9% of the children who clenched their teeth during stress were responsible this

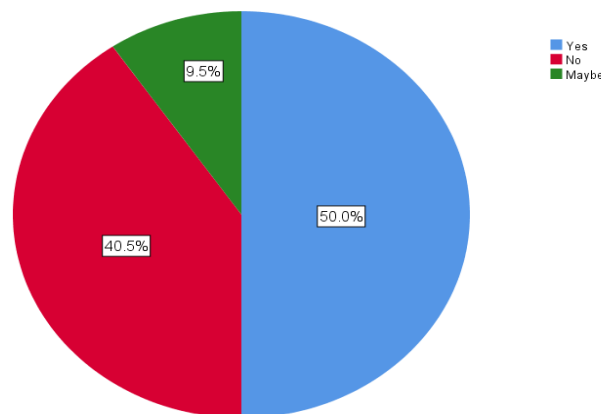


Figure 5: Pie chart showing incidence of jaw pain after waking up where blue represents yes, red represents no and green represents maybe. 50% of the total population had jaw pain after waking up in the morning.

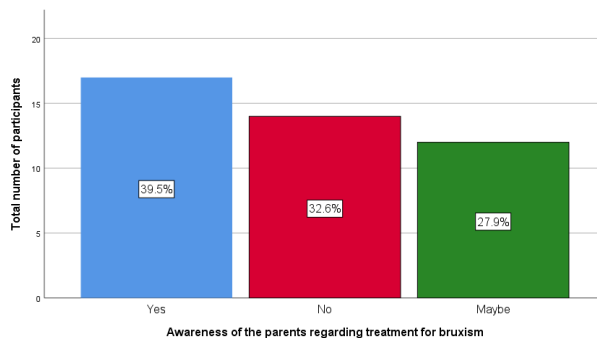


Figure 6: Bar graph showing awareness of parents regarding treatment of bruxism where blue represents yes, red colour represents no and green colour represents maybe. 39.5% of the total participants were aware about the treatment options available. The x axis represents the awareness of participants regarding the treatment of bruxism and the y axis represents the total number of participants.

shows the trait called agreeableness (Figure 10) and 25.6% of the children were interactive

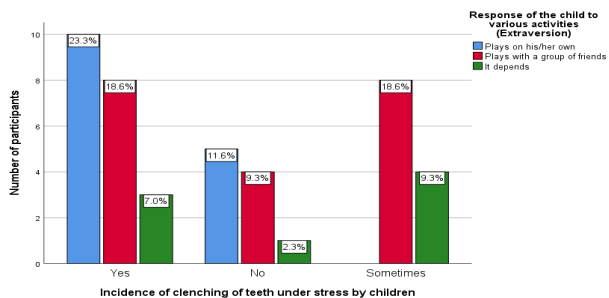


Figure 7: Bar graph showing association between clenching of teeth under stress and response of the child to various activities (Extraversion) where blue colour represents plays on his/her own, red colour represents plays with a group of friends and green colour represents it depends. The X axis shows incidence of clenching of teeth under stress by children and Y axis shows the number of participants. 23.3% of the children who clenched their teeth during stress mostly played on their own. However this was statistically significant (Pearson's chi square test; p value=0.00 significant).

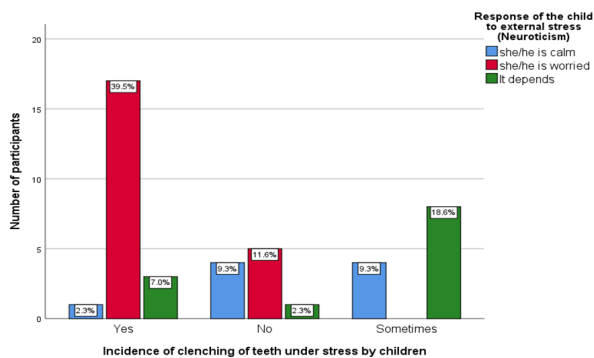


Figure 8: Bar graph showing association between clenching of teeth under stress and response of the child to extreme stress (Neuroticism) where blue colour represents she/he is calm, red colour represents she/he is worried and green colour represents it depends. The X axis shows incidence of clenching of teeth under stress by children and Y axis shows the number of participants. 39.5% of children who clenched their teeth during stress were worried. However this was statistically significant (Pearson's chi square test; p value=0.00 significant).

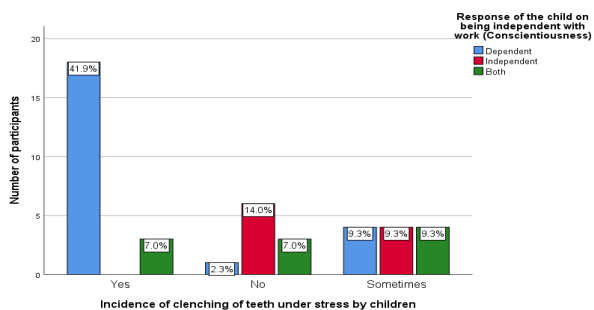


Figure 9: Bar graph showing association between clenching of teeth under stress and response of the child on being independent with work (Conscientiousness) where blue colour represents dependent, red colour represents independent and green colour represents both. The X axis shows incidence of clenching of teeth under stress by children and Y axis shows the number of participants. 41.9% children who clenched their teeth during stress were dependent on their parents for work. However this was statistically significant (Pearson's chi square test; p value=0.00 significant).

with others. This shows the trait called Openness (Figure 11).

The present study evaluated the association between bruxism and personality of children. To test the association, parents were requested to complete a questionnaire regarding prevalence of bruxism, characteristics of their children, and the types of tasks that they performed at home. The personality traits of children were also measured. Various studies derived from sleep laboratories focus on bruxism only as a sleep-related movement disorder - grinding or clenching of teeth and do not add information or evidence to explain the possible association between bruxism and psychosocial aspects [33]. It is thus necessary to distinguish these two forms of bruxism in order to facilitate the development of experimental studies on the subject of this research. Various pathological emotional experiences more and more often

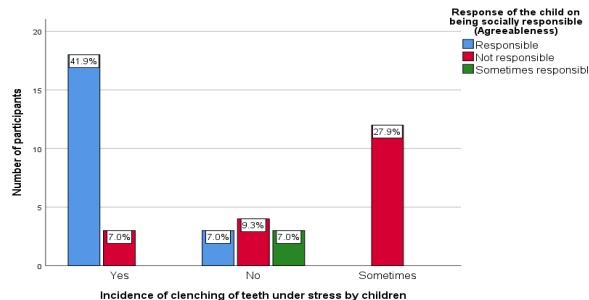


Figure 10: Bar graph showing association between clenching of teeth under stress and response of the child on being socially responsible (Agreeableness) where blue colour represents responsible, red colour represents not responsible and green colour represents sometimes responsible. The X axis shows incidence of clenching of teeth under stress by children and Y axis shows the number of participants. 41.9% children who clenched their teeth during stress were responsible. However this was statistically significant (Pearson's chi square test; p value=0.00 significant).

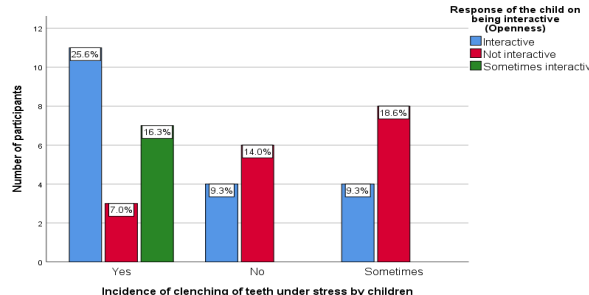


Figure 11: Bar graph showing association between clenching of teeth under stress and response of the child on being interactive (openness) where blue colour represents interactive, red colour represents not interactive and green colour represents sometimes interactive. The X axis shows incidence of clenching of teeth under stress by children and Y axis shows the number of participants. 25.6% of children who clenched their teeth during stress were interactive. However this was statistically significant (Pearson's chi square test; p value=0.00 significant).

result in the development of a muscular parafunction/bruxism. This can be related to occlusion or can be caused entirely by psychological stimulation. It has been proved that compulsive, controlling, and aggressive persons are more vulnerable to develop bruxism [34]. This disorder involves unconscious teeth clenching and grinding, which leads to gradual damage of the dentition and periodontium, damage of the oral mucosa, increased tension and hypertrophy of masticatory muscles, chronic headaches and cervical pain, and abnormality of the temporomandibular joints as well as hearing problems [35,36].

According to a study Bayar et al. [37], it shows that bruxism is closely connected with psychological disturbances of different degrees of severity, most of which are caused by an inability to accept everyday reality or by exaggeration of experiencing external stimuli. The studies of Bracha et al. [38] and Gungormus and Erciyas [39] distinguish from three many emotional disorders which include stress, depression, neurosis, phobias, personality disorders, anxiety, and paranoid states [40-42]. These diseases are common in highly developed societies, in which the surrounding environment directly leads to their occurrence. Chronic stress, lack of sleep, rest time, and activities are conducive to the development of psycho emotional disorders, vascular diseases, dermatological problems, gastric disturbances, and neuromuscular disorders [43-45].

CONCLUSION

Within the limits of this study it is conclusive that personality traits are important factors that influence bruxism among children. In our study it is found that bruxism was more commonly found during the night time, children with less social interaction, anxious behaviour and who were self dependent showed more symptoms of bruxism during their early childhood.

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CONFLICT OF INTEREST

There are no conflicts of interest as declared by the authors.

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