

Does Personality Has An Influence On Occurence Of Bruxism In Children

Research Article

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Abstract

Bruxism is a repetitive movement of the jaw-muscle characterized by grinding or clenching of teeth in an unconscious manner whilst awake or during sleep. Bruxism is mostly found in children aged between 3-10 years. The incidence of bruxism gradually declines as a person becomes older. 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 4 and 10 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 while 60.47% parents were not aware. 60.5% clenched their teeth during the night where as 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. With in the limits of this study it is conclusive that personality traits are important factors that influence bruxism among children.

Keywords: Bruxism; Clenching; Personality.

Introduction

Bruxism was first described in 1907, by Marie and Pietkiewicz as the habitual grinding, gnashing or clenching of teeth at times other than for the mastication of food [1]. Bruxism is characterised by a repetitive, unconscious grinding or clenching of teeth either

during sleep or awake fullness [2, 3]. The American Academy of Sleep Medicine defines bruxism as the “repetitive jaw muscle activity characterised by the clenching or grinding of teeth and/or bracing or thrusting of the mandible” [4]. Though bruxism occurs in both states of consciousness, it is more commonly observed during sleep, hence it is considered as sleep movement disorder

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(sleep bruxism) [5]. Lobbezoo F et al, in 2013 graded the diagnostic criteria for sleep and awake bruxism as ‘possible’, ‘probable’ and ‘definite’ [6]. Bruxism has posed as a major concern for dentists through out the world, as it causes severe attrition which results in decreased crown length or even fracture of teeth, along with fracture of restorations, temporal headaches [7]. Repetitive clenching increases the pressure on the mandible, as well as causes strain on the muscles and tissues around the jaws, which in turn becomes a causative factor for orofacial pain, attrition, abfraction of teeth, degenerative temporomandibular disease, muscular hypertrophy, periodontal tissue injury and headache [8, 9].

Bruxism is predominantly found in children aged between 3-10 years, it gradually reduces with increase in age [10]. The prevalence of Bruxism in children ranges from 3.5% - 40.6%, and it has no gender predilection [11] [12, 13]. The etiology for the commencement of bruxism is uncertain. However, there are various

physical and psychological causes that have been known to cause bruxism. Allergic reactions that exacerbate asthma and respiratory airway infection may cause bruxism as a reflex of the central nervous system [14]. Chiefly it is believed that children with bruxism develop the habit because of the influence of emotional factors, such as; having to deal with various tasks, such as high expectations, inner conflicts, self-image, self-esteem, and anxiety [15]. The capacity to deal with stress is unique to each individual and may be directly related to the formation of an individual’s personality [16]. The occurrence of this parafunctional habit can also be attributed to genetics, premature occlusal interferences, overjet, overbite and also crossbite [17].

Bruxism has a multifactorial etiology, which includes morphological, pathophysiological and psychosocial factors. Psychosocial factors include anxiety, stress and characteristics of personality [18]. Feelings of frustration, anxiety or fear may trigger tooth

Figure 1. 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%.

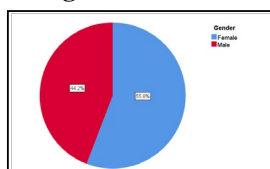


Figure 2. Pie chart showing parents response to the incidence of clenching in children where red colour represents yes and blue colour represents no. 60.47% of the parents did not notice any parafunctional activity.

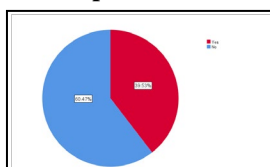


Figure 3. Pie chart showing the time period of clenching of teeth where blue represents clenching of teeth under stress, red represents clenching during the day and green represents clenching during night. Most participants clenched their teeth during the night (60.5%).

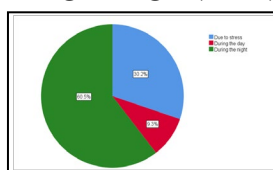


Figure 4. Pie chart showing incidence of jaw pain after waking up where blue represents yes, red represents no and green represents maybe. 50% of the total population had jaw pain after waking up in the morning.

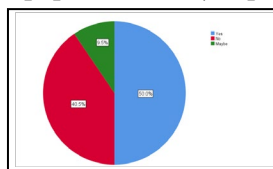
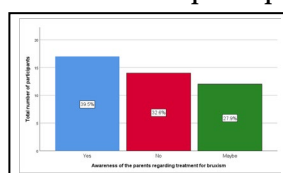


Figure 5. Bar graph showing awareness of parents regarding treatment of bruxism where blue represents yes, red colour represents no and green colour represents maybe. 39.5% of the total participants were aware about the treatment options available. The x axis represents the awareness of participants regarding the treatment of bruxism and the y axis represents the total number of participants.



clenching. According to Manfredini et al. [19], bruxism is related to repression of aggressiveness. When compared with non bruxers, bruxers present with higher levels of hostility, depression and susceptibility to stress [20].

Due to its multifactorial nature, it is important to establish the diagnosis of bruxism based on the possible etiological factors of its condition. Thus, the identification of behavioral problems and emotional stress can aid in improved understanding of the interaction of these factors in the development or aggravation of bruxism. Every child is unique and possesses different abilities and all the children are not capable of doing the same task [21]. The child's Personality influences the child's ability to perform various tasks, to varying degrees. 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 [22]. Personality traits that have been developed during 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 [23].

Our department is passionate about child care, we have published numerous high quality articles in this domain over the past 3 years [24-42]. With this inspiration we aimed to pursue the influence of various types of personalities on bruxism in children.

Materials and Methods

Subjects and Methods: A descriptive cross-sectional survey was conducted over a period of 4 months, from March 2020 to June 2020, to determine the association between personality disorders and bruxism in children, between ages of 4 and 10 years of age. The personality changes were adapted from the parameters set in [43, 44]. The screening of bruxism was done by the presence of night time teeth grinding and clenching, along with presence of jaw pain and headache in children after waking up.

Ethical Statement: The study and the study protocol were reviewed by the Ethical committee of institutional review board, and ethical clearance were granted. Online consents were obtained from the parents participating in the study.

Questionnaire and Data Collection: The questionnaire comprised 15 questions, which was 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. The questionnaire used can only be used for screening purposes and does not aid in diagnosis of any conditions.

The questionnaire was divided into four parts, which are briefed as follows,

Part 1 of the questionnaire consisted of questions about the child's age and gender.

Part 2 of the questionnaire included 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.

Pilot Study: A pilot study was conducted to assess the content validity of the developed questionnaire as well as to test its reliability and to test derive the sample size required for the present study. The questions were framed post review of literature and were further reviewed by four experts for its content validity. Twenty dental interns took part in the pilot study to assess the external reliability of the questionnaire; their results were not included in the main study.

Statistical Analysis: The responses from the subjects, the values and variables were tabulated and defined using the SPSS software by IBM [IBM statistical package for social sciences, for windows, Version 21.0. Armonk, NY: IBM Corp], and statistical analyses were carried out. Chi square tests were used to assess the association, any p value less than 0.05 was considered significant.

Results and Discussions

The total number of responses obtained were 85, of which 55.8% were females and 44.2% were males (figure 1). 39.5% of the parents were aware about the clenching habits of their children and 60.47% parents lacked awareness (figure 2). 60.5% of the children clenched their teeth during the night, while 9.3% clenched their teeth during the day. In 30.2% children stress was the factor which was attributed with clenching (figure 3). The incidence of jaw pain after waking up was seen in 50% of the participants and 40.5% of the participants did not have any pain (figure 4). 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 5).

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 (Graph 6). 39.5% of the children were worried this shows the trait called Neuroticism (figure 7), 41.9% were dependent on their parents for work this shows the trait called Conscientiousness (figure 8), 41.9% of the children who clenched their teeth during stress were responsible this shows the trait called agreeableness (figure 9) and 25.6% of the children were interactive with others. This shows the trait called Openness (figure 10).

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

Figure 6. 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).

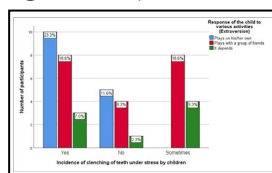


Figure 7. Bar graph showing association between clenching of teeth under stress and response of the child to extreme stress (Neuroticism) where blue colour represents she/he is calm, red colour represents she/he is worried and green colour represents it depends. The X axis shows incidence of clenching 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).

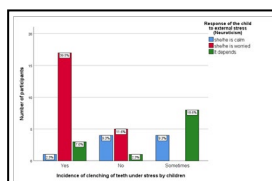


Figure 8. Bar graph showing association between clenching of teeth under stress and response of the child on being independent with work (Conscientiousness) where blue colour represents dependent , red colour represents independent and green colour represents both. The X axis shows incidence of clenching 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).

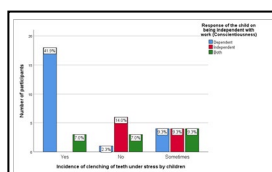


Figure 9. Bar graph showing association between clenching of teeth under stress and response of the child on being socially responsible (Agreeableness) where blue colour represents responsible , red colour represents not responsible and green colour represents sometimes responsible. The X axis shows 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).

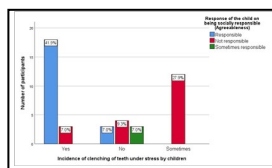
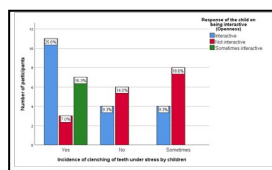


Figure 10. Bar graph showing association between clenching of teeth under stress and response of the child on being interactive (openness) where blue colour represents interactive , red colour represents not interactive and green colour represents sometimes interactive. The X axis shows incidence of 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).



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 [45]. 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 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 [46]. 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 [47, 48].

In previous studies by Deepa G et al, Clenching of teeth in children was reported by 22% of the working mothers, and they had noticed worn down dentition [49]. According to a study Bayar et al. [50], 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. [51] and Gungormus and Erciyas [52] distinguish from three many emotional disorders which include stress, depression, neurosis, phobias, personality disorders, anxiety and paranoid states. 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 [53-56]. According to the American College of Sports Medicine, it is recommended that children especially toddlers should be encouraged to try short bouts of exercise of moderate intensity [57]. In a study done by Deepa G et al, it was found that children who had more than 2 hours of physical activity were less prone to bruxism than children who got less than 1 hour of physical activity [58].

Conclusion

The role of personality disorders as an etiological factor which influences and causes bruxism is one of the most debated issues in the present day and age. With in the limits of this study it is conclusive that personality traits are important factors that influence bruxism among children, hence the presence of Bruxism can serve as an indicator for a personality disorder, which can lead in early treatment and management of the personality disorder and aid in psychological help, in such a way that it does not progress from childhood in to adulthood, so that the individuals are able to understand the mannerisms and help in resolving conflicts and timely control of the habit. 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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