
Influence of Bruxism In Children Visiting A University Dental Hospital - A Retrospective Study

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Abstract: Sleep bruxism is classified as a movement disorder related to sleep. Despite a function is characterised by non-functional teeth contact, manifesting by grinding or tension of teeth. It is not a disease, but when exacerbated may lead to an imbalance of the stomatognathic System. Several therapeutic modalities have been suggested, but there is no consensus about the most efficient. The aim of the study was to access the various symptoms of bruxism in children. The study was based on the date of patients reported to the Department of Pediatric & Preventive Dentistry in a private Dental Hospital, India. The data was obtained from analysing the patient reports for the time frame of June 2019 and March 2020. Various symptoms were diagnosed among which prevalence of pain in tooth and sensitivity was the most common when compared to other symptoms. The study reveals that sensitivity is the most common symptom among the children having bruxism.

Keywords: Bruxism, Children, Non- functional, Pain, Sensitivity.

INTRODUCTION

Bruxism is a movement disorder characterised by grinding and cleansing of teeth braces and also in studies shows that it is a centrally mediated disorder and psychosocial factors like stress have a little role in the aetiology of bruxism (Machado et al., 2014)(Shetty et al., 2010). The association between bruxism and acute symptoms of anxiety and depression as well as its relation to more disorders raises the possibility that, in nonclinical populations, teeth grinding may also be associated with stable individual differences in the tendency to experience negative emotions (Machado, 2004). Oral health positively affects the physical and mental well-being and interpersonal relationship of an individual. It is thus a vital component of overall health. Oral health is all important for children. Traditionally, bruxism is the term used to define daytime and nighttime parafunctional activities, which include the acts of grinding, rubbing, tapping, and clenching. Recently, bruxism with concomitant tooth grinding was reclassified as a sleep-related oral-motor movement disorder.

Bruxism is a stereotyped movement characterised by the grinding and tension of the teeth and can be observed during wakefulness or during sleep. In children the onset of sleep bruxism can occur as early as one year old with direction of the temporary incisors, but usually begins around 4 to 8 years of age, the incidence of sleep bruxism is highest between 10 to 14 years and later diminishes and also sometimes it argent from Peripheral influences. The pathophysiology of sleep bruxism is still unknown; it is considered as multifunctional. The association with bruxism and acute symptoms of anxiety and depression as well as its relationship with individual mood disorders. Oral health positively affects the physical and mental well-being and the personal relationship of an individual. It is thus a vital component of overall health. The prevalence of sleep bruxism is higher in children and may lead to frequent arousal altered daytime function. The prevalence of Bruxism has a wide range because of different diagnosis of this para functional habit and different methodologies. Parents ask dentists about tooth grinding of the children and as well as side-effects of this and how to stop this habit. The most common clinical sign of that bruxism is clinical wear of teeth which is caused by periodic clenching. And other side-effects of bruxism system or to the upper mobility pain and hypertrophy of Masseter muscles and degenerative changes of temporomandibular joint and headache. Temporomandibular joint disorder where considered as law clicking, pain or tenderness in muscle and limitations in mouth opening. There are also various physiological disorders including irritability, seclusion, sadness, depression (Antonio, Pierro and Maia, 2006). Our team has rich experience in research and we have collaborated with numerous authors over various topics in the past decade (Deogade, Gupta and Ariga, 2018; Ezhilarasan, 2018; Ezhilarasan, Sokal and Najimi, 2018; Jeevanandan and Govindaraju, 2018; J et al., 2018; Menon et al., 2018; Prabakar et al., 2018; Rajeshkumar et al., 2018, 2019; Vishnu Prasad et al., 2018; Wahab et al., 2018; Dua et al., 2019; Duraisamy et

al., 2019; Ezhilarasan, Apoorva and Ashok Vardhan, 2019; Gheena and Ezhilarasan, 2019; Malli Sureshababu et al., 2019; Mehta et al., 2019; Rajendran et al., 2019; Ramakrishnan, Dhanalakshmi and Subramanian, 2019; Sharma et al., 2019; Varghese, Ramesh and Veeraiyan, 2019; V. Panchal, Jeevanandan and Subramanian, 2019; Gomathi et al., 2020; Samuel, Acharya and Rao, 2020)

MATERIALS AND METHODS

Study design

This was an institution study among children who reported to a private institution. Before scheduling the retrospective study the official permission was obtained from the institutional ethical committee. The result was obtained using a simple random sampling technique. Case records of the patients were retrieved from the information archiving system – patient management software. Incomplete case sheets were excluded from the study. A retrospective study was done based on the available records from June 2019 to March 2020. Details like age gender residents presence absence of the habit types of symptoms especially sensitivity, pain in teeth, muscle tenderness, their faces, fractured cusps were evaluated.

Statistical analysis

Prevalence of different oral habits in children was calculated from the data obtained . Using SPSS version 26.0, Descriptive statistics was conducted for all the variables which were defined in the software. Chi-square analysis was used and $P > 0.05$ was not considered significant .

RESULTS AND DISCUSSION

The various symptoms that have been assessed among the collected data from the information archiving software. In this study, from Figure 1, shows the distribution of subjects based on different age groups. X axis represents the age and Y axis represents the percentage distribution. 56.7% of the subjects belonged to the 5-10 years age group, whereas 43.3% of the subjects belonged to the 11-17 years age group. Figure 2, shows the distribution of subjects based on gender. X axis represents the gender and Y axis represents the number of patients in percentage. 53.3% of subjects were males and 46.7% of the subjects were females. Figure 3, it shows the children with unpleasant muscle activity where 10% of bruxism subjects had unpleasant muscle activity and 90% had no muscle activity. From Figure 4, it shows the percentage of subjects with tooth sensation in which 26.7% of subjects had tooth sensation whereas 73.3% had no tooth sensation. Figure 5 shows the percentage of subjects with tenderness on awakening in which only 10% of the children had tenderness on awakening, whereas 90% had no tenderness. Figure 6, shows the subjects with oral/facial pain/headache in which 10% of the subjects had oral/facial pain, whereas 90% had no oral/facial pain. Figure 7 shows the various complaints presented by the subjects in which 73.3% of subjects had pain in teeth, 3.3% muscle tenderness, 3.3% grinding habit and 20% sensation in tooth. Figure 8, Among the 5-10 years age group, 100% of the subjects presented with muscle tenderness, whereas in the 11-17 years age group, 100% of subjects presented with grinding as their complaint. Pearson chi-square value- 0.596 , p value - 0.749 (>0.05), statistically not significant, which means there is no significant association with age and the complaints presented by the patient. Figure 9, Among males, 100% of the subjects had muscle tenderness and grinding, whereas in females 50% of subjects had both pain in the teeth and tooth sensation. Pearson chi-square value- 0.933, p value - 0.817 (>0.05), statistically insignificant, which means there is no significant association between gender and the complaints presented by the patient. Among all the symptoms, the most commonly encountered symptom was the tooth sensitivity and pain.

Tooth wear, gingival recession, masticatory muscles hypertrophy and presence of joint sounds in TMJ palpation may be present on physical examination, especially in more advanced cases (Lavigne, Rompre and Montplaisir, 1996). We found no differences between our groups in the percentage of time spent in different stages of sleep or their sleep efficiency. These data are consistent with those from most adult studies(Lavigne et al., 2002),(Bader and Lavigne, 2000). Study revealed an increased incidence of physical somatic problems in this group of patients, which is consistent with results from studies of adults with bruxism (Beebe et al., 2004). It is known that sleep fragmentation secondary to sleep-disordered breathing in children can lead to behavior, attention, and executive-function problems(Clark, Beemsterboer and Rugh, 1981). The distribution of bruxism episodes during different stages of sleep was similar to that identified in adults with bruxism, but there was no correlation between bruxism episodes and GERD in this patient population.

The method of direct visual observation of dental attrition in the mouth is another limitation, since it is difficult to ensure whether tooth wear is a result of parafunction or a functional habit, especially in deciduous teeth where occlusal surfaces are physiologically worn (Jacobson, 1989; Castelo et al., 2005). Subjects who were bruxists in the past may have wear facets, even if the habit does not exist anymore; while individuals with recent sleep bruxism may not show signs of attrition (Svensson et al., 2008). The etiology of bruxism is complex, multifactorial and, therefore, difficult to identify. The most frequently mentioned condition is emotional, with stress and anxiety being considered risk factors that are associated with occlusal problems (Johansson et al.,

1993; Hachmann et al., 1999; Kato and Lavigne, 2010). Anxiety in childhood is a frequent occurrence. It was found that the children with bruxism were more restless, had greater concerns about school, and presented a greater amount of spontaneous complaints of forgetfulness and memory gaps than did the non-bruxing individuals, which suggests an association between these factors and sleep bruxism (Bouden, Halayem and Fakhfakh, 2002). It is suggested that childhood anxiety can occur because of its presence in the surrounding environment and is influenced by social factors such as homework and household chores ((Vanderas et al., 1999; Antonio, Pierro and Maia, 2006). Bruxism is a condition when severe might lead to a condition of attrition which might cause the exposure of pulp in children. It is usually identified with sensitivity, which might need a root canal treatment. Pulpotomy is considered to be the treatment of choice for primary teeth with pulp involvement. Bacteria plays an important role in the initiation and perpetuation of pulpal and periapical disease (Jeevanandan, 2017). Pulpotomy in primary tooth is carried out using rotary files compared to manual instrumentation. There are endodontic files specifically designed to prepare maxillary and mandibular anterior primary teeth. (Jeevanandan, Ganesh and Arthilakshmi, 2019), (Nair et al., 2018; Subramanyam et al., 2018; Lakshmanan et al., 2020), (Veerale Panchal, Jeevanandan and Subramanian, 2019)

It is the responsibility of the parents to look after brushing techniques hence to maintain the proper oral hygiene. Hence to prevent further lesions in the oral cavity. Lesions may also arise due to traumatic injuries. Ranula is a cystic lesion that arises in the floor of the mouth. Formation of the cyst is attributed to the traumatic rupture of the excretory salivary duct. (Somasundaram, 2015; Gurunathan and Shanmugaavel, 2016; Govindaraju, 2017; Packiri, 2017; Subramanyam et al., 2018), (Christabel and Linda Christabel, 2015; 'Fluoride, Fluoridated Toothpaste Efficacy And Its Safety In Children - Review', 2018).

There are reason advances such as Kedo-S rotary files that have been used for instrumentation during obturation (Govindaraju, Jeevanandan and Subramanian, 2017; Govindaraju et al., 2018; Jeevanandan and Govindaraju, 2018) Our institution is passionate about high quality evidence based research and has excelled in various fields ((Pc, Marimuthu and Devadoss, 2018; Ramesh et al., 2018; Ezhilarasan, Apoorva and Ashok Vardhan, 2019; Ramadurai et al., 2019; Sridharan et al., 2019; Vijayashree Priyadharsini, 2019; Mathew et al., 2020)

CONCLUSION

From the present study, it can be concluded that the most children in younger age presented with chief complaint of muscle tenderness while the elder age group had chief complaint of night grinding. Awareness programmes based on the bruxism among dental practitioners and patients are required to create awareness about bruxism.

AUTHOR CONTRIBUTIONS

Author 1 (Noorul Aneesa) carried out the retrospective study by collecting data and drafted the manuscript after performing the necessary statistical analysis. Author 2 (Mahesh Ramakrishnan) aided in the conception of the topic, participated in the study design, statistical analysis and supervised in preparation of the manuscript and helped in study design and coordinated in developing the manuscript. All the authors have equally contributed in developing the manuscript.

CONFLICTS OF INTEREST

There are no conflicts of interest.

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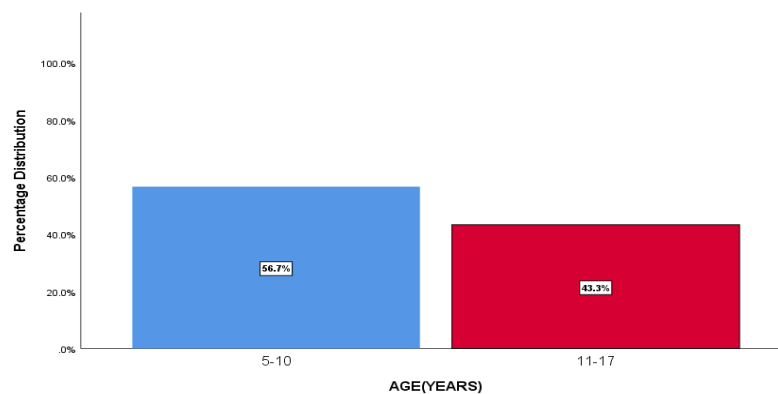


Fig.1: Bar graph shows the distribution of subjects based on different age groups. X axis represents the age and Y axis represents the percentage distribution. A total of 56.7% of the Subjects belonged to the 5-10 years age group, whereas 43.3% of the subjects belonged to the 11-17 years age group.

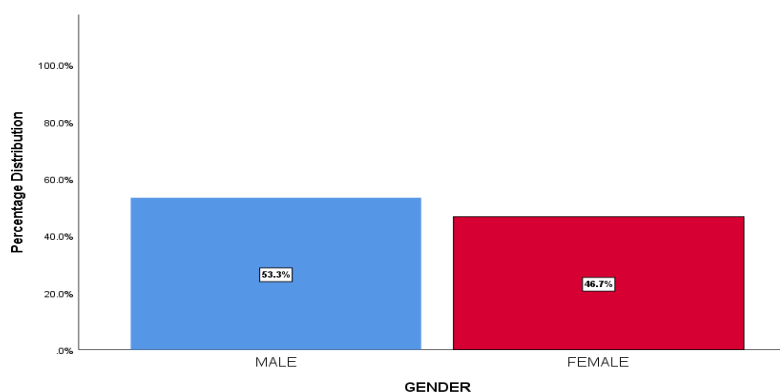


Fig.2: Bar graph shows the distribution of subjects based on gender. X axis represents the gender and Y axis represents the number of children in percentage. A total of 53.3% of children were males and 46.7% of the children were females.

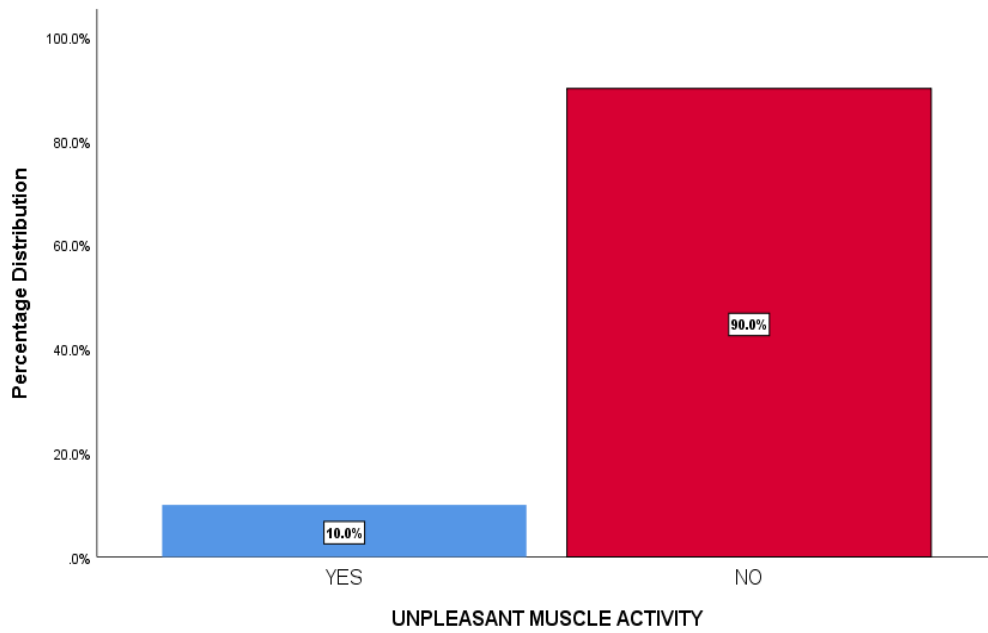


Fig.3: Bar graph shows the distribution of subjects based on the unpleasant muscle activity. X axis represents the response to the question on unpleasant muscle activity and Y axis represents the percentage distribution. In our study 90% of the children had no unpleasant muscle activity whereas only 10% of the children had unpleasant muscle activity.

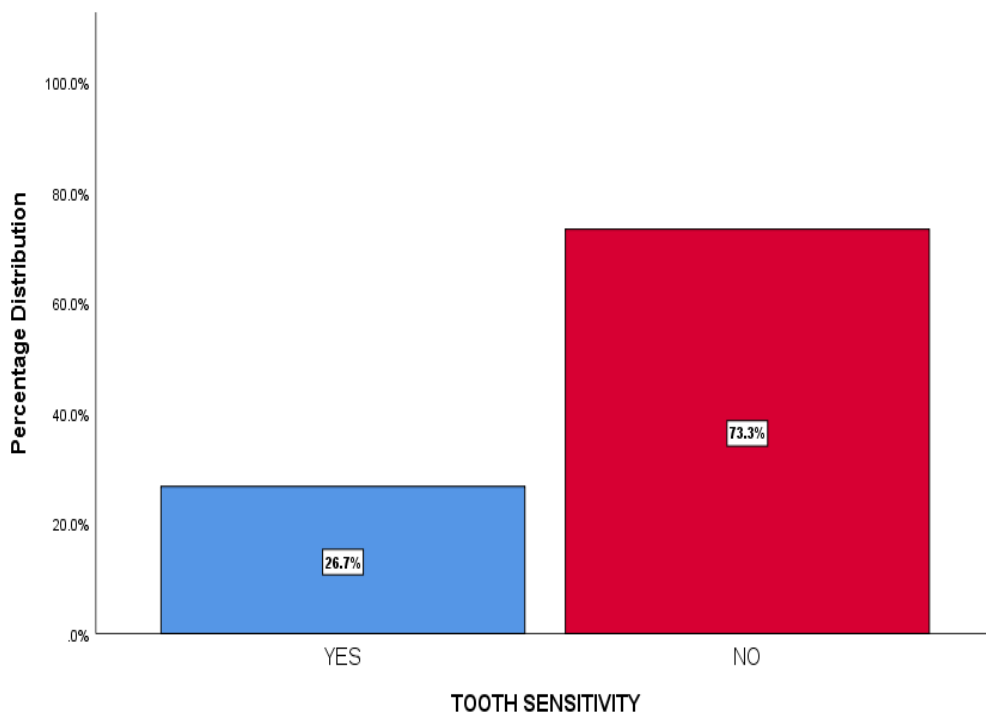


Fig. 4: Bar graph shows the distribution of subjects based on the response to question on tooth sensitivity. X axis represents the response to tooth sensation and Y axis represents the percentage distribution. Only 28.67% of the children had some form of tooth sensitivity.

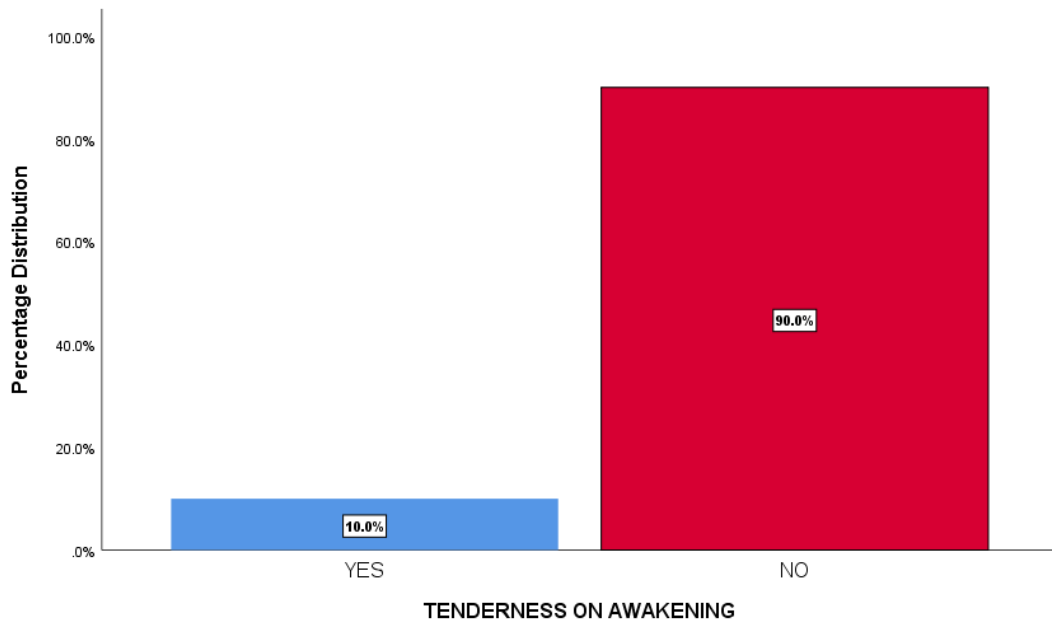


Fig.5: Bar graph shows the distribution of subjects based on the response to tenderness of awakening. X axis represents the response to whether any muscle tenderness of awakening and Y axis represents the percentage distribution. Muscle tenderness was seen only in 10% of the Children.

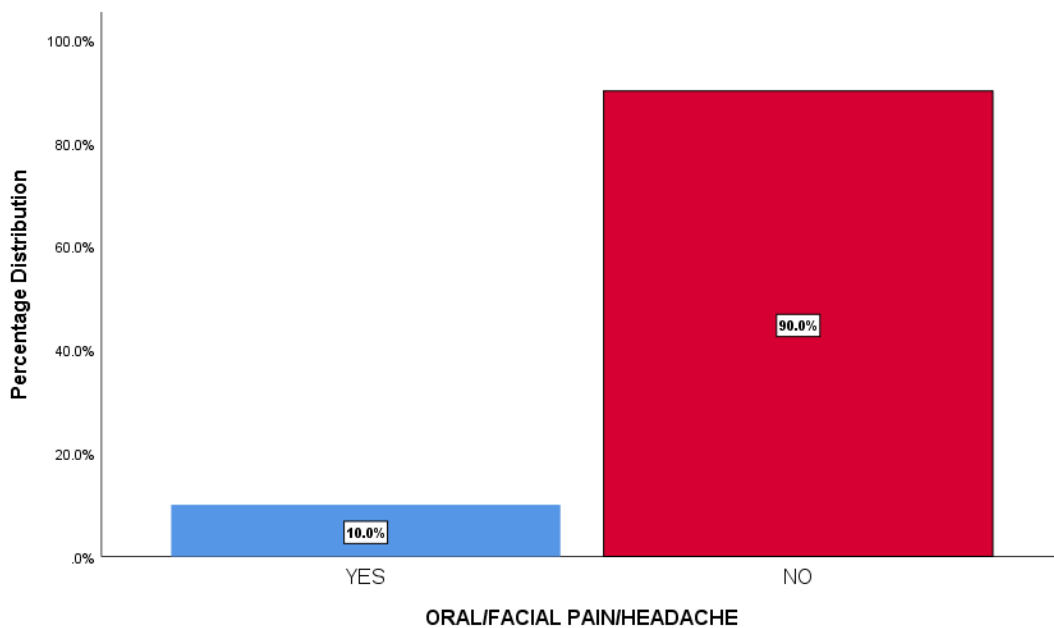


Fig.6: Bar graph shows the distribution of subjects based on oral/facial pain. X axis represents the response to the question on oral/facial pain and Y axis represents the percentage distribution. Only 10% of the children had oral/facial pain.

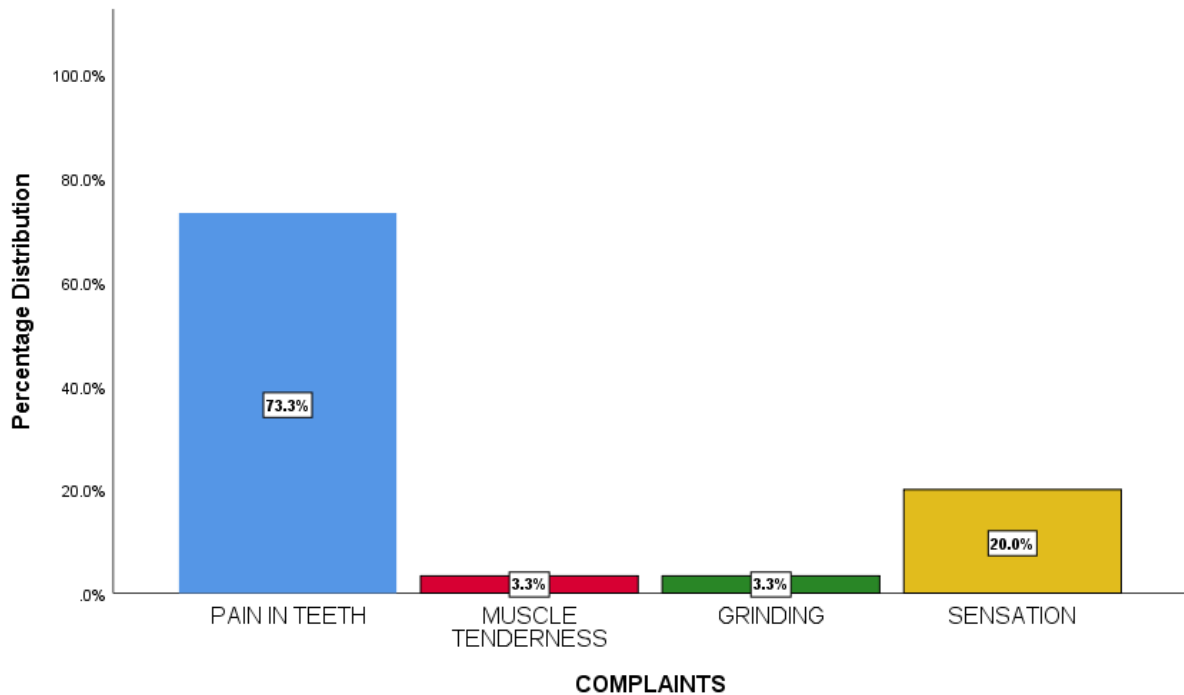


Fig.7: Bar graph shows the distribution of subjects based on the chief complaints presented by the children during the first visit. X axis represents the various complaints and Y axis represents the percentage distribution. Most of the children reported with, the chief complaint of pain in the teeth (73.33%), Night grinding (3.3.%) and sensitivity of tooth (20%).

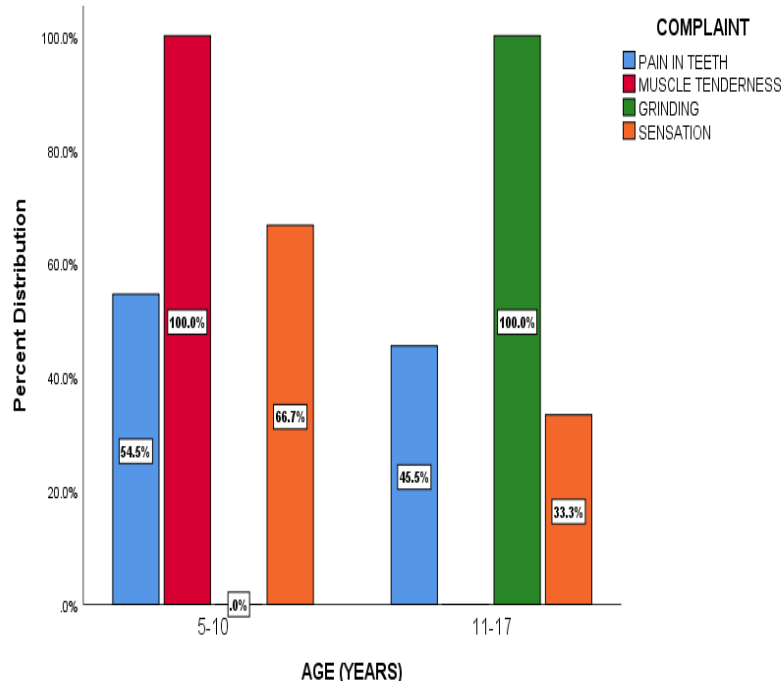


Fig.8: Bar graph shows the association between different age groups and the complaints presented by the patients. X axis represents the age groups and Y axis represents the percentage distribution. Children in the age group (5-10yrs old) presented with the chief complaint of muscle tenderness (red), while children in the elder age group (11-17yrs) presented with complaints of night grinding (green). However, comparison between age and chief complaint did not show any statistical significant correlation, pearson chi-square value- 0.596, p value- 0.749 (>0.05).

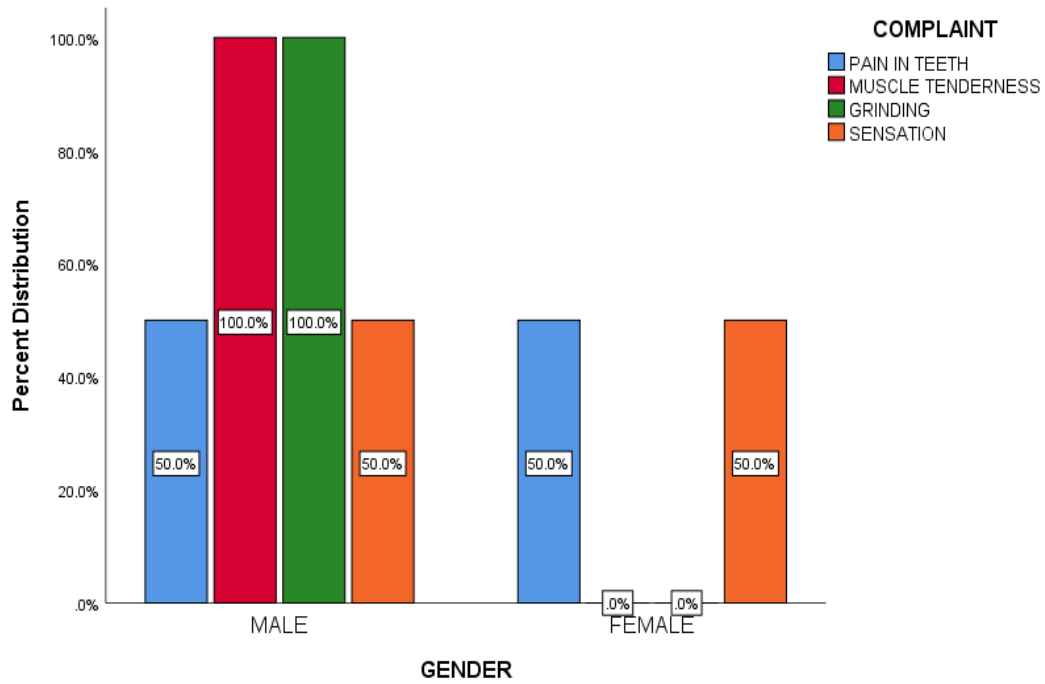


Fig.9: Bar graph shows the association between gender and the complaints presented by the patients. X axis represents gender and Y axis represents the percentage distribution. Muscle tenderness(red) and grinding(green) was in male , while female children presented with pain(blue) and sensitivity.(orange) However, Chi square analysis did not show any statistical significance with Pearson chi-square value- 0.933, p value - 0.817 (>0.05), there is no significant association between gender and the complaints presented by the patient.