

Evaluation of Oral Hygiene, Caries and Malocclusion Status among Children with Autism

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ABSTRACT

Children with ASD are frequently reported with oral diseases like gum diseases, bruxism, self-inflicted injury, dry mouth, non nutritive chewing, and tongue thrusting. In addition, it has been reported that such individuals also had malocclusions such as high-arched palate and anterior open bite. Moreover, in studies evaluating dental status in these children, different results have been obtained. There is inadequate information about the prevalence of dental disease and access to dental care among children with autism. Our study aims at evaluating the oral health, malocclusion and caries status in children with ASD. A proforma was designed and consisted of . The study population included 60 children with autism in Chennai. The children were clinically examined and the data collected was statistically analyzed using SPSS software. The results show that the 60%(n=36) of children with autism brushed once daily and 40%(n=24) of the children brushed twice daily. 38.3%(n=23) of the children had thumbsucking habit followed by tongue thrusting 31.7%(n=19); lip biting 15%(n=9); cheek biting 15%(n=9). 40%(n=24) of children with autism had poor oral hygiene, 33.3%(n=20) had fair oral score and 26.7%(n=16) of the children had good oral hygiene. 36.6%(n=24) of the children had $20 > dmft$ score. 71.7%(n=43) of children with autism had malocclusion, and 28.3%(n=17) of the children did not have malocclusion.

56.7%(n=34) of the children with autism had definite malocclusion, 15%(n=9) had minor malocclusion, 15%(n=9) had severe malocclusion and 13.3%(n=8) had handicapping malocclusion. 36.6%(n=22) of the children with autism had proclination.

Keywords: autism, malocclusion, questionnaire

INTRODUCTION-

Autism is a neurodevelopmental condition characterized by impairments in social interaction, impaired communication and restricted, repetitive, or stereotyped behaviors.[1] Autism specifically affects brain function in the areas responsible for the development of communication and social interaction skills. The hallmark of autism is the lack of communication skills. Affected children also have problems with language, behavior and social skills. Early diagnosis, early intensive remedial education and behavioral therapy significantly enhance the child's social functioning.[2]

Autism was first described in 1943 by US psychologist, Leo Kanner, affecting boys 3-4 times more often than girls.[2] Common etiological factors proposed include post-encephalitic infection or sepsis, genetic and autoimmune factors and vitamin D deficiency. Family income, education, and lifestyle do not seem to affect the risk of autism.[3]

The risk of dental caries and gingivitis is expected to be higher in these patients due to improper brushing and flossing because of the difficulties the trainers and parents encounter when they brush the children's teeth. It could also be due to a lack of necessary manual dexterity of autistic children. In general, children with autism prefer soft and sweetened foods, and they tend to pouch food inside the mouth instead of swallowing it due to poor tongue coordination, thereby increasing the susceptibility to caries. Also, children diagnosed with autism spectrum disorder (ASD) are prescribed psychoactive drugs or anticonvulsants, and the presence of generalized gingivitis might be the side-effects of these medications.[4] Children with autism have multiple medical and behavioral problems, making their dental treatment extremely difficult. Several studies show that autistic children demonstrate self-injurious behavior (SIB), aggression, odd responses to sensory stimuli, unusual food likes or dislikes. They also have abnormalities of mood and excessive fear, causing injuries to their head, neck or mouth.[5]

In general, relatively little has been written about autism in developing countries as compared with North America and Europe. While this disorder is not rare, majority of people in India have not been diagnosed and do not receive the services they need due to lack of awareness among medical professionals.[5]

Information on the patterns of development of the disease in the population is important because it acts as a foundation for the planning of public oral health policies.[4] The present study would attempt to explore the oral hygiene practices and oral health status in children with autism.

MATERIALS AND METHOD-

A proforma was designed in which name, age, date of birth, sex, presence of caries, presence of decayed, missed and filled teeth, severity of ECC and dmft score table, severity and type of malocclusion were recorded. Each child was clinically examined and the proforma was filled accordingly. The study population included 60 children between the age group 6-14 years. Their parents and caretakers were clearly explained about the purpose of this study and then the research was conducted. Prior consent was obtained from the respective school authorities and from the parents/guardians through the schools to conduct the study. Data was entered in the excel sheet in a methodical manner and was imported to SPSS. Incomplete or uncensored data was excluded from the study. IBM SPSS 20.0 Software was used for data analysis. Independent variables include – age, gender and dependent variables include dmft score, malocclusion. Descriptive and inferential statistics was used. Inferential test includes the chi-square test.

RESULTS AND DISCUSSION-

A total of 60 children with autism were examined. Bargraph 1 shows that 60%(n=36) of children with autism brushed once daily and 40%(n=24) of the children brushed twice daily. Bargraph 2 shows that 38.3%(n=23) of the children had thumbsucking habit followed by tongue thrusting 31.7%(n=19); lip biting 15%(n=9); cheek biting 15%(n=9). Bargraph 3 shows that 40%(n=24) of children with autism had poor oral hygiene, 33.3%(n=20) had fair oral hygiene score and 26.7%(n=16) of the children had good oral hygiene. Bargraph 4 shows that 28.3% of children with autism had dmft score of 10-20(n=24), 36.6%(n=22) had >dmft score and 23.4%(n=14) of the children had dmft score of <10. Bargraph 5 shows that 71.7%(n=43) of children with autism had malocclusion, and 28.3%(n=17) of the children did not have malocclusion. Bargraph 6 shows that 56.7%(n=34) of the children with autism had definite malocclusion, 15%(n=9) had minor malocclusion, 15%(n=9) had severe malocclusion and 13.3%(n=8) had handicapping malocclusion. Bargraph 7 shows that 36.6%(n=22) of the children with autism had proclination, 28.3%(n=17) had anterior spacing, 15%(n=9) anterior crowding and , 11.6%(n=7) had midline diastema and 8.3%(n=5) had open bite.

Although many studies have indicated higher amounts of dental caries in children with ASD (6,7), we found a similar prevalence of caries in ASD. No or little difference of caries risk has also been reported in studies using dental examinations conducted in Western countries and Hong Kong, which might have been due to the similar plaque pH and saliva buffering capacity in children with and without ASD (8,9). Various oral habits were also observed in most children with ASD in this study. Recent studies reported that the prevalence of oral habits reached up to 94.3% among those with ASD aged 4–23 years and 87.3% among preschool children with ASD (10,11). In this study, the most common oral habit was mouth breathing followed by object biting. We found the prevalence of thumbsucking in children with ASD was 38.3%

The present study has provided important baseline information on the occurrence of oral habits in a group of Saudi preschool children with ASD. Development of dental occlusion is strongly influenced by environmental factors such as oral habits. Early diagnosis and successful treatment of oral habits is pivotal in the development of occlusal harmony and function.[12] Therefore, intervention leading to oral habits cessation should be initiated as early as possible.

Pediatric dentists can expect to face the challenge of providing preventive dental care to an increasing number of children with ASD.[13] Therefore, the provision of preventive dental care and increasing dental health knowledge of the parents of ASD children is of vital importance.

CONCLUSION-

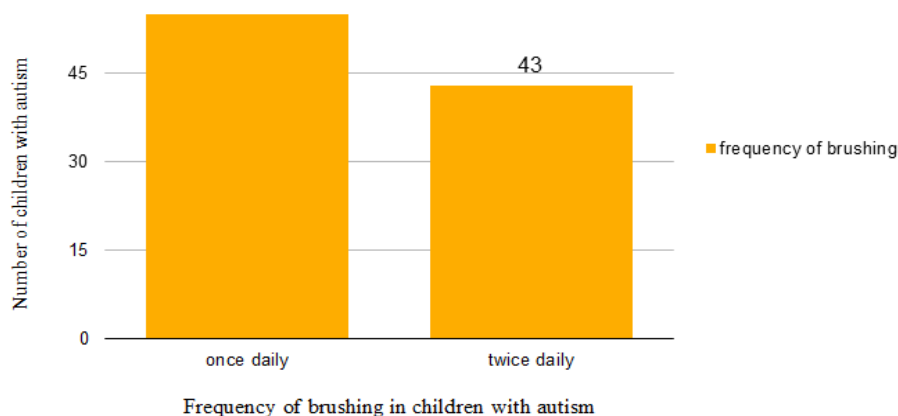
Despite these limitations, this work demonstrates that children with ASD showed a high prevalence of caries and malocclusion. The main reasons for the high rate of oral problems in children with ASD may be lack of tooth brushing and dental visits. Parents should be motivated and guide their children to brush their teeth more frequently. Dental teams should also be aware of this situation, and make efforts to develop novel strategies to provide proper oral care to this special-needs population.

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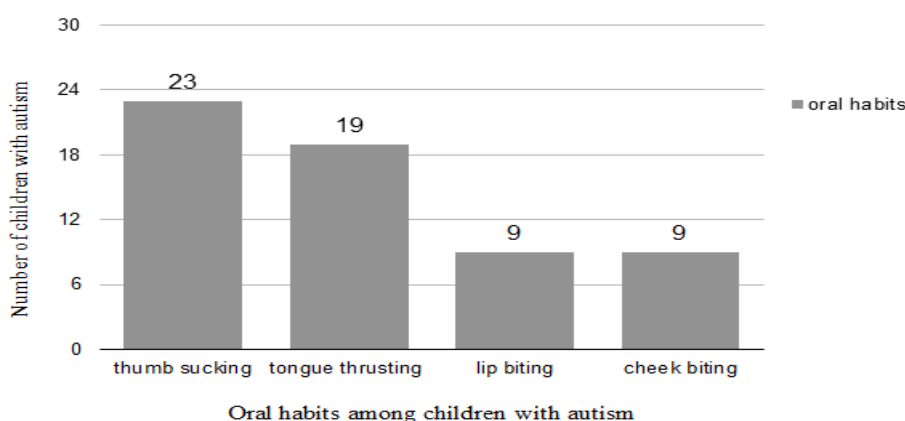
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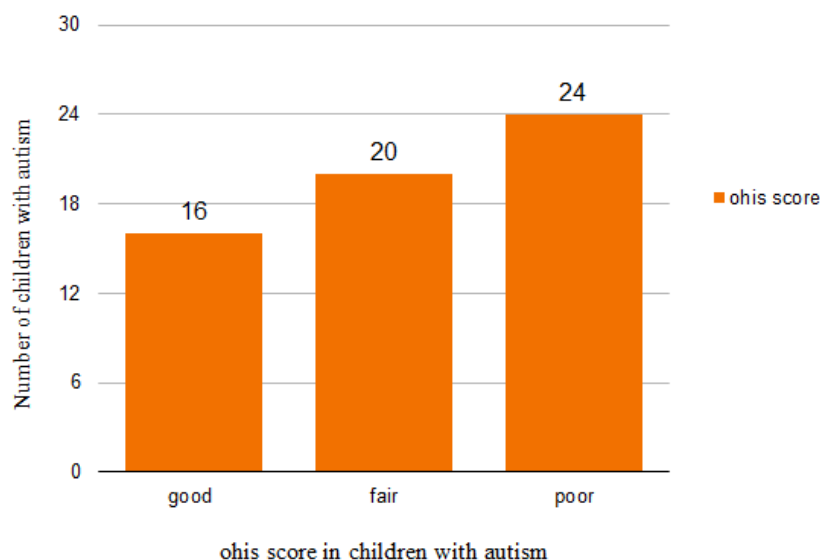
GRAPHS-



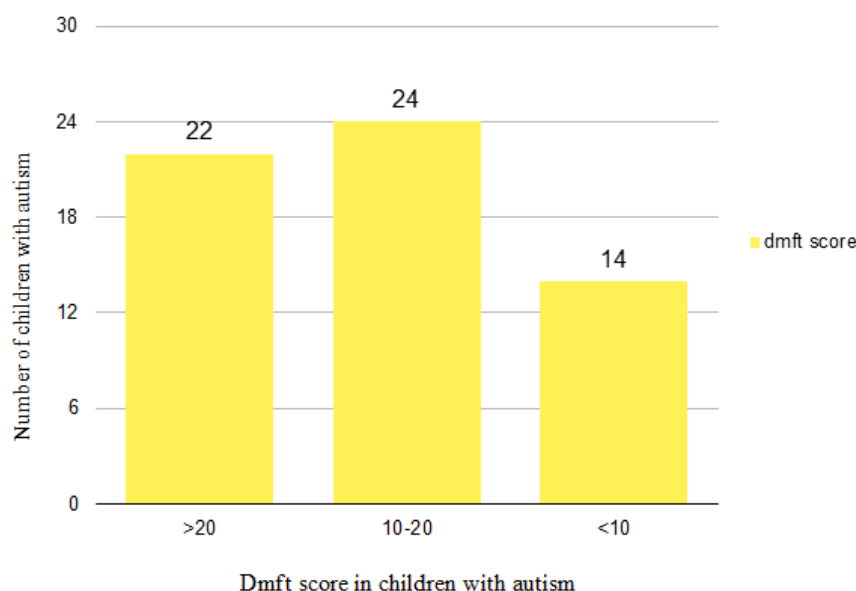
Graph 1- Bargraph represents frequency brushing in children with autism. X-axis represents frequency of brushing and Y-axis represents the number of children with autism. It shows that 60%(n=36) of children with autism brushed once daily and 40%(n=24)of the children brushed twice daily.



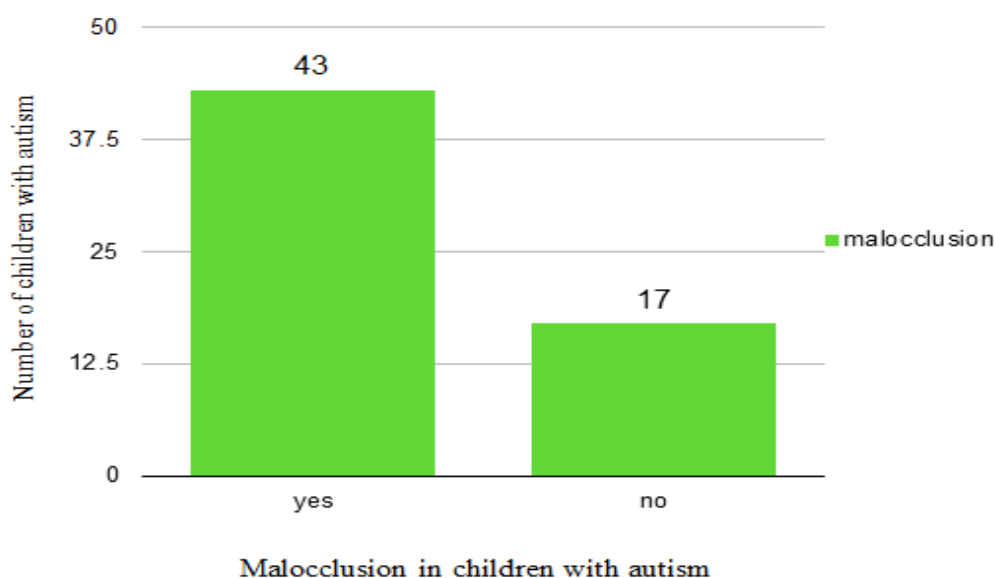
Graph 2- Bargraph represents frequency distribution of oral habits in children with autism. X-axis represents oral habits and Y-axis represents the number of children with autism. It shows that 38.3%(n=23) of the children had thumbsucking habit followed by tongue thrusting 31.7(n=19); lip biting 15%(n=9); cheek biting 15%(n=9)



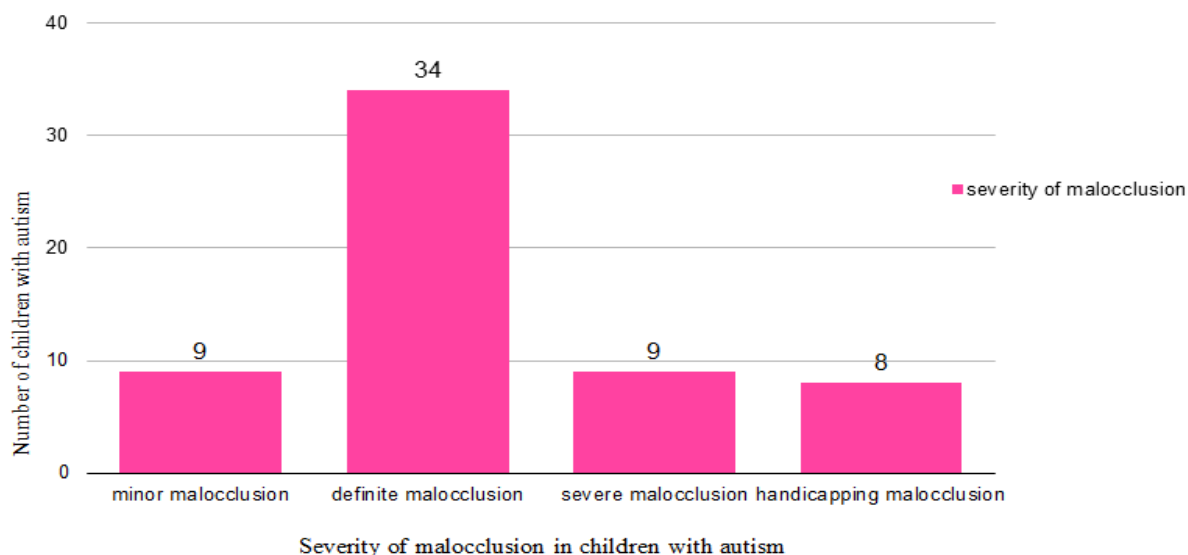
Graph 3- Bargraph represents oral hygiene status in children with autism. X-axis represents oral hygiene score and Y-axis represents the number of children with autism. It shows that 40%(n=24) of children with autism had poor oral hygiene, 33.3%(n=20) had fair ohis score and 26.7% of the children had good oral hygiene.



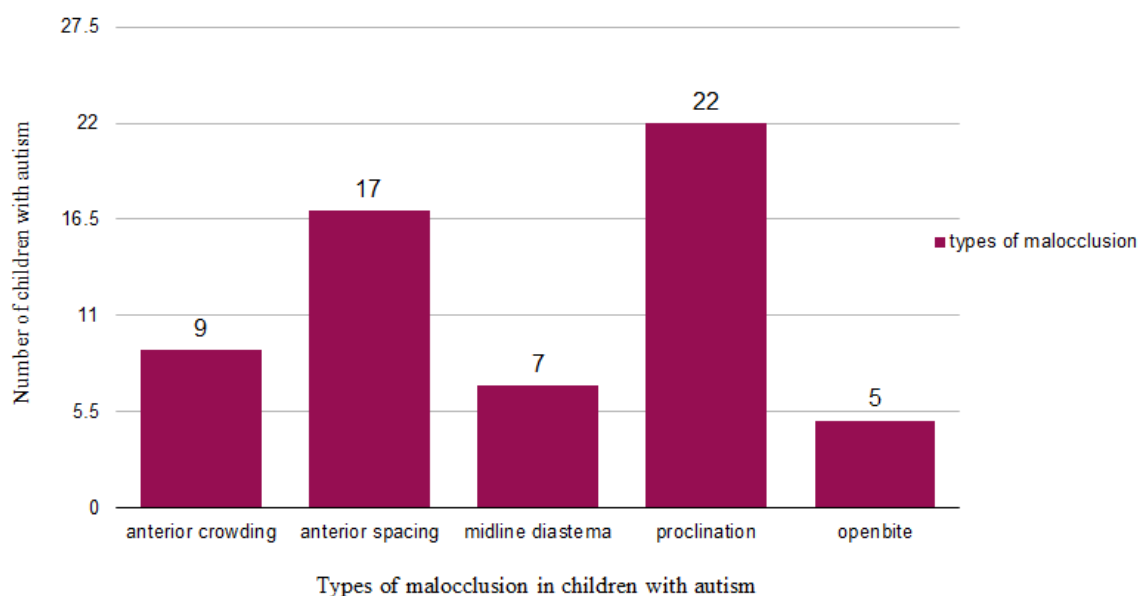
Graph 4- Bargraph represents dmft score in children with autism. X-axis represents dmft score and Y-axis represents the number of children with autism. It shows that 28.3% of children with autism had dmft score of 10-20(n=24), 36.6%(n=22) had >dmft score and 23.4%(n=14) of the children had dmft score of <10.



Graph 5- Bargraph represents malocclusion in children with autism. X-axis represents malocclusion and Y-axis represents the number of children with autism. It shows that 71.7%(n=43) of children with autism had malocclusion, and 28.3%(n=17) of the children did not have malocclusion.



Graph 6- Bargraph represents severity of malocclusion in children with autism. X-axis represents severity of malocclusion and Y-axis represents the number of children with autism. It shows that 56.7%(n=34) of the children with autism had definite malocclusion, 15%(n=9) had minor malocclusion, 15%(n=9) had severe malocclusion and 13.3%(n=8) had handicapping malocclusion.



Graph 7- Bargraph represents types of malocclusion in children with autism. X-axis represents types of malocclusion and Y-axis represents the number of children with autism. It shows that 36.6%(n=22) of the children with autism had proclination, 28.3%(n=17) had anterior spacing, 15%(n=9) anterior crowding and , 11.6%(n=7) had midline diastema and 8.3%(n=5) had open bite.