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A comparison of the oral health status of the children with and without autism in the Delhi NCR region of India: A cross – sectional study

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Abstract

Background: Autism Spectrum Disorder (ASD) is a complex neurodevelopmental disorder characterized by qualitative impairments in social interaction and communication, with restricted, repetitive, stereotyped patterns of behavior, interests and activities. It is categorized under a group of disorders known as Pervasive Developmental Disorders. These behaviors manifest along a wide spectrum and commence before 36 months of age and the estimated global prevalence of Autism is found to be 1:160 persons.

Objective: The objective of the current study was to assess the Oral Health Status of the children with Autism as compared to the children without Autism across the Delhi NCR region of India.

Study Design: A total of 200 children, between the age group of 3 to 16 years were included in the study, divided in 2 groups – 100 children with Autism (Case group) attending various special schools and 100 children without Autism (Control group) from regular schools in the Delhi NCR region. Demographic details were recorded and Oral health status were assessed by using Oral Hygiene index (OHI) or the Simplified (OHI- S) and its modification for deciduous and the DMFT/dmft and DMFS/dmfs indices.

Results: In the present study, the mean OHI-S, DMFT, dmft, DMFS and dmfs scores for children with autism was found to be (2.06 ± 1.13), (0.89 ± 1.19), (1.56 ± 2.15), (1.04 ± 1.52) and (2.72 ± 5.22) respectively, denoting poor oral hygiene status and higher prevalence for dental caries (77%) as compared to the children without Autism. However when the oral hygiene practices of the two groups of children were assessed for various cleaning aids and methods, it was found to be slightly better in the group with Autism and could be attributed to the meticulous efforts of their primary care givers for maintaining their proper oral hygiene. The results also show that there is a strong history of self-inflicting habits (SIH) or deleterious oral habits in the children with Autism as compared to the children without Autism.

Conclusion: The present study found that the children with autism have a higher caries prevalence and poor oral hygiene as compared to the children without Autism. The children with Autism also seem to need much more effort for providing oral care than the healthy children without Autism. Thus, there is a need to comprehensively evaluate the oral health status of the children with Autism and provide adequate measures to improve their oral hygiene and Oral Health status.

Keywords: Autism, Dental Caries, Caries Prevalence, Developmental Disabilities and Oral Health

Introduction

Autism Spectrum Disorder (ASD) is a complex neurodevelopmental disorder characterized by qualitative impairments in social interaction and communication, with restricted, repetitive, stereotyped patterns of behavior, interests and activities. It is categorized under a group of disorders known as Pervasive Developmental Disorders.

These behaviors manifest along a wide spectrum and commence before 36 months of age.[1] The World Health Organisation has estimated the global prevalence of Autism to be 1:160 persons.[2] The population with Autism Spectrum Disorder (ASD) presents with similar health problems as that of the typical population, but due to factors including poor dietary preferences; behaviors and specific aversions, this population is at a greater risk and more susceptible to developing chronic non-communicable oral health conditions.[3]

Clinical situations such as sensorimotor deficiency, disordered executive functions, attention problems, anxiety and related emotional regulation, difficulty in comprehension, and general speech impairment create various difficulties for families, educators, and dentists in providing oral health care to such children.[4] Changes in the amount of saliva in autistic children, poor eating habits, abnormal behaviors, bruxism, and inadequate oral and self-care remain the major problems that can result in poor oral health and can increase the risks of caries and periodontal diseases.[5,6] It has been estimated that almost 70% of individual with Autism present with self-injurious behaviours (SIB) located in the head and neck region.[7]

Oral findings reported in patients with Autism spectrum disorder included traumatic ulcerated lesions frequently a consequence of SIBs such as head banging; face tapping; and gingival picking. [8] Unusual oral habits include bruxism, tongue thrusting, non-nutritive chewing on objects such as gravel, cigarette butts, or pens and repeated regurgitation.[9] The most frequently reported dental implications of bruxism in children with Autism spectrum disorder include joint pain in the temporomandibular area; excessive wear of the dental enamel; and tooth avulsion.[10] Attrition has also been a consequence of a condition frequently seen in Autism called Pica. Lithophagia, a type of Pica involving the eating of grit and stones has been documented to lead to attrition and enamel wear.[12] Conditions such as over jets, spacing, Class II molar inclinations and open bites were also reportedly higher in patients with Autism.[13]

Unfortunately, children with Autism are almost twice as likely to have unmet oral health care needs than their peers without disabilities and represent one such population at high risk for poor oral health.**[6]** Poor oral health can lead to eating difficulties, speech impediments, oral pain, sleep disturbances, missed days of school and decreased self-esteem, ultimately resulting in a negative effect on the oral health status of the children.**[14]** Overall health status in the young autistic patients has been studied extensively whereas considerably less attention has been given to the oral health status in children with Autism. There is inadequate information about the prevalence of oral diseases and its affect on the oral health status among

children with Autism in comparison to that of children without Autism. Thus, the present study aims to bridge the gap and help create awareness so that the unmet oral health needs of autistic children can also be addressed.

Objective

The objective of the current study was to assess the Oral Health Status of the children with Autism as compared to the children without Autism across the Delhi NCR region of India.

Materials and Methods

A School – based, Cross - sectional study was conducted from July 2019 to October 2019 to assess the oral health status of children suffering with Autism. A total of 200 children, between the age group of 3 to 16 years were included in the study, divided in 2 groups – 100 children with Autism (Case group) attending various special schools and 100 children without Autism (Control group) from regular schools in the Delhi NCR region. Ethical clearance for the study was obtained from the Ethical Committee for Research of the D.J College of Dental sciences. (Ref no: DJD/IEC/2019/A182). Prior permission to conduct oral examination for these children and to record their data was obtained from the respective Principals of the regular schools as well as the nine special schools in the Delhi NCR region which were registered with the Rehabilitation Council of India. Provisional dates for the data collection were sent to all the participating schools. Before the examination of each subject, informed consent was documented from the parents or guardian.

The inclusion criteria involved were diagnosis of autism, informed consent, and age between 3 to16 years. The exclusion criteria were dental prophylaxes in the last 6 months, and suffering from other diseases known to influence dental caries or the severity of periodontal disease, such as Down's syndrome and diabetes, and undergoing any antibiotic treatment. For children without autism, children who had no systematic diseases were included and subjects undergoing antibiotic or anti-inflammatory therapy or had undergone such therapy in the previous 6 months were excluded from the study.

Demographic Details

The general information of the participants including age, gender, socio economic status, history of any Self-inflicting habits was recorded. The basic oral hygiene practices and the type of aids used for cleaning the tooth according to the WHO Oral Health Assessment Form 2013[19] were also recorded. After collection of the required details of the children, small health education was given to all the children and their attending teachers regarding oral hygiene habits which need to be correctly practiced. The data collected was compiled and was checked for its completeness.

Clinical Examination

All patients were examined by one examiner using a mouth mirror, explorer, and a periodontal probe seated on a chair. Training and calibration of principal examiner was carried before the start of the study. Both children with and without autism were examined at their respective schools, seated on a comfortable chair, under natural light using sterile instruments only. Oral health status was assessed by using Oral Hygiene index (OHI) or the Simplified (OHI-S) given by Greene and Vermillion, [15] and its modification for deciduous teeth by **Miglani *et al.*** [16] and the DMFT/dmft and DMFS/dmfs indices.[17,18]

Each child, accompanied by his/her teacher, was brought to the examination room and was seated on an adjustable chair. For children with Autism, a Tell–Show–Feel–Do technique was used. The Oral Hygiene index (OHI) or the Simplified (OHI-S) index was used to assess the oral hygiene status and to record clinical variations in the teeth and gingiva. Due to the nature of the participants, this

examination was adapted to evaluate the overall oral health status by means of a visual examination.

Oral hygiene was recorded as good when the oral hygiene score was 0–0.9, fair when it was 1–1.9, and poor when it was 2–6, according to the simplified oral hygiene index of Greene and Vermillion. Using the decayed, missing, and filled teeth (dmft) index for Primary dentition (3-6 years) and Mixed dentition (7–11 years) and the Decayed, Missing, and Filled Teeth (DMFT) index for Permanent dentition (13-16 years), with codes and criteria established by the World Health Organization. All infection control procedures were maintained according to the Center for Disease Control (CDC) guidelines and waste was disposed of according to the waste removal guidelines of the WHO. [19]

Since the varying degrees of impairment due to Autism may impact the children cooperation during data collection, the designated school therapist assisted with the selection of participants based on the cooperation of the child. Verbal consent was also obtained from the participants prior to the commencement of clinical examination. The severity of attrition was determined according to the Hansson & Nilner and Nilner & Lassing classification. [20,21]

Statistical Analysis

The findings obtained were coded and entered into Microsoft Excel (2010). The collected data were analyzed using Statistical Package for Social sciences (SPSS) 21.0 (SPSS Inc., Chicago, IL, USA). Mean, Standard deviation, Chi square test and Independent T test was used for the statistical analysis of the oral characteristics in the subjects. Kappa statistics was used to determine intra-examiner reliability. Statistical significance was measured for qualitative variables at $P \leq 0.05$.

Results

The present study consisted of 200 school going children divided equally into 2 groups: 100 subjects suffering from Autism and 100 subjects without Autism or any other form of neurological disorder. The study participants were between the ages of 3 to 16 years. The results of the demographic data show that among the three age groups, maximum children were present in 7-12 years of age for both the groups. In the group with Autism, 22% (22) of the children were 3 to 6 years, i.e. in the Primary dentition stage, 46% (46) of the children were 7 to 12 years, i.e. in the Mixed dentition stage, and the rest of the 32 (32%) of the children were 13 to 16 years, i.e. in the Permanent dentition stage.

Similarly, in the group without Autism, 23% (23) of the children were in the Primary dentition stage, 48% (48) of the children in the Mixed dentition stage, and the rest of the 29 (29%) of the children were in the Permanent dentition stage. These results were found to be statistically significant.

Among the children in the group with Autism, the frequency of girls was 29% (29) and that of the boys was 71% (38). While in the group without Autism, the number of girls was 46% (46) and that of the boys was 54% (54), which was found to be statistically significant. These findings depicts that there were more males than females, with a male:female ratio 2.5:1 within the children with autism group.

According to the to modified Kuppuswamy socioeconomic status, most of the children in the group with Autism, belonged to the Upper class, i.e. 35% (35), while 33% (33) belonged to the Upper Middle class, 25% (25) belonged to the Lower middle class, 6% (6) belonged to the Upper Lower class and only 1% (1) belonged to the Lower class. However most of the children in the group without Autism belonged to the Lower Middle class 38% (38), while 20% (20) belonged to the Upper class, 32%

(32) belonged to the Upper Middle class, 8% (6) belonged to the Upper Lower class and 2% (2) belonged to the Lower class. These results were also found to be statistically significant. (Table 1)

Table 1: Demographic factors of the Children with and without Autism

Variable	Subjects With Autism (N = 100)	Subjects Without Autism (N = 100)	Chi Square Value	P Value
1. Age				
3 to 6 years (Primary dentition stage)	22 (22%)	23 (23%)	178.67	0.000*
7 to 12 years (Mixed dentition stage)	46 (46%)	48 (48%)		
13 to 16 years (Permanent dentition stage)	32 (32%)	29 (29%)		
2. Gender				
Female	29 (29%)	46 (46%)	47.95	0.000*
Male	71 (71%)	54 (54%)		
3. Socio – economic Status				
Upper Class (I)	35 (35%)	20 (20%)	190.88	0.000*
Upper Middle (II)	33 (33%)	32 (32%)		
Lower Middle (III)	25 (25%)	38 (38%)		
UPPER Lower (IV)	6 (6%)	8 (8%)		
Lower (V)	1 (1%)	2 (2%)		

* Significant ($p \leq 0.05$) ** Non significant

The results also show that there is a strong history of self-inflicting habits (SIH) or deleterious oral habits in the children with Autism as compared to the children without Autism. The various self-inflicting/deleterious habits seen in the Autistic children include lip/nail/pencil biting, picking at the gingiva, bruxism (teeth grinding), pica eating, pricking with sharp objects, hair pulling, biting extremities, etc.

These behaviours can be very extreme and can adversely affect the oral as well as the general health of the children. Self-inflicting habits (SIH) are found less commonly, often as mild temper tantrums in the children without Autism. The study shows that among the various SIHs, lip/nail/pencil biting, bruxism (teeth grinding), hair pulling and biting extremities were significantly associated habits in the children with autism. Some children were found to have more than one type of SIH. (Table 2)

Table 2: History of Self – inflicting or Deleterious habits in the Children with and without Autism:

Sn.	Self-Inflicting Or Deleterious Habit	Subjects With Autism (N = 100)	Subjects Without Autism (N = 100)	Chi Square Value	P Value
1	Lip/Nail/Pencil biting	23 (23%)	10 (10%)	37.20	0.000*
2	Picking at gingiva	10 (10%)	7 (7%)	0.32	0.575**
3	Bruxism (Teeth grinding)	25 (25%)	4 (4%)	13.69	0.000*
4	Pica eating	14 (14%)	9 (9%)	0.07	0.793**
5	Picking with sharp objects	9 (9%)	4 (4%)	1.30	0.254**
6	Hair pulling	22 (22%)	5 (5%)	18.66	0.000*
7	Biting extremities	32 (32%)	6 (6%)	13.56	0.000*

* Significant ($p \leq 0.05$) ** Non significant

The oral hygiene practices of the two groups of children were assessed for cleaning aids used, methods of tooth cleaning, their frequency of tooth cleaning, frequency of changing tooth brush, and use of any additional cleaning aids. Among the children with Autism, 72% (72) children cleaned their teeth with a manual toothbrush and toothpaste, 21% (21) children used an electric toothbrush and toothpaste, 5% (5) children used a finger and tooth paste/powder while the rest 2% (2) children used only their finger to clean their teeth. Similarly in the group without Autism, 94% (94) children cleaned their teeth with a manual toothbrush and toothpaste, only 2% (2) children used an electric toothbrush and toothpaste, 3% (3) children used a finger and tooth paste/powder while the rest 1% (1) children used only their finger to clean their teeth.

The study results show that 7% (7) of children in the group with Autism and 4% (4) of children in the group without Autism do not use a toothbrush for cleaning their teeth. The various methods of tooth-brushing used by the participants were horizontal - 20% (20) and 22% (22); vertical – 15% (15) and 185 (18); circular – 34% (34) and 31% (31): and both horizontal and vertical - 24% (24) and 25% (25) children with Autism and without Autism respectively.

In the present study, 71% (71) of the children with Autism and 82% (82) children without Autism cleaned their teeth once a day. While the rest 29% (29) children in the group with Autism and 18% (18) children in the group without Autism cleaned their teeth twice daily. This difference was found to be significantly higher for the children with Autism. Among the children who used toothbrush for cleaning their teeth 21% (21) children with Autism and 18% (18) children without Autism changed their toothbrush at every 0 to 3 months. Similarly, 54% (54) children with Autism and 51% (51) children without Autism changed their toothbrush at every 4 to 6 months. 6% (6) children without Autism changed their toothbrush at every 7 months to 1 year, while only 2% (2) children without Autism changed their toothbrush at more than 1 year. However, 18% (18) children with Autism and 19% (19) children without Autism changed their toothbrush when its bristles flared.

Among the children with Autism 42% (42) children used additional oral hygiene aids, while in the children without Autism only 31% (31) children used any kind of additional oral hygiene aids for the maintenance of a

proper oral hygiene. The various additional oral hygiene aids used were mouthwash – 9% (9) and 15% (15); toothpick 4% and 5% (5), tongue cleaner 22% (22) and 9 (9%), interdental brush 2% (2) and 1% (1), and dental floss 5% (5) and 1% (1) children with Autism and without Autism respectively. This difference was found to be significantly higher for the children with Autism. **(Table 3)**

Table 3: Oral hygiene practices of the Children with and without Autism:

Oral Hygiene Practices	Subjects With Autism (N = 100)	Subjects Without Autism (N = 100)	Chi Square Value	P Value
1. Cleaning aids used				
a) Toothpaste and Manual toothbrush	72 (72%)	94 (94%)	7.10	0.627**
b) Toothpaste and Electric toothbrush	21 (21%)	2 (2%)		
c) Finger and tooth paste/powder	5 (5%)	3 (3%)		
d) Only finger	2 (1%)	1 (1%)		
e) Neem sticks	0 (0%)	0 (0%)		
2. Tooth – brushing methods used				
a) Horizontal	20 (20%)	22 (22%)	12.5	0.709**
b) Vertical	15 (15%)	18 (18%)		
c) Circular	34 (34%)	31 (31%)		
d) Both horizontal and vertical	24 (24%)	25 (25%)		
e) Do not use tooth brush	7 (7%)	4 (4%)		
3. Frequency of tooth cleaning				
a) Once	71 (71%)	82 (82%)	53.75	0.000*
b) Twice	29 (29%)	18 (18%)		
4. Change of tooth brush				
a) 0 to 3 months	21 (21%)	18 (18%)	9.29	0.079**
b) 4 to 6 months	54 (54%)	51 (51%)		
c) 7 months to 1 year	0 (0%)	6 (6%)		
d) More than 1 year	0 (0%)	2 (2%)		
e) When the bristles flare	18 (18%)	19 (19%)		
f) Do not use tooth brush	7 (7%)	4 (4%)		
5. Any additional oral hygiene aids used				
a) Yes	42 (42%)	31 (31%)	62.04	0.000*
b) No	58 (58%)	69 (69%)		
6. Oral hygiene aids used				

a) Mouthwash	9 (9%)	15 (15%)	101.96	0.000*
b) Toothpick	4 (4%)	5 (5%)		
c) Tongue cleaner	22 (22%)	9 (9%)		
d) Interdental brushes	2 (2%)	1 (1%)		
e) Dental floss	5 (5%)	1 (1%)		

* Significant (p≤0.05) ** Non significant

According to the present study, the mean values for OHI-S, DMFT, dmft, DMFS, dmfs scores and severity of Attrition was found to be higher among the children with autism. The mean values for OHI-S, DMFT and DMFS scores were found to be significantly higher in the children with Autism as compared to the children without Autism. However, the mean values for dmft and dmfs scores as well that of the severity of Attrition were found to be higher in the children with Autism but not statistically significant as compared to the children without Autism. **(Table 4)**

Table 4: Mean oral hygiene scores and caries prevalence in the Children with and without Autism:

Oral Health Indicators	Subjects With Autism (n= 100)	Subjects Without Autism (n = 100)	T value	P value
OHI - S	2.06 ± 1.13	0.72 ± 0.61	-19.72	0.000*
DMFT	0.89 ± 1.19	0.48 ± 0.99	- 2.29	0.000*
dmft	1.56 ± 2.15	0.54 ± 0.81	- 0.73	0.471**
DMFS	1.04 ± 1.52	0.58 ± 1.03	-1.71	0.048*
dmfs	2.72 ± 5.22	1.38 ± 2.48	2.46	0.200**
Severity of Attrition	0.79 ± 0.80	0.57 ± 0.79	0.00	1.000**

* Significant (p≤0.05) ** Non significant

Discussion

Autism is not just a mental disability; it is a neuro - developmental disorder that varies in gravity and is usually associated with mild to severe physical complications. While one person with Autism may struggle with cognitive functioning and communication, another individual with a similar condition may face obstacles with indispensable self-care or physical mobility. Historically, these children have been shunned, isolated, denounced and impoverished of the society's resources. Providing appropriate oral care to the children with autism can be challenging and requires immense patience and a thorough understanding of the patient's degree of mental disability. [22]

Lack of coordinated muscular movements, innate skills, ability to understand and follow instructions are some of the important reasons for the inability to maintain proper oral hygiene practices among patients with Autism. Chew et al stated that a better knowledge and understanding of the effects of Autism on the behavior of affected individuals affectively facilitates the dental practitioner to provide oral health care in an empathetic and more effective manner. [23]

In children with Autism, research related to the Oral health status has been found to be quite limited. Most of

the research has been focused on the children with autism spectrum disorder in developed countries. [17] Thus, the present Cross – sectional study was conducted to identify the oral problems and to assess the oral health status of the children with Autism and to compare it with the children unaffected with Autism.

In the current study the group of children with Autism showed more males than females, with a ratio of 2.5:1. This might reflect the higher prevalence of autism in males, which is in agreement with results of the other studies carried out around the world. [3,24-28] A more biased prevalence of Autism in males could be the effect of high level of fetal testosterone and its potential genetic/chromosomal effects on the developing foetus. [29]

The socio-economic status was assessed according to the modified Kuppuswamy's socio-economic scale. It serves as an important tool in hospital and community based research in India. This scale takes into consideration the education, occupation and income of the family to classify study groups in to high, middle and low socioeconomic status. [30] The current study observed 68% of the children with autism in upper socio-economic class and only 1% belonged to the lower class. This was found to be in agreement with earlier studies which suggested that families of autistic children have a higher social class distribution. [25,31,32]

Self-inflicting habit can be the most distressing event for children with autism. It may take the form of hitting, banging, biting, pricking, pinching, teeth grinding, etc. and can even involve the oral structures. [27, 33-35] In the present study, these habits specially lip biting, bruxism (teeth grinding), hair pulling and biting extremities were significantly associated with the children suffering with Autism as compared to the children without Autism. Self inflicting habits were observed to be present in 74% of the children with Autism as compared to 38% of the children without Autism. More than one type of self injurious habit was found to be present in some children. This was in accordance with the studies conducted by Murshid et al [28] and Yashoda R et al [36] who reported the prevalence of self-injurious habits to be present in 70% and 61.4% of the children with Autism.

There was a significantly higher difference found for the children who cleaned their teeth twice daily and use of additional oral hygiene aids as compared to the children without Autism. Also a considerably higher use of powered toothbrush was reported in the children with Autism. It has been observed in the previous literature that children with Autism lack the necessary manual dexterity for adequate tooth brushing. All the children with autism could not brush independently and needed assistance, motivation and supervision. Due to hypersensitivity seen in some children, their parents used a finger to brush the teeth. [25] The horizontal scrub technique was followed for cleaning their teeth. Thus, the increased frequency of teeth cleaning, use of powered toothbrush and additional oral hygiene aids in the children with Autism could be attributed to the meticulous efforts of their primary care givers for maintaining their proper oral hygiene. [25,36]

In the present study, the mean OHI-S, DMFT, dmft, DMFS and dmfs scores for children with autism was found to be (2.06 ± 1.13), (0.89 ± 1.19), (1.56 ± 2.15), (1.04 ± 1.52) and (2.72 ± 5.22) respectively, denoting poor oral hygiene status and higher prevalence for dental caries (77%). Children with Autism have generally been found to have poorer oral health compared to the children without Autism as reported by various studies conducted all over the world.[3,13,28,36-38] In contrast, some of the studies have found a lower prevalence of dental caries but higher periodontal needs for these children. [26,39-41]

Children with autism are often considered to have certain behaviors/life factors which may lead to an increased risk

for dental caries. These factors are usually seen as poorer masticatory abilities and medications causing Xerostomia, such as Methamphetamine [24], medication in the form of sweet syrup solution and the poor oral hygiene practices. In the current study the caries prevalence among children with autism was high compared to children without autism, although the caries level is considered low according to the World Health Organization classification. [36] Thus, further research is required to assess the role of these factors in the development of dental caries.

In the present study, the majority of autistic children had poor oral hygiene, and all of them had gingivitis. These changes could be related to irregular brushing habits because of the difficulties the trainers and the parents encountered when they brushed the children's teeth. It could also be due to a lack of necessary manual dexterity of autistic children, which results in inadequate tooth brushing. [25,36] Furthermore, the findings of this study reflect poor dental awareness, a lack of dental education, and deficiency in receiving oral hygiene instructions from dental staff. Another possible explanation of the presence of generalized gingivitis might be the side-effects of medications used to control the manifestations of autism. [42]

In the present study the severity of Attrition was found to be mild, i.e. wear of enamel only in 45% of the children with Autism as compared to 30% in children without Autism. Bruxism, a form of vigorous grinding of teeth has being reported as one of the sleep related problems frequently experienced by children with Autism .[43] In the current study Bruxism was found in 25% of the children with Autism, which was statistically higher as compared to the children without Autism. Previous studies have indicated a higher prevalence of bruxism in children with special needs resulting in extreme dental wear, avulsion of teeth and temporomandibular joint pain.[13]

The results of the study should be interpreted accordingly while taking the various limitations of the study in consideration. The present study evaluated a small number of subjects and only a few special schools for children with autism were included in the study. Thus, the children not attending special schools were beyond the scope of the study. On the other hand, the age range of the participants in the study (3 to 16 years) implied the inclusion of the subjects with primary, mixed, and permanent dentition whose caries prevalence can vary significantly. Very importantly the current study does not include the functional level data of the children with Autism limiting the analysis to their logical reasoning.

However, it is important to note that the present study had a cross-sectional design, and the results of this study could provide important data about the oral health status of the subjects with Autism. With these limitations in mind, a comparison with previous results in the literature can be attempted and a well-designed, longitudinal study with a larger sample size is required to assess the the oral health status of the children with Autism at large.

Conclusion

The importance of oral health cannot be underestimated as oral health has a significant impact on an individual's overall health. The present study found that the children with autism have a higher caries prevalence and poor oral hygiene as compared to the children without Autism. The children with Autism also seem to need much more effort for providing oral care than the healthy children without Autism. Thus, dental practitioners should be able to serve the need of the children diagnosed with autism as this population is growing day in and day out.

Recommendations

Children with autism are usually treated with a comprehensive multidisciplinary approach including psychologist, neurologist, psychiatrist, speech therapist

and physiotherapist. However, the involvement of dentists in this multidisciplinary approach is also highly recommended. Dentists may serve an important role in the integration of oral health care into the day to day life of the child, training as well as education of parents and care givers as well as regular preventive professional oral health care. This can really contribute to good oral hygiene and improved oral health status of the children with autism.

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