

Original Research

Oral health problem in children with disabilities

¹Ashish Goti, ²Taral Parikh

¹M.D, Resident Pediatrician, Tulane School of Medicine, New Orleans, LA, USA;

²M.D, Consulting Pediatrician, Hamilton Health Center, Harrisburg, PA, USA

ABSTRACT:

Aim: This study was carried out to find out the oral health status of the disabled children in terms of some indices: decayed, missing, filled teeth index (DMFT), oral hygiene index (OHI), and gingival index (GI). **Methodology:** 110 disabled and 110 normal healthy children with the age range from 3 to 14 were examined in this cross-sectional study and were allotted to Group I and Group II. Every student and his/her guardian were interviewed and examined clinically using dental mirror and probe under sufficient examination light to see clinically the oral hygiene status. Compiled data were subjected to descriptive statistical analysis. **Results:** The average number of decayed teeth found 5.6 in deciduous and 6.5 in mixed dentition in disabled children, and the numbers were 3.5 and 4.0 respectively in normal children. Average number of missing teeth was 1.3 in disabled and was 1.0 normal child. The oral hygiene index value was 3 in disabled and 2.47 were in healthy children. In the disabled children, 36% respondents had normal gingiva, 50% had mild gingivitis and 14% had marked gingivitis; but in the normal children, about 73% showed normal gingiva, 23% developed mild gingivitis and only 4.5% had marked gingivitis. **Conclusion:** Significantly high levels of caries prevalence and low levels of oral hygiene status for permanent teeth were observed in the children with disabilities group

Keywords: Oral health inequity, Special needs children, Dental Caries, Malocclusion.

Received: 15 June, 2022

Accepted: 18 July, 2022

Corresponding author: Taral Parikh, M.D, Consulting Pediatrician, Hamilton Health Center, Harrisburg, PA, USA

This article may be cited as: Goti A, Parikh T. Oral health problem in children with disabilities. J Adv Med Dent Scie Res 2022;10(8):95-97.

INTRODUCTION

Children with disabilities and special needs are at greater risk for health problems, require extra help and rely on others to achieve and maintain good health. Oral health is no exception. A clean mouth is one of their most important health needs for life and will be influenced by your ability to provide necessary support. Children with special needs have congenital developmental disorders that lead to them experiencing oral health inequality. Open bite and dysphagia usually occur in children with Down Syndrome (DS) ¹ and increased plaque and calculus formation give rise to poor oral hygiene.² In particular, individuals with, autism spectrum disorder (ASD) have poor dietary preferences, behaviors and specific aversions, bruxism, gingival picking, self-removal of teeth, chewing on hard items, and repeated regurgitation that may cause tooth avulsion³ making them more susceptible to oral health problems.⁴ Most children aged less than 7 years need caregivers to assist in maintaining oral hygiene in daily life. Children with special needs require more assistance

even when they are over seven years of age due to their mental and physical challenges. Some special needs children learn slowly and often have difficulty understanding others' behavior and their own, such as brushing teeth (mental challenges). Some of them have scoliosis, unsteady gait, or increased limb tone (physical challenges). Children in Asia are more likely to have poor oral health if their caregivers have low-income, have a low educational level, live in rural areas, and have suboptimal access to quality oral health care. As a result, poor oral health among children reflects social inequity. Children with special needs show anxiety and uncooperative behavior during dental care and treatment (behavioral challenges), similar to normal children. Specific communication skills and sedative equipment to alleviate anxiety and uncooperative behavior are needed. As a consequence, there is reduced willingness among caregivers and non-trained dentists to provide oral health care to special needs children, resulting in oral health inequities.⁵ Dental caries is the most unmet health care among all children⁶ including

disabled ones.⁷ A comparative assessment of the state of dentition and oral hygiene between disabled and healthy young people of same age⁸ revealed that the frequency of dental caries in both groups was 100%. The average DMF was 11.96 in disabled group and 6.58 in the healthy group. The largest number of teeth with active caries per person was 8.21 in disabled children whereas the number was 2.27 in healthy ones. Dental caries treatment index (DTI) was 0.24 in disabled group and 0.59 in the healthy group. Oral hygiene index (OHI) in disabled group was 1.78 and in healthy group was 0.34; the index (OHI) was 0.29 in girls and 0.38 in boys. Family or caregivers and dentists should work together for oral healthcare maintenance especially for children exhibiting damaging oral habits like behavior issues, movement difficulty and seizures which can often lead to oral trauma or damage to the teeth.

AIM OF THE PRESENT STUDY

This study was carried out to find out the oral health status of the disabled children in terms of some indices: decayed, missing, filled teeth index (DMFT), oral hygiene index (OHI), and gingival index (GI).

METHODOLOGY

This cross-sectional comparative type of study was carried out amongst 220 school going children. A structured questionnaire was developed to find out the oral health status indices: DMFT, OHI, and GI. 110 disabled and 110 normal healthy children were selected and they were referred as Group I and Group II respectively for the convenience of the study. Every student and his/her guardian were interviewed and examined clinically using dental mirror and probe under sufficient examination light to see clinically the oral hygiene status in terms of DMF, OHI, and GI.⁹ The status was recorded for both in deciduous and mixed dentitions. The Collected data were compiled and finally edited on a master chart for computer analysis with the help of software program SPSS 25.0.

RESULTS

Among 220 children 110 were disabled and 110 were normal children in this study. Oral health status was recorded in terms of DMF, OHI, and GI. Decayed, Missing and Filled teeth are recorded in 110 disabled and 110 normal healthy children. Average number of decayed teeth was 5.6 in deciduous and 6.5 was in mixed dentition in disabled children, whereas the numbers were 3.9 and 4.0 respectively in normal children (Table 1).

Table 1- DMFT status of the children

DMFT	Group I (n=110)		Group II (n=110)	
	Deciduous/ dft	Mixed/ dmft	Deciduous/ dft	Mixed/dmft
d	5.6	6.5	3.9	4.0
m	0.0	1.3	0.0	1.0
f	0.0	0.0	2.0	2.1

*Group I: Disabled children (study group), Group II: Normal healthy children (control group). Mixed Dentition: Deciduous (milk) and Permanent teeth are present in the Mouth with $\lambda^2 = 0.05$, P-value=0.82.

No missing tooth in deciduous dentition found in either group but the numbers were 1.3 and 1.0 in mixed dentition of both groups. No filled teeth found in disabled group, but the value was 2.0 in deciduous and 2.1 was in mixed dentition of healthy children. The gingival status of the children was also recorded.

In disabled children, about 36% respondents had normal gingivae, 50% had mild gingivitis and about 14% had severe gingivitis. In the healthy group, about 73% respondents were normal in terms of gingivitis, about 23% had mild gingivitis and only 4.5% had severe gingivitis was found in this group. (Table 2, 3)

Table 2- Oral hygiene status of the respondents

Respondent	Average DI	Average CI	OHI (DI+CI)	OHI
Group I	2.33	0.67	2.33+.67	3
Group II	1.97	0.5	1.97+.5	2.47

*OHI: Oral Hygiene Index, DI: Debris Index, CI: Calculus Index The oral hygiene status of the children of this study was 3 in disabled group and the value was 2.47 in normal group.

Table 3- Gingival status of the children

GI	Group I (n=110)		Group II (n=110)	
	Number	Percentage	Number	Percentage
0	40	36.36	80	72.73
1	55	50.00	25	22.77
2	15	13.64	05	4.50
Total	110	100	110	100

*GI: Gingival Index (0 = normal, 1= mild gingivitis, 2 = gingivitis) and $t \lambda^2 = 29.58$, P-value=0.000. This data is strongly statistically significant. (P<0.05).

DISCUSSION

The average number of decayed, filled and missing teeth found in the children of this study are not exactly similar to the value observed by studies because of limitation of recording facilities available in the schools where the study was carried out. The oral hygiene status observed in this study is more or less similar to others studies. It attests that parents of the children are well aware about the oral hygiene of their children and accordingly they instruct and let them to follow the hygiene measures necessary. Gingival index recorded in this study recommends that more oral health programs are needed in disabled school children to address and prevent the juvenile gingivitis which causes periodontitis and loosening of teeth. The status observed in this study is also poor in comparison to other studies.¹⁰ Choi and Yang reported that the dft, dfs and DMFT indices of medically compromised were significantly lower than those for healthy individuals and that DMF, DMFS and DMFT indices increased with age in both of the examined groups.¹¹ The results in the present study showed significantly higher dmft and DMFT indices in children with disabilities. It was observed that the decay component (dt; DT) of the mean dmft and DMFT index was the largest component of the index for both groups. Children with disabilities have had low levels of restorative care as demonstrated through the low number of filled teeth. The restorative component was lower in children with disabilities, which is attributed to the lack of conservative approach to the treatment of dental caries and is in agreement with other studies.¹² The explanation for this might be found in the greater difficulty of treating children with disabilities. The majority of children with special care needs spend most of their time at home, and only a few hours daily at specialist daycare centres and other support institutions. Therefore, these children receive their daily dental oral care from their parents with little emphasis placed on prevention, and have poor dental attendance record. The severity of the handicap should also be taken into account since it is a determining factor, not only for oral hygiene status, but also for dental therapy, which can be further hampered by the inability of those children to fully communicate and co-operate during dental treatment. Future efforts must be directed at finding effective national preventive strategies for the children with disabilities who continue to be afflicted with extensive caries. Until these strategies become

available, clinicians must improve their efforts to protect the dentition of handicapped children through appropriate preventative and restorative care.

CONCLUSION

Considering poor oral health status and higher tendency for development of malocclusions and delayed eruption, it is necessary to develop preventive dental programmes for children with special needs, as well as improve public awareness about these issues.

REFERENCES

1. Calis, E.A.C.; Veugelers, R.; Sheppard, J.J.; Tibboel, D.; Evenhuis, H.M.; Penning, C. Dysphagia in children with severe generalized cerebral palsy and intellectual disability. *Dev. Med. Child Neurol.* 2008, 50, 625–630.
2. Nirmala, S.V.S.G.; Saikrishna, D.; Nuvvula, S. Dental concerns of children with intellectual disability—A narrative review. *Dent. Oral Craniofac. Res.* 2018, 4.
3. Naidoo, M.; Singh, S. The Oral health status of children with autism Spectrum disorder in KwaZulu-Nata, South Africa. *BMC Oral Health* 2018, 18, 165.
4. Jaber, M.A. Dental caries experience, oral health status and treatment needs of dental patients with autism. *J. Appl. Oral Sci. Rev. FOB* 2011, 19, 212–217.
5. Northridge, M.E.; Kumar, A.; Kaur, R. Disparities in Access to Oral Health Care. *Annu. Rev. Public Health* 2020, 41, 513–535.
6. Newacheck PW, Hughes DC, Hung YY, Wong S, Stoddard JJ. The unmet health needs of America's children. *Pediatrics* 2000; 105(4 pt 2):989-997.
7. Necheck P, McManus M, Fox HB, Hung Y, Halfon N. Access to health care for children with special health care needs. *Pediatrics* 2000; 105:760-766.
8. Stachurski P, Warsz M, Rudnicka-Siwiek K, Ziolo A. Assessment of the state of dentition and oral hygiene in 16-25-year-old young people with mild and moderate mental disability. *Advances in Medical Sciences* 2006; Vol. 51: Suppl.1.
9. Collins, W.J.N., et al. *A Handbook for Dental Hygienists*. 4th ed. Woburn, MA: John Wright, 1999.
10. Leiter V, Krauss M, Anderson B. Oral health care for children with special health care needs: Findings from the family partner project. Abstract presented as The Face of a Child: surgeon General's Conference on children and oral health, Jun 12-13, 2000, Washington DC.
11. Choi NK, Yang KH. A study on the dental disease of the Handicapped. *J Dent Child* 2003; 70: 153-158.
12. Namal N, Vehit HE, Koksall S. Do autistic children have higher levels of caries? A cross-sectional study in Turkish children. *J Indian Soc Pedod Prev Dent* 2007; 6: 97-102.