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Oral health status of intellectually disabled individuals attending a special school in Vashi, Navi Mumbai

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Abstract---To determine the oral health status along with child's access, provider's attitude and parental knowledge towards oral care and barriers to dental care of Intellectually disabled children. Aims: The aim of this study is to determine the oral health status along with child's access, provider's attitude and parental knowledge towards oral health care and barriers to dental care of Intellectually disabled individuals attending a school in Vashi, Navi Mumbai. Settings and Design:: The cross sectional study was conducted among individuals attending a center for differently abled in Vashi, Navi Mumbai.

Methods and Material: To determine the oral health status along with child's access, provider's attitude and parental knowledge towards oral care and barriers to dental care of Intellectually disabled children attending a school in Vashi, Navi Mumbai. **Results:** Lack of importance of oral health (78.9%), finding an understanding dentist (5.2%), lack of dental care (84.4%), uncooperative child (8.2%), transportation (15.6%) were the major barriers, inability of the child to express dental problems and lack of oral health care of primary dentition were other barriers. **Conclusions:** There is a need for strengthening oral care programs for the Intellectually disabled children. The study will help in altering parental belief of a reduced importance of oral health in comparison to their nondisabled counterparts as more time is devoted to assist these children in other daily activities which seem to be more important for health professionals in developing innovative patient management methods and for government in altering their transportation policies and arrangements to these people.

Keywords---intellectually disabled, oral health, special school, barriers.

Introduction

World Health Organization defines disability as any restriction or lack of ability to perform an activity in the manner or within the range considered normal for a human being. In other words, a situation where overall activities of individual are less in comparison to subjects of his age. An individual can be either physically or Intellectually disabled.^[1] According to American psychiatric association Intellectual disability^[1] involves problems with general mental abilities that affects functioning in two areas. Intellectual functioning such as learning, problem solving, judgement and adaptive functioning such as communication and independent living.^[2] Studies in the past showed that there are 31 million individuals with intellectual disabilities (ID) in India of whom around 35% of all people living with disabilities are children.^[3]

The lack of independent access to facilities, transportation, and information restricts them from enjoying equal opportunities in health care. The 'Persons with Disabilities (Equal Protection of Right and Full Participation) Act (PWDA) of 1995 advanced equal rights and opportunities to all individuals with disabilities. More specifically, individuals with Intellectual Disability were guaranteed free education, special job allotments, and various other resources to assure their inclusion within society.^[3]

Good health is an obvious priority for every individual in this group. Maintenance of proper oral health is needed for proper mastication, digestion, speech and appearance which in turn has a strong influence on general health. Oral health is compromised in differently abled subjects. Neglected dental health in childhood becomes a major health issue later in adulthood. A higher prevalence and severity of oral diseases have been seen in them when compared to the general population. High rates of dental caries, missing teeth, poor oral

hygiene and dental trauma are the commonly encountered problems. Poor oral health in turn will have a negative impact on the chewing abilities, nutrition, appearance and speech in such individuals.^[4-9] The aim of this study is to determine the oral health status along with child's access, provider's attitude and parental knowledge towards oral health care and barriers to dental care of Intellectually disabled individuals attending a school in Vashi, Navi Mumbai.

Methodology

The cross sectional study was conducted among individuals attending a center for differently abled in Vashi, Navi Mumbai. Permissions needed to conduct study was obtained from concerned authority. Study participants included all children from school. Only those children who gave their consent were included for the study. Subjects absent during the visit and uncooperative on the day of examination were excluded. 173 participants between 3 and 18 years of age with learning disability (n=97), Cerebral palsy (n=25), Autism (n=32) and Down's syndrome(n=19) were included in the study. Ethical approval was obtained from the institutional ethical committee. Informed consent was obtained from the participants. A structured questionnaire was used for the study. Dental examination was done using a mouth mirror, a CPITN probe and an explorer. Dental caries was assessed using dentition status and treatment needs index (1997) as per the WHO criteria. Oral hygiene was assessed using simplified oral hygiene index. Data analysis was done using Window based "MedCalc Statistical Software" version 18.2.1 (MedCalc Software bvba, Ostend, Belgium; <http://www.medcalc.org>;2018). Parametric data are expressed as means with standard deviation at 95% confidence interval.

Results

Results showed that 72.2% learning disability, 42.1 % Down's syndrome individuals, 40% Autism and 8% Cerebral palsy individuals had visited the dentist in the past. It is noteworthy to mention that 68% of individuals with cerebral palsy and 78.9% of the individuals with learning disability felt that oral health is not important part of overall health. Around 9% of individuals among learning disabled, Autism and Down's syndrome availed restorative treatment. More than 10% of individuals in all the groups underwent treatment under local anesthesia with Down's syndrome being highest (21.1%). Among learning disabled finding a dentist who understands the condition of the child (5.2%), uncooperative child (8.2%), inability of the child to express dental problems, preferring home remedies to visiting a dentist and lack of awareness regarding importance of primary dentition were the major barriers. Among patients with cerebral palsy 44% of the individuals had difficulties to receive dental care the main reason for refusal of dental treatment was uncooperative child, difficulty in finding a dentist who understands the child's condition, fear for dentist, difficulty in transportation. Attention to be given to other siblings and other family commitments. Among Autistic individuals 12.5% of the individuals felt that their child had a dentist whom they visited regularly. 15.6% underwent treatment in private practice. 84.4% of the people felt that the child did not receive all the dental care that he or she needed. 90.6% of the individuals had a pleasant experience. 3.1% refused dental treatment. Lack of knowledge to manage the

child, difficulty to find a dentist who understands the child's condition (3.1%) and transportation (15.6%) were the major barriers. Parents of children with Down's syndrome showed that being busy to take the child to the dentist was a major barrier.(5.3%).

There were varied reply for oral hygiene habits. Among the learning disabled child's oral hygiene habits revealed that 78.4 % of the individuals brushed their teeth on their own. 25.8% brushed twice daily .7.2% of participants used electric toothbrush.77.3 % of the subjects had solid diet and only 51.5% of the individuals had in between snacking. Among cerebral palsy sixty percent children brushed his/her own teeth for more than 10 seconds everyday and sixty four percent of the individuals permitted their caregivers to brush their teeth. Frequency of brushing revealed that forty percent brushed twice everyday, eight percent children did not brush their teeth at all. It is to be noted that 78% of the children did not use powered tooth brush.

Among Autism 68.8% of the individuals brushed their teeth on their own. 53.1% brushed only once everyday. 40.6% brushed twice daily and 62.5% of the population were on solid diet. Less than 15% used electric tooth brush. 43.8% of the individuals had in between snacking and was primarily solid. Oral hygiene history of Down's syndrome individuals revealed that 78.9% of the individuals brushed their teeth on their own and 26.3% brushed twice daily and only 68.4% of the individuals had in between snacking. Among the learning disabled the mean number of decayed teeth is 2.02 and this is significant at $p=0.18$. 32.9% of the participants needed restorations. 8.2% needed pulp capping.6.2% needed extraction. Dentition Status and Treatment Needs Index indicated that 12% of Cerebral Palsy patients needed two surface restorations.

The mean (standard deviation) number of decayed teeth; missing teeth; and filled teeth among learning disabled was 1.0 (2.2), 6.7 (7.0) and 13.9 (7.7), respectively. Dentition Status and Treatment Needs Index indicated that 12% of Cerebral Palsy patients needed two surface restorations. The mean number of decayed teeth for Autistic individuals was 2.19. over forty three percent of them needed restorations and 4% needed root canal treatments. Dentition status and treatment needs index among Down's syndrome revealed that 5.3% of the individuals needed pulp therapy. The mean (SD) scores for oral hygiene for all the groups revealed that it was between 1.3-3.0 significant at $p \leq 0.07$ which represents fair oral hygiene. Dental trauma data revealed that none of the study subjects had dental trauma.

Table 1: Distribution of the study participants according to types of disability

Disability types	Frequency (Percent)
Learning Disability	97 (56.06%)
Cerebral Palsy	25(14.45%)
Autism	32 (18.50%)
Down's Syndrome (DS)	19 (10.99%)

Table 2: Distribution of the study participants according to gender and age

	Gender		Age Distribution (years)			
	Male	Female	0-5 years	6-10 years	11-15 years	16-20 years
Learning Disability (LD)	57 (58.76)	40 (41.23%)	3 (3.1%)	27 (27.8%)	48 (49.5%)	19 (19.6%)
Cerebral Palsy	20 (57.1%)	5 (14.28%)	8(32.0 %)	14 (56.0%)	3(12.0%)	0(0%)
Autism	26 (81.25%)	6 (18.75%)	2(6.3%)	18 (56.3%)	11(34.4%)	1 (3.1%)
Down's Syndrome	9 (50%)	9(50%)	4(22.2%)	4(22.2%)	9(50%)	1(5.6%)

Discussion

Dependence is a challenging situation for the intellectually disabled individuals as they are dependent on their caretakers or parents to perform their daily care activities.^[10] Oral health problems is one of the main problems encountered by adults with disabilities.^[11] The prevalence and severity of oral disease is more in this population when compared to the general population.^[10] Poor oral health presents itself as dental caries, missing teeth, periodontal disease, over retained primary teeth and malaligned teeth.^[12] All this affects general health by having a negative effect on chewing, nutrition, digestion, facial shape and speech.^[13] Disabilities can cause difficulty in tooth brushing resulting in poor oral health.^[14] In the current study the mean DMFT score was found to be higher for females in comparison to males. These findings are similar to earlier literature.^[15] Dental caries and missing teeth were more in this group when compared to children without disabilities.^[16] Past literature revealed oral hygiene was poor in most studies.^[17]

Studies done in the past has shown that children with disabilities tend to have more decayed teeth when compared to children without disabilities. They also had more missing teeth and higher incidences of poor gingival health. DMFT and dmft values among this group showed that they have better values among the differently abled in comparison with general population of children. Shaw et al reported dmft and DMFT values of 1.36 and 1.85, respectively for children with disabilities.^[18] This findings are in line with our studies. In contrary study done by Shyama et al reported a mean DMFT of 4.5 for this group.^[16] The most important factor in improving the oral health status of specially abled children is the awareness of their families on importance of oral hygiene habits. Data from a study of 12-year-old disabled children in Flanders (Belgium) showed poor oral hygiene in 31.8% of children, with no significant differences found among disability types.^[17,19] They attributed this result to low physical abilities, which caused difficulties in tooth brushing among disabled children. Study done by Savanheimo, on 309 subjects with intellectual disability revealed that the lack of cooperation and fear in these children resulted in use of general anaesthesia. It is also this group of patients who generate a greater request for hospital treatment under general anesthesia or sedation.^[20]

Similar studies which were analyzed revealed that the oral health status of children with special needs had higher unmet dental needs than normal

population, she reported that the mean DMFT of children with special needs was 2.52 ± 0.61 in comparison to children without disabilities.^[21] Reluctant dentist, financial constraints, underlying medical conditions, uncooperative behavior by their child, unwillingness of dentist to treat the patients, architectural limitations of the dental office and transport difficulties were other barriers mentioned.^[21,22,23]

Transportation challenges were faced by 15.6% of children with autism in the present study. Study done among Indonesian subjects by Endang et al revealed that the local government had provided some transport facilities but these transport facilities were of low standard and non-accessible to people with disability.^[24] Differently abled Individuals who lack accessibility to transportation may feel disempowered with the quality of the services they receive.^[25] Challenges faced in transportation accessibility includes a number of factors such as: availability of transport services, awareness of such services, frequency of services, affordability and safety issues.²⁶ because of which there is lack of flexibility in travel options of these patients resulting in inability to make a spontaneous decision in coming to dental office.^[27]

The main issues identified by differently abled individuals in respect to accessibility were boarding and alighting vehicles, drivers not waiting until passengers are seated before moving, bus stops located at inconvenient places often with no form of shelter, long waiting hours for buses in harsh weather conditions and difficulty in reading timetables or signage. Access for all can only be achieved through improved transport infrastructure. According to a study in order to make transport accessible for all government must move away from vehicle-centered transport to people-oriented mobility planning. Suggestions for transportation for disadvantaged people should be in the design implementation. Monitoring of transport infrastructure and services are crucial in meeting their mobility needs and providing sustainable solutions to their transport challenges.^[26] In the present study around 3% of autistic individuals and Cerebral Palsy individuals were refused dental treatment. Results of study done by Soumya Rajan et al said that there was a statistically significant association among age, speciality and willingness to treat children with special health care needs (CSHCN). More than half of the respondents—that is 283 (70.8%)—had treated CSHCN. Totally, 173 dentists (43.3%) had treated SHCN patients and 108 dentists (27%) had referred them to a specialist. In the study, 67.5% reported to have a partial knowledge in the dental management of CSHCN. Only 14.5% were well versed and 12% had no knowledge in Special Care Dentistry. There was statistically significant association between knowledge and willingness to treat CSHCN (p value < 0.05). Only 19.5% of dentists were aware of guidelines for management of CSHCN. 58% have not undergone any training in Special Care Dentistry (SCD) and only 20.8% dentists had undergone training in the field of SCD during graduation, 8% dentists had received information during postgraduate training, continuing dental education courses and other certified courses.^[28]

Conclusion

In conclusion, there is a need for strengthening organized preventive and curative oral care programs for the Intellectually disabled children. Poor oral hygiene,

dental caries and transportation challenges were the major problems seen in this group. The present study being unicentric there is a high need for conducting more studies in multiple centres to assess the burden of oral disease in individuals with intellectual disability. Educating parents of these children on oral health awareness is important. Innovative patient management methods for this group is needed for better oral health care in this population. The study will help in educating parents especially mothers of these individuals on oral health awareness because there might be a parental belief of a reduced importance of oral health in comparison to their nondisabled counterparts.

Conflicting Interest (If present, give more details): NIL

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