Original Article

Assessment of oral health status among intellectually and physically disabled population in Chennai

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Abstract

Background: Oral health is an integral part of general health. In certain populations, especially among intellectually and physically disabled individuals, oral health is neglected. People with disabilities deserve the same opportunities for oral health and hygiene as those who are abled, but sadly dental care is the most common unmet health care need of the disabled people. **Aim:** The purpose of the study is to assess the oral health status and dental care utilization of people above 15 years with intellectual and physical disability in Chennai. **Methodology:** A descriptive cross-sectional study was carried out to assess the dental caries experience, gingival status, prevalence of fluorosis and lesion, and dental service utilization among 132 intellectually and physically disabled people in Chennai. After obtaining the caregivers consent of the participants, oral health was assessed using the World Health Organization (WHO) proforma, 2013. Statistical analysis was done using Statistical Package for the Social Sciences Version 23. **Results:** When DMFT indexes were examined with regard to sex, the mean DMFT was found to be higher for males with 1.453 ± 1.847 whereas females have 1.403 ± 1.73, and mean DMFT was found to be more for the 26–35 years age group with 2.3 ± 2.01. 81.8% of the population had no gingival bleeding whereas only 18.18% had gingival bleeding. **Conclusion:** With the obtained results, people with physical disability have a high mean DMFT compared with intellectual disability. The present study showed dental negligence among mentally disabled population where the parents, caretakers, and dentists are responsible.

Keywords: Gingival bleeding, intellectual, physical, special needs

Introduction

The term " special needs patients" is any individual, adult or child, whose physical, intellectual, social, or emotional skills fall outside of what is considered normal regarding growth and development standards; hence they cannot receive normal education and require alternative and supplementary instruction throughout their lives.[1] People with special needs are those whose care is complicated by a physical, mental, or social disability.[2,3] Literature suggests that the management of intellectually and physically disabled populations, and maintaining their oral hygiene and dental treatment is a significant challenge for parents as well as dentists.[4] Government of India during 1995 undergoing "Persons with Disabilities Act" narrated "handicapped" as an individual with one or more forthcoming mentioned disabilities: vision impairment, leprosy, loss of hearing, orthopedic disorder, and mental illness.

Mental retardation was defined by the American Association of Mental Deficiency (AAMD) as a deficiency in theoretical intelligence that is congenital or acquired in early life. The

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AAMD classifies retardation into four groups according to intelligence quotient (IQ): mild IQ score is 50–55 to 70; moderate IQ score - 35–40 to 50; severe (IQ score 20–25–35); or profound retardation (IQ score below 20–25).[4,5] Handicap (physically challenged) is the loss or limitation of opportunities to mingle in the normal life of the community in the same perspective with other people due to physical and social barriers.[6] Evidence suggests that there have been poorer levels of oral health among the special needs population when compared with the general population. There have been many barriers for the access of oral health services especially for the special needs population.[6,7] People with special needs also have greater prevalence of dental caries and poor oral hygiene. The oral condition of special needs people was also influenced by age, gender, family, socioeconomic status and severity of impairment.[8] Oral health education can be done not only by a dentist but also by a primary care physician. In developing countries like India, a primary health centre is the first contact point for the inaccessible people; thus oral health education done by a primary care physician is beneficial.

Poor oral health among the special needs population also has a negative impact on digestion, nutrition and speech which gradually have a high impact on their normal living condition.[8,9] Poor oral health will also be a great burden to them, while good oral health is considered to automatically enhance their general health, dignity and self-esteem.[10]

Hence, oral health enhancement among the special needs population starts with the collection of epidemiological data which eventually helps us to understand the needs of the people which helps us to give proper preventive strategies and to monitor the situation for a time period of years. Thus, it is vital to know about the status of oral health of the intellectually and handicapped populations in order to recommend effective preventive measures. The purpose of the study is to assess the oral health status and dental care utilization of people above 15 years with intellectual and physical disabilities in Chennai.

Materials and Methods

A descriptive cross-sectional study was carried out to assess the dental caries experience, gingival status, prevalence of fluorosis and lesion, and dental service utilization among intellectually and physically disabled people in Chennai. The study was carried out from June 2020 to December 2020 with 132 special needs people. This study was conducted in 3 special needs centres in Chennai. One specific centre in Egmore and Hope psychiatric Rehabilitation Centre for Women, where women with intellectual impairment were given rehabilitative care. And another centre named Comprehensive Rehabilitative Care centre in Aminjikarai which houses adult patients above the age of 15 years with special needs. The centre was a remarkable housing facility with all the latest needed facilities including rehabilitation, general health, and recreational facilities.

Patients with intellectual and physical disability in the care center present during the data collection were included and those who were uncooperative and had severe systemic disorders like cardiac problems and unknown cause for mental illness were excluded. A copy of the proposal explaining in simple terms the aims and methods of the project was submitted to the centre. The individuals with capacity to understand such information were given participant information letters in the local language (Tamil) and for participants who lacked capacity, informed consent was obtained from their respective incharges before the start of the study. The study was approved by the Institutional Ethical Committee, Saveetha University.

Before the start of the study, two examiners were standardised and calibrated in the Department of Public Health Dentistry, Saveetha Dental College, Chennai to ensure uniform interpretation, understanding, and application of codes used in the study. Examiners were named as Examiner A and Examiner B and underwent training for 2 days. They were trained to record WHO Oral Health Assessment Form for Adults, 2013 and a pre-validated questionnaire holding 7 closed end questions regarding utilization of dental care services.

The study consisted of three parts. First was the demographic information such as name, age, gender, type of disability, and place of residence. Second was the WHO oral assessment form and third was the 7 questions pertaining to dental services utilization in which 4 were Yes/No questions and 3 were multi-choice questions. Data and notes was collected in an Excel sheet using patient names and identification numbers. Statistical analysis was carried out using SPSS (Statistical Package for the Social Sciences) Version 23. Qualitative variables were calculated using frequencies and percentages. Means and standard deviations were deliberated for quantitative variables. Student's *t* test and one-way analysis of variance (ANOVA) were used to test the significance of difference between quantitative variables. *P* value less than 0.05 describes significant relationship between the variables.

Results

The overall sample size was 132 people with intellectual and physical disability in Chennai. Subjects were grouped according to the type of disability, age, and gender. Among the study participants 83.3% were intellectually disabled and 16.7% were physically disabled. Demographic characteristics of the study participants are shown in Table 1. 61.4% of the participants belonged to the age group 14–25 years, 19.7% belong to the age group 25–35 years, 8.3% of the participants belong to 35–45 years and 10.6% of the participants were above 45 years. Among the study participants, 56.8% were males and 43.1% females [Table 1].

On assessment was the methods of brushing and dental service utilizations; surprisingly 96.2% of the participants cleaned their teeth regularly with or without assistance. Among 132 participants, 45.5% of the population used toothpaste to clean their teeth and 24.2% used tooth powder and only 1.5% used

neem sticks. Only 15.2% of the participants visited the dentist before and 56.1% of the people faced difficulty while brushing. Surprisingly 47% of the participants were unaware of their oral health status [Table 2].

On assessment was the mean of decayed, missing, and filled teeth scores based on the age, gender and type of disability. The mean DMFT of the 14–25 years, 26–35 years, 36–45 years, > 45 years age groups were 1.23 ± 1.75, 2.3 ± 2.01, 0.72 ± 1.19 and 1.42 ± 1.55 respectively. A statistically significant difference was found between the groups ($P = 0.029$) from Kruskal-Wallis test. A statistically insignificant difference was found on assessing the association of mean DMFT with gender ($P = 0.975$) and type of disability ($P = 0.489$) from Mann-Whitney U test [Table 3].

Table 1: Demographic characteristics of the study participants

Variable	*n* (%)
Age (Years)	
14-25 years	81 (61.4%)
25-35 years	26 (19.7%)
35-45 years	11 (8.3%)
>45 years	14 (10.6%)
Gender	
Male	75 (56.8%)
Female	57 (43.18%)
Type of disability	
Intellectually disabled	110 (83.3%)
Physically challenged	22 (16.7%)

Table 2: Assessment of oral health status and dental care utilization among study participants

Questions	*n* (%)
Do you clean your teeth?	
Yes	127 (96.2%)
No	5 (3.8%)
What do you use to clean your teeth?	
Toothpaste	60 (45.5%)
Toothpowder	32 (24.2%)
Neem stick	2 (1.5%)
Any other	38 (28.8%)
Have you visited dentist before?	
Yes	20 (15.2%)
No	112 (84.8%)
How frequently you visit the dentist?	
Every 3 months	18 (13.6%)
Every 6 months	59 (44.7%)
Whenever needed	55 (41.7%)
What was the reason for not visiting the dentist?	
Financial	66 (50%)
No assistant available	38 (28.8%)
No dentist nearby	13 (9.8%)
Not aware of the problem	15 (11.4%)
Do you face any difficulty in brushing your teeth?	
Yes	74 (56.1%)
No	58 (43.9%)
Are you aware of your oral health status?	
Yes	70 (53%)
No	62 (47%)

A highly statistically significant difference was found on comparing gingival bleeding with type of disability ($P = 0.015$) and insignificant differences were found on associations between age group ($P = 0.666$) and gender ($P = 0.480$) with gingival bleeding [Table 4]. According to Figure 1, 88.64% of the participants had 0–3 mm loss of attachment, 9.85% of the study participants had 4–5 mm loss of attachment and only 1.52% of the participants had 6–8 mm of loss of attachment with poor periodontal status. According to Figure 2, 18.18% of the participants had presence of gingival bleeding and 81.8% had absence of gingival bleeding.

Discussion

The three principal components—impairment, disability, and handicap—operate independently, with impairment addressing impact on the body; disability impact on the person; and handicap impact on the person interacting with the environment.[11] Inadequate removal of plaque from the disabled individuals is the prime cause of the gingival and periodontal–related diseases. Generally people who lack manual skills and have intellectual disabilities face high levels of challenges in brushing teeth and maintaining oral hygiene.[12] From the present study results, the majority of the study participants were males (56.8%) and the remaining 43.1% were females [Table 1]. These results were according to the study conducted by Dheepthasri *et al.*,[13] in which 90% of the participants were males. Most of the study participants belong to the 14–25 years age group followed by 25–35 years. These results were in agreement with the study conducted by Neeraj J *et al.*[14] Most of the special needs studies are done only in children followed by elderly population.

According to the present study results 45.5% of the study participants use toothpaste to clean their teeth, which is in strong agreement with the study conducted by Purohit *et al.*[9] Only 15.2% of the participants visited the dentist before and 56.1%

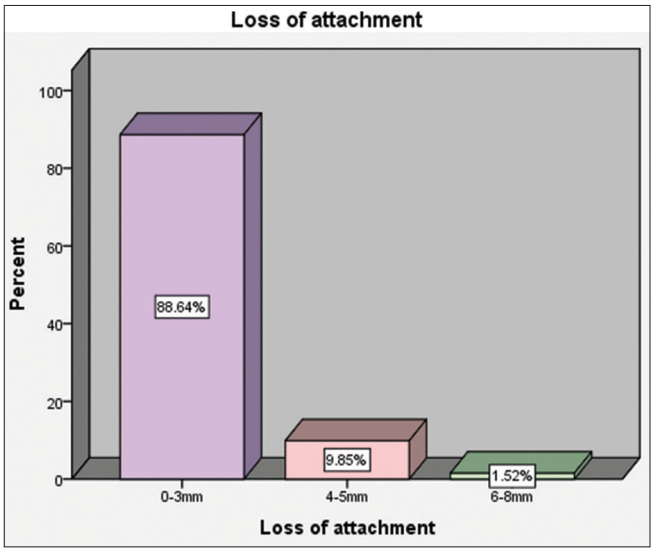

Figure 1: Distribution of study participants based on loss of attachment

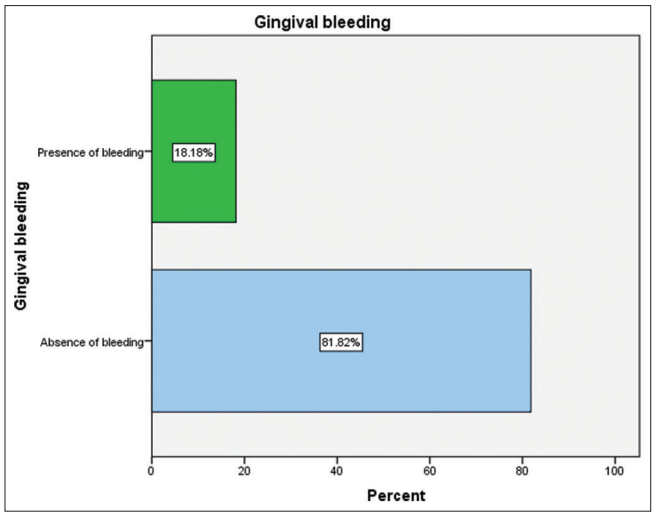

Figure 2: Distribution of study participants based on presence and absence of bleeding

of the people faced difficulty while brushing. Surprisingly 47% of the participants were unaware of their oral health status.

In this study, 81.8% of the population had no gingival bleeding whereas only 18.18% had gingival bleeding. There was a statistically significant difference found between type of disability and gingival bleeding ($P = 0.015$) in which only 14.5% of the participants with intellectual disability had gingival bleeding and 34.6% of the population with physical disability had gingival bleeding. These findings were in agreement with the study conducted by Mittal *et al.*,[10] Supriya *et al.* in Delhi but in contrast to the study conducted by Jain *et al.* in Udaipur.[15,16]

When DMFT indexes were examined with regard to sex, the mean DMFT was found to be higher for males with 1.453 ± 1.847 whereas for females it was 1.403 ± 1.73. This is contrary to literature, which has typically found dental caries to exhibit a higher prevalence among females than males.[17,18] Not only did 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. However, there are quite a number of studies examining dmft and DMFT scores of disabled children, and some authors report better dmft and DMFT values among this group than among the general population.[19]

From our present study results DMFT was found to be more for the 26–35 years age group with 2.3 ± 2.01 and also found a statistically significant difference between the age groups and mean DMFT scores. 8.64% of the participants had 0–3 mm loss of attachment, 9.85% of the study participants had 4–5 mm loss of attachment and only 1.52% of the participants had 6–8 mm of loss of attachment with poor periodontal status.

The higher levels of dental disease in these physically challenged children seem to be due to poor use of dental services and there is a need for dental awareness among the caretakers of these

Table 3: Distribution of the study participants according to mean decayed, missing, and filled teeth scores based on the Age, gender and type of disability

	DMFT (Mean±S.D)	Mean rank	*P*
Age groups			
14-25 years	1.23±1.75	62.22	
26-35 years	2.3±2.01	84.35	0.029*
36-45 years	0.72±1.19	52.55	
>45 years	1.42±1.55	69.07	
Gender			
Male	1.453±1.847	66.59	
Female	1.403±1.73	66.39	0.975
Type of disability			
Intellectual disability	1.38±1.79	65.53	
Physical disability	1.63±1.81	71.36	0.489

Table 4: Distribution of the study participants according to presence of gingival bleeding based on the Age, gender and type of disability

	Absence of bleeding *n* (%)	Presence of bleeding *n* (%)	X^2	*P*
Age groups				
14-25 years	66 (81.5%)	15 (18.5%)		
26-35 years	20 (76.9%)	6 (23.1%)	1.572	0.666
36-45 years	9 (81.8%)	2 (18.2%)		
>45 years	13 (92.9%)	1 (7.1%)		
Gender				
Male	59 (78.4%)	16 (21.6%)	1.470	0.480
Female	49 (86%)	8 (14%)		
Type of disability				
Intellectual disability	94 (85.5%)	16 (14.5%)		
Physical disability	14 (63.6%)	8 (34.6%)	5.867	0.015*

types of population. Better accessibility of dental services as well as oral health education is mandatory to make certain that optimum dental health should be in reach of these less fortunate among the special needs population.[20-22]

Recommendations

- Homes can be adopted and treatment can be done for those who are in need of dental care
- Interventions can be given after health education for the caregivers, and the evaluation of improvement in oral health status can be done.

Conclusion

The present study reveals the presence of higher prevalence of oral health–related problems like dental caries, periodontal problems, and increased unmet dental treatment needs. With the obtained results, people with physical disability have a high mean DMFT compared to intellectual disability. The present study showed dental negligence among mentally disabled population where the parents, caretakers, and dentists are responsible. **Effective oral health education with audiovisual aids, diet counseling, and step-by-step**

demonstration of oral hygiene practices can be given to improve oral hygiene.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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