Original Article

Received : 11-04-16
Review completed : 19-04-16
Accepted : 01-05-16

# THE ORAL HEALTH STATUS OF MENTALLY AND PHYSICALLY CHALLENGED CHILDREN IN CENTRAL INDIA – A COMPARISON STUDY

Swati Balsaraf *, Revant Chole**
* Reader, Department of Public Health Dentistry, Dr. HSRSM Dental College, Hingoli,Maharashtra
**Reader,Oral Medicine and Radiology, Dr. HSRSM Dental College, Hingoli,Maharashtra

## ABSTRACT

**Background:** Poor oral health and dental hygiene are particularly prevalent among vulnerable populations such as individuals with intellectual and developmental disabilities (IDD). Developmental disabilities include cerebral palsy, Down's syndrome, mental retardation, autism, seizure disorders, hearing and visual impairments, congenital defects or even social or intellectual disorders.

**Materials and method:** This cross sectional survey was conducted amongst mentally and physically challenged individuals visiting a camp in Indore. The oral health status was examined using plaque, gingival index and DMFT index.

**Results:** Brushing frequency in majority of children was once a day with toothbrush and toothpaste (78%). Only 23% of total children had no caries experience.

**Conclusion:** This study exhibited poor oral hygiene amongst children and the results were statistically significant (mean plaque score=2.2) between mentally disabled and physically handicapped individuals among oral hygiene and 23% of children had no caries experience. Due to lack of cooperation other risk factors related to oral health status could not be recorded.

**KEYWORDS:** Down's syndrome, Oral hygiene, Physically challenged, Plaque index.

## INTRODUCTION

Poor Oral Health and dental hygiene are particularly prevalent among vulnerable populations such as individuals with intellectual and developmental disabilities (IDD)[1]Developmental disabilities include cerebral palsy, Down's syndrome, mental retardation, autism, seizure disorders, hearing and visual impairments, congenital defects or even social or intellectual disorders.[2] Mental retardation has been defined by the American association of Mental deficiency as a deficiency in theoretical intelligence that is congenital or acquired in early life. [3] According to National sample survey organization report the number of disabled individuals in India is around 18.49 million which forms around 1.8% of total population. [4] Intelectually Disabled individuals have an intelligent quotient (IQ) score of about 70 or below.[5] Dental caries is the most prevalent disease among mentally retarded children worldwide and dental treatment is the greatest unattended health need of the disabled.[6] With the changing era oral health is slowly becoming an integral part of overall general health, it is still one of the non attended health need in disabled children or individuals.[7] The present study thus aims to find the oral hygiene and caries status in mentally and physically challenged individuals and comparison amongst themselves in Indore, Central India. The null hypothesis thus stated is that there is no difference in oral hygiene and caries score between physically and mentally challenged children.

## METHODOLOGY

This cross sectional survey was conducted amongst mentally and physically challenged individuals visiting a camp conducted at a school in Indore in April 2015. Children from institutes nearby Indore attended the camp. The number of children attending the camp were 120 total out of which 30 mentally and 30 physically challenged children were selected randomly.

**Inclusion criteria:** Children with mental and physical challenge.

**Exclusion criteria:** uncooperative children and children unable to open mouth.

The examination proforma had two sections.Sociodemographic details and clinical examination. The clinical examination was carried out by two calibrated examiners (kappa-0.80) . The clinical examination was conducted using Type III examination method. The instruments used were explorer and mouth mirror. To assess oral hygiene status OHI-S index given by John C Greene & Jack R Vermillion was used. To assess gingival status Gingival Index was used. To assess caries experience and type of malocclusion DMFT index and Angles classification of malocclusion was used respectively. Fracture of teeth was evaluated using Elli's Classification. Dental caries was recorded according to WHO criteria 1986. The ethical clearance was obtained from ethical review board of the institution. The examination was conducted inside the mobile dental van with the children seated on dental chair and illumination. Ethical clearance was obtained from ethical review board of the institution. Statistical Analysis was done using SPSS Package 17 version. The p-value was set as $p \leq 0.05$ as statistically significant. The data was normally distributed thus t-test for independent samples was applied for comparison of means.

## RESULTS

There were total 60 children who were included in the study. The demographic profile of the study showed mean age as recorded was 10.2 years. There were 45 males and 15 females. Brushing frequency in majority of children was once a day with toothbrush and toothpaste (78%). Only 23% of total children had no caries experience. The mean plaque score in the two groups was 2.2 that is poor and the results are statistically significant.(p=0.006). Whereas the mean gingival score in Gingival index were 1.83 & 1.66 and the results were not statistically significant (0.61) as seen in Table I.Table II shows result of mean score of fracture and comparison of the mean amongst the two groups and the results are highly statistically significant.(p=0.000).There were more fractures in mentally challenged group as

| GROUPS | PLAQUE INDEX SCORE | | | | |
|---|---|---|---|---|---|
| | GOOD | FAIR | POOR | P value | Mean ±SD |
| Mentally challenged | 4 | 16 | 10 | 0.006 | 2.2±0.66 |
| Physically challenged | 6 | 12 | 12 | | 2.2±0.76 |
| | GINGIVAL INDEX SCORE | | | | |
| | MILD | MODERATE | SEVERE | P value | Mean ±SD |
| Mentally challenged | 14 | 12 | 4 | 0.61 | 1.83±0.64 |
| Physically challenged | 9 | 17 | 4 | | 1.66±0.71 |

**Table I. Plaque and gingival score according to Plaque index and Gingival index and mean score in Mentally and physically challenged group of children.**

compared to physically challenged group. 23 individuals in the mentally challenged group had class I malocclusion and 17 in physically challenged individuals and the results were statistically significant.(p=0.007). The periodontal condition of mentally retarded is poor because of reduced manual dexterity. Overall, males had more calculus and females had more bleeding on probing.

## DISCUSSION

The oral hygiene status found in this study was poor which is in line with the study done by S Kumar et al [8] Nicolaci and Tesini [9] which may be attributed to the fact that food retains for long in the oral cavity due to impaired manual and mental dexterity. most of the studies conducted on physically and mentally handicap children have shown that the oral hygiene among these special care individuals is poor.(oral health status of disabled children) The results are not in line with a study done by Ameer et al in 2012 which

exhibited the mean plaque score to be moderate amongst physically disabled children.[10]In the present study 78% of subjects were brushing once a days the results are similar to the study

| GROUPS | ELLI'S CLASSIFICATION OF FRACTURE | | | | | | |
|---|---|---|---|---|---|---|---|
| | No fracture | Enamel fracture | Dentin fracture | Fracture involving pulp | P-value | Mean ±SD | |
| Mentally challenged | 9 | 12 | 8 | 1 | 0.000 | 1.03±0.85 | |
| Physically challenged | 14 | 12 | 3 | 1 | | 0.7±0.79 | |
| | DMFT Index | | | | | | |
| | Nil | DMFT 1 | DMFT 2 | DMFT 3 | DMFT 4 | P - value | Mean± SD |
| Mentally challenged | 5 | 11 | 11 | 2 | 1 | 0.79 | 1.5±1.19 |
| Physically challenged | 9 | 11 | 6 | 2 | 2 | | 1.23±1.16 |
| | Malocclusion | | | | | | |
| | Class I | Class II | ClassIII | p-value | Mean ±SD | | |
| Mentally challenged | 23 | 4 | 3 | 0.007 | 1.33±0.66 | | |
| Physically challenged | 17 | 10 | 3 | | 1.53±0.68 | | |

**Table II: DMFT score, fracture according to Elli's classification and Malocclusion and mean score in mentally and physically challenged children.**

conducted by Siddibhavi MB 87.1%[11]. In the present study the decayed teeth were seen in 77% of children and the results are in line with the study done by Solanki J in 2014 in which 79.2% of individuals showed presence of dental caries.Similar results are also found in studies done by Gupta et al and Bhavsar et al. The present study showed majority of children in Angle's class I malocclusion. However the results are not in line with a study done by Siddibhavi MB which exhibited severe malocclusion in the individuals. The reason for increase in occlusion anomalies in handicapped children may be growth retardation, poor muscular co-ordination and may be habits associated with handicapping conditions. The fracture of teeth according to Elli's classification was limited to enamel in most children and the results were statistically significant(p=0.000). there were limited study to compare this finding. The study was limited to children attending a school dental health camp in Indore city only.

## CONCLUSION

This study exhibited poor oral hygiene amongst children and the results were statistically significant between mentally disabled and physically handicapped individuals among oral hygiene and caries experience. Due to lack of cooperation other risk factors related to oral health status could not be recorded. There should be policies for disabled children to take care of their complex unmet needs. Regular dental inspections and treatment procedures must be carried out routinely. The dental neglect seen in these individuals clearly points towards the complacent attitude of the society, like normal individuals they should also get routine dental treatment.

## REFERENCES

1.Binkley CJ, Johnson KW, Abadi M, Thompson K, Shamblen SR, Young L. Improving the oral health of residents with intellectual and developmental disabilities: An oral health strategy and pilot study. Evaluation and Program Planning.2014; 47: 54–63.

2. Shukla D, Bablani D, Chowdhry A, Jafri Z, Ahmad N, et al. (2014) Oral Health Status and Dental Caries Experience in Mentally Challenged Individuals. Ann Public Health Res. 1(2): 1008.

3. Jain M, Mathur A, Sawla L,Chaudhary G, Kabra K, Duraiswamy P et al.Oral health

status of mentally disabled subjects in India. Journal of oral sciences2009;51(3), 333-340.

4. Kaur S, Malhotra R, Malhotra R,Kaur H, Battu VS &Kaur A. Oral hygiene status of mentally andphysically challenged individuals living in a specialized institution in Mohali, India. Indian Journal of Oral Sciences.2013; 4(1):17-22.

5. Kadam NS, Patil R, Gurav AN, Patil Y, Shete A, Tari RN et al. Oral Hygiene Status, Periodontal Status, and Periodontal Treatment Needs among Institutionalized IntellectuallyDisabled Subjects in Kolhapur District, Maharashtra, India. Journal of Oral Diseases.2014;1-11.

5. Solanki J, Gupta S, and Arya A. Dental Caries and Periodontal Status of Mentally Handicapped Institutilized Children. J Clin Diagn Res. 2014; 8(7): ZC25–ZC27.

6. Hashim NT, Gobara B, Ghandour I Periodontal Health Status of A Group of (Non- Institutionalized) Mentally Disabled Children in Khartoum State. Journal of Oral health and community dentistry. 2012; 6(1):10-13.

7. Kumar S, Sharma J, Duraiswamy P, Kulkarni S. Determinants for oral hygiene and periodontal status among mentally disabled children and adolescents. Journal of Indian Society of Pedodontics and Preventive Dentistry.2009;27(3):151-157.

9. Nicolaci AB, Tesini DA. Improvement in the oral hygiene of institutionalized mentally retarded individuals through training of direct care staff: a longitudinal study. Spec Care Dent 1982; 2:217-21.

10. Ameer N, Palaparthi R, Neerudu M, Palakuru SK, Singam HR, and Durvasula S. Oral hygiene and periodontal status of teenagers with special needs in the district of Nalgonda, India. J Indian Soc Periodontol. 2012; 16(3): 421–425.

11. Mahantesh B Siddibhavi.Oral Health Status of Handicapped Children Attending Various Special Schools in Belgaum City Karnataka. Cited 2012 Feb 22 ; 02:17:45 PM http://www.webmedcentral.com.