

The Oral Health Status of Intellectually and Physically Challenged Children in Central India- A Comparison Study

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ARTICLE INFO.

Received: 19 October, 2024

Accepted: 01 December, 2024

Volume: Vol-15, Issue-1, April 2025

DOI: <https://doi.org/10.3329/updcj.v15i1.77031>



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Publisher: Update Dental College, Dhaka, Bangladesh

Web: www.updatedentalcollege.edu.bd

E-mail: updcj@hotmail.com



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ABSTRACT

Introduction: Developmental disabilities includes Down's syndrome, cerebral palsy, mental retardation, hearing and visual impairments. They present with compromised oral hygiene. Hence, this study was aimed to study oral hygiene status of physically and mentally challenged individuals. **Materials and Method:** This is a cross-sectional type of survey 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:** The majority of children brushed 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 which was 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.

KEY WORDS: Down's Syndrome, oral hygiene, physically challenged, plaque index.

INTRODUCTION

The vulnerable populations such as individuals with intellectual and developmental disabilities (IDD) presents with poor oral hygiene.^[1] Developmental disabilities in this study includes mentally and physically challenged children.² American Association of mental deficiency describes intellectual disability as a deficiency that is congenital or acquired in early life.³ The number of disabled individuals in India is around 18.49 million which is about 1.8% of total population.⁴ They show IQ about 70 or below.⁵ Dental caries is the most prevalent disease 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 intellectually and physically challenged individuals and comparison amongst themselves in Indore, Central India. There are many schools for disabled children in Indore and attending to them through a camp was thought to be the best idea to assess the caregiver's level of commitment towards their children for oral hygiene status. The null hypothesis thus stated is that there is no difference in oral hygiene and caries score between physically and intellectually challenged children.

MATERIALS AND METHODS

This was a cross sectional type of survey, conducted amongst intellectually and physically challenged individuals visiting a camp accompanied with either their parents or care takers conducted at a school in Indore in April 2019. Indore is located in central India in Madhya Pradesh. Children from all schools for intellectually and physically challenged from all four zones of Indore with their parents or caregivers were invited to attend the camp. The number of children attending the camp were 120 out of which 30 mentally and 30 physically challenged children were selected using simple random method. Inclusion criteria: children with intellectual and physical challenge. Exclusion criteria: uncooperative children and children unable to open mouth.

The examination proforma had two sections. Sociodemographic details and clinical findings. 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, periodontal probe and mouth mirror. To assess oral hygiene status, plaque index with criteria for good, fair & poor was used given by Sillness P and Loe H. To assess gingival status gingival index given by Loe H and Sillness P was used. To assess caries experience and type of malocclusion DMFT index and Angle's classification of malocclusion was used respectively. The WHO criteria 1986 was used to record dental caries. Fracture of teeth was evaluated using Elli's classification. Ethical clearance was obtained from ethical review board of the institution. (Sri Aurobindo Institute of Medical Sciences). The examination was conducted inside the mobile dental van with the children seated on dental chair under illumination. Informed consent was obtained.

Statistical analysis: It was done using SPSS package 17 version. The p-value as ≤ 0.05 as statistically significant. The data was normally distributed thus t-test for independent samples was applied for comparison of means.

RESULTS

There was 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. Majority of children brushed once a day with toothbrush and toothpaste (78%) with the help of caregivers or parents. Only 23% of total children had no caries experience.

Table-1

Groups	Plaque index score				Mean $\pm$ SD
	Good	Fair	Poor	P value	
Intellectually challenged	4	16	10	0.006	2.2 $\pm$ 0.66
Physically challenged	6	12	12		2.2 $\pm$ 0.76
	Gingival index score				Mean $\pm$ sd
	Mild	Moderate	Severe	P value	
Intellectually challenged	14	12	4	0.61	1.83 $\pm$ 0.64
Physically challenged	9	17	4		1.66 $\pm$ 0.71

Test applied: t- test for independent samples. P values ≤ 0.05 as statistically significant.

Table I. Plaque and gingival score according to plaque index and gingival index and mean score in mentally and physically challenged group of children.

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)[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 compared to physically challenged group. 23 individuals in the Intellectually challenged group had class I malocclusion and 17 in physically challenged individuals (p value =0.007). The periodontal condition of intellectually disabled children is poor because of reduced manual dexterity. Overall, males had more calculus and females had more bleeding on probing.

Table-2

Groups	Elli's classification of fracture					P-value	Mean $\pm$ SD
	No fracture	Enamel fracture	Dentin fracture	Fracture involving pulp			
Intellectually challenged	9	12	8	1		0.000	1.03 $\pm$ 0.85
Physically challenged	14	12	3	1			0.7 $\pm$ 0.79
	DMFT index					P – value	Mean $\pm$ Sd
	Nil	DMFT 1	DMFT 2	DMFT 3	DM FT 4		
Intellectually challenged	5	11	11	2	1	0.79	1.5 $\pm$ 1.19
Physically challenged	9	11	6	2	2		1.23 $\pm$ 1.16
	Malocclusion				P-value	Mean $\pm$ SD	
	Class I	Class II	Class III				
Intellectually challenged	23	4	3		0.007	1.33 $\pm$ 0.66	
Physically challenged	17	10	3			1.53 $\pm$ 0.68	

Test applied: t -test for independent samples. P values ≤ 0.05 as statistically significant.

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

DISCUSSION

The oral hygiene status found in this study was poor which is in line with the study done by S kumar et al⁸ Nicolaci and Tesini⁹ which may be attributed to the fact that food retains for long in the oral cavity due to impaired manual and mental dexterity and lack of concern from caregivers. Most of the studies conducted on physically and intellectually handicap children have shown that the oral hygiene among these special care individuals is poor, 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 day the results are similar to the study conducted by Siddibhavi MB 87.1%¹¹. The parents of these children should be motivated to make them brush twice a day. 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 intellectually 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 lack of efficiency either of caregivers or parents towards providing oral health care. It was suggested to them to use powered toothbrushes for daily brushing which compensates for the inefficient manual dexterity and motor control of these disabled children. Like normal individuals they should also get routine dental treatment.

ACKNOWLEDGEMENT: Authors propose thanks towards Faculty of Dentistry, Najran University, Saudi Arabia for providing with literature required in the making of this article.

CONFLICT OF INTEREST: The authors declare no conflict of interest.

FUNDING: This research received no external funding.

DATA AVAILABILITY STATEMENT: The data presented in this study are available on reasonable request from the corresponding author.

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How to Cite

H Chole R, Balsaraf S, M Gondivkar, S, R Gadball A. The Oral Health Status of Intellectually and Physically Challenged Children in Central India- A Comparison Study. Update Dent. Coll. j [Internet]. [cited 2025 Apr. 26];15(1):6-8. Available from: <https://www.banglajol.info/index.php/UpDCJ/article/view/77031>