

## Original Research

### Comparison of caries assessment spectrum and treatment needs index with def index in measuring dental caries among 2–6-year-old school children

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#### ABSTRACT:

**Background:** To compare the caries assessment spectrum and treatment needs index with def index in measuring dental caries among 2–6-year-old school children. **Materials & methods:** Oral examination was carried out. All the examination procedures were carried out by making the children sit in an upright position with plane mouth mirror and WHO periodontal probe under strict aseptic conditions. The data regarding caries experience were recorded in a specially designed Proforma. All the results were assessed using SPSS software. **Results:** 500 school going children were evaluated. According to CAST index, the prevalence of dental caries was 48.2 percent while according to def index, the prevalence of dental caries was 46.2 percent. The difference observed on comparison of overall mean score for d, e, and f component of CAST index (2.99) with def index (2.29) was statistically significant. While analysing the correlation statistically, it was seen that the spearman rank correlation coefficient showed a highly significant strong agreement between CAST and def indices for all age groups. **Conclusion:** More detailed information in relation to prevalence of dental caries is provided by CAST index in comparison to def index.

**Key words:** Caries, School going children, Treatment

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#### INTRODUCTION

Dental caries is the most prevalent chronic disease affecting humans irrespective of age, sex, race and socioeconomic status. As around 90% of school children and most of the adults have been affected by dental caries, hence it has been considered as the most important global oral health burden.<sup>1-3</sup>

Oral health care in rural areas are often limited due to shortage of dental manpower, financial constraints, and the lack of perceived need for dental care among rural masses. Among oral diseases, the dental caries is an important dental public problem in India and is predominantly a disease of childhood. Pain due to dental caries can affect normal food intake and daily curriculum and sports activities in the children.<sup>4,5</sup>

Both poor dental status and overweight are multifactorial conditions influencing the quality of life and development of children. Both are complex,

lifestyle-related health issues correlated with low socioeconomic status. Important risk factors coincide in predisposing to both overweight and poor dental status, such as an inappropriate diet with high or frequent intake of sugar and soft drinks. The preventative efforts needed in order to reduce the number of overweight and obese children and to improve oral health in the same age group might overlap and may demand a coordinated multidisciplinary strategy.<sup>6,7</sup> Hence; the present study was conducted for comparing the caries assessment spectrum and treatment needs index with def index in measuring dental caries among 2–6-year-old school children.

#### MATERIALS & METHODS

The present study was conducted for comparing the caries assessment spectrum and treatment needs index

with def index in measuring dental caries among 2–6-year-old school children. Only those children were enrolled in the present study which had fully erupted deciduous dentition on the day of examination. However; subjects with presence of erupted first permanent molar were excluded from the present study. Oral examination was carried out. All the examination procedures were carried out by making the children sit in an upright position with plane mouth mirror and WHO periodontal probe under strict aseptic conditions. The data regarding caries experience were recorded in a specially designed Proforma. All the results were assessed using SPSS software. Univariate regression curve was used for evaluation of level of significance.

**Table 1: Demographic variables**

Variable	Number	Percentage
Mean age (years)		4.9
Boys	262	52.4
Girls	238	47.6

**Table 2: Comparison of “def” index and “caries assessment spectrum and treatment needs” index in assessing the prevalence of dental caries**

Variable		Def index	CAST index
Decayed	N	231	241
	%	46.2	48.2
Sound	N	269	259
	%	53.8	51.8

## DISCUSSION

Dental caries is a global public health problem and is a widespread non-communicable disease that can be prevented. It affects a large number of people across all age and socioeconomic groups, affecting their health and well-being, social interactions and economic status. It causes pain and difficulties in eating and sleeping, and result in chronic systemic infections. Dental caries are also associated with adverse growth patterns.<sup>5-7</sup>

Beyond the immediate distress caused by toothache, early childhood caries (ECC) can also have longer term negative, health outcomes. Untreated decay in infancy and early childhood is believed to affect weight gain and overall growth and development. Along with these patho-physiological effects, ECC can impact on oral health related quality of life (OHRQoL). As parents and caregivers have the main responsibility for their preschool-aged children, ECC can also affect them indirectly, for example, work-loss and financial impact due to having to stay at home to take care of the child. ECC is therefore recognized as a public health problem due to its high prevalence in some populations and the potential for negative health impacts if left untreated.<sup>7-9</sup> Hence; the present study was conducted for comparing the caries assessment spectrum and treatment needs index with def index in measuring dental caries among 2–6-year-old school children.

## RESULTS

A total of 500 school going children were analysed. Among them, 262 were boys while the remaining 238 were girls. Mean age of the children was 4.9 years. According to CAST index, the prevalence of dental caries was 48.2 percent while according to def index, the prevalence of dental caries was 46.2 percent. The difference observed on comparison of overall mean score for d, e, and f component of CAST index (2.99) with def index (2.29) was statistically significant. While analysing the correlation statistically, it was seen that the spearman rank correlation coefficient showed a highly significant strong agreement between CAST and def indices for all age groups.

A total of 500 school going children were analysed. Among them, 262 were boys while the remaining 238 were girls. Mean age of the children was 4.9 years. According to CAST index, the prevalence of dental caries was 48.2 percent while according to def index, the prevalence of dental caries was 46.2 percent. The difference observed on comparison of overall mean score for d, e, and f component of CAST index (2.99) with def index (2.29) was statistically significant. Our results were in concordance with the results obtained by previous authors who also reported similar findings. In a study conducted by Shyam R et al, authors assessed dental caries using CAST index among 11-14-year-old school children. A total of 586 children were examined. Prevalence of dental caries was 28.6%. Highest caries was observed in lower right first molar and lower left first molar (13.8% and 11.6%) respectively. Pulpal involvement in lower molars was found more than the upper molars. They concluded that CAST index presents a simple hierarchical structure of caries spectrum and is a promising index for epidemiological studies with complex quantifiability.<sup>10</sup> In another similar study conducted by Babaei A et al, authors explored the oral health status of 6- to 7-year-old children based on the CAST index in relation to oral health knowledge and background determinants. The status of caries and oral hygiene was recorded according to the CAST index and OHI-Simplified (OHI-S) index, respectively. In primary molar teeth, dentinal lesions

ranged from 25.3 to 31.2%, the prevalence of pulp involvement was between 2.9 and 10.5%, and less than 1% had abscess/fistula. They concluded that the consequences of dental caries including abscess and fistula were more prevalent in the first and second primary teeth.<sup>11</sup>

In the present study, while analysing the correlation statistically, it was seen that the spearman rank correlation coefficient showed a highly significant strong agreement between CAST and def indices for all age groups. Similar findings were also observed in a study conducted by Vemagiri CT et al. In their study, author compared CAST and def indices in measuring dental caries among 3–6-year-old school children. Caries prevalence with CAST index (45.7%) was marginally higher compared with def index (44.7%). No statistically significant difference was found between mean deft scores measured with CAST and def index ( $P = 0.87$ ). High statistically significant difference in mean def scores with def index and def component of CAST index for 3-, 4-, 5-, and 6-year age groups was observed ( $P < 0.001$ ). A strong correlation in measuring dental caries ( $P < 0.001$ ) and similar percentage of agreement for application (98.5%) was observed between both the indices. No statistically significant difference was found in measuring caries experience indicating the similarity between CAST and def indices in quantifying dental caries.<sup>12</sup>

## CONCLUSION

From the above obtained results, it can be concluded that more detailed information in relation to prevalence of dental caries is provided by CAST index in comparison to def index.

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