

Caries Experience Based on a Visual Screening and a Routine Examination

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Purpose

- To assess and compare the caries experience determined in 5-10 years old children by visual screening and routine examination with radiographs in the dental office.
- Null hypothesis: there is no difference in caries experience detected by visual screening vs. routine examination with radiographs.

Materials and Methods

- A cross sectional study conducted in the Pediatric Dentistry Postgraduate Clinics.
- Institutional Review Board approval obtained.
- Sample size calculation range 34-128.
- An initial visual screening done by a pediatric dentist in a `simulated` epidemiological setting.
- Caries experience (dft+DFT) recorded (Radike criteria).
- A second evaluation done on the same day by a pediatric dental resident during routine examination in the dental chair. Radiographs, if indicated per AAPD Guidelines, were obtained.

Results

- 118 children, average age: 8 years.
- Boys: 73, Girls: 45
- Insurance status: Medicaid/CHIP: 36.4%, Private insurance: 7.6%, Uninsured: 55%, Unknown: 1%.
- Race: Hispanic: 62.7%, White: 6.8%, African American: 21.2%, Asian: 4.2%, Mixed races: 1.7%, Unknown: 3.4%.
- The difference between the routine examination with radiographs and the visual screening was studied to indicate the amount of underestimation of caries experience (mean 2) figure 1.

Table 1. Caries prevalence based on visual screening and routine examination with radiographs

	Total number of children Count	Prevalence	
		Detected during Visual Screening Count (%)	Detected by Routine Examination with Radiographs Count (%)
5 to 7 years	60	50 (83.3)	57 (95)
8 to 10 years	58	45 (77.6)	51 (87.9)
All age groups	118	94 (79.7)	106 (89.8)*

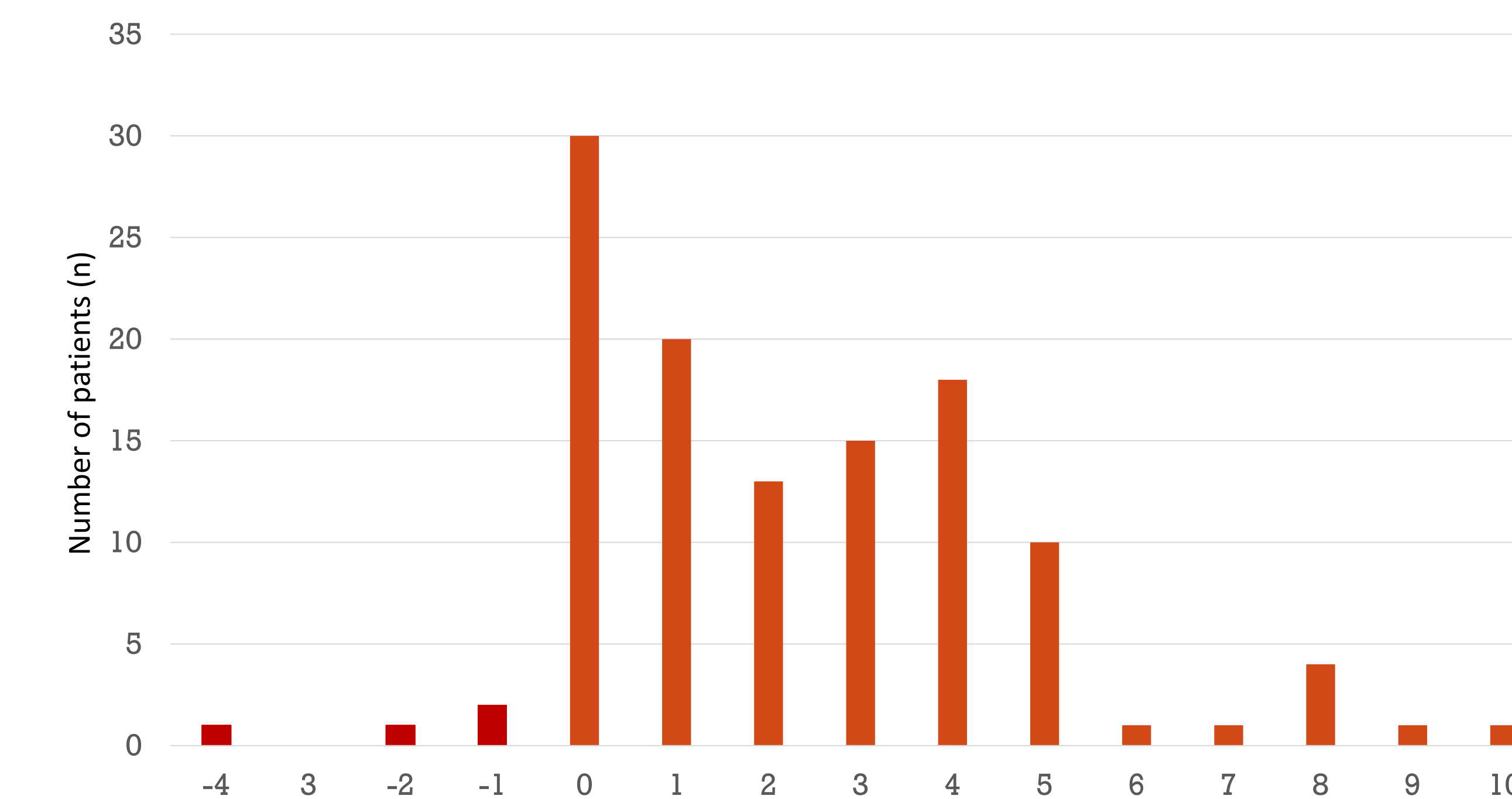
* Statistically significant (Chi-Square test)

Table 2. Age-wise mean caries experience (dft+DFT) determined by visual screening and routine examination with radiographs

Age group	Visual Screening Caries Experience (dft+DFT) Mean (SD)	Routine Examination Caries Experience (dft+DFT) Mean (SD)
5 to 7 years	4 (3.3)	7 (3.7)
8 to 10 years	3 (2.8)	5 (3.6)
All age groups	3.3 (3.1)	5.6 (3.8)*

* Statistically significant (Paired t-test)

Graph 1. Difference in dft+DFT between routine examination with radiographs and visual screening



Conclusions

- There is a significant difference in 1. the number of children diagnosed with caries, and 2. the overall caries experience detected by routine examination with radiographs versus visual screening alone.
- Based on our findings, the visual screening utilized in prevalence studies is likely to underestimate the true extent of caries experience in children by 10%.

References

1. Dhar V, Mon S, Macek MD. Evaluation of Nonproximal Caries as Predictor of Proximal Caries in Primary Molars. Int J Clin Pediatr Dent. 2018 Nov-Dec;11(6):457-461. doi: 10.5005/jp-journals-10005-1557. PMID: 31303730; PMCID: PMC6611539.
2. Oral Health Survery: WHO Basic Methods. 4th Edition. 2013.