Caries incidence in child abuse and neglect*

Gary R. Badger, DDS, MS

Dental neglect has been identified as an important issue in the larger child abuse/neglect spectrum. Davis et al.[1] (1979) outlined some of the indications of dental neglect and Badger[2] (1982) offered a solution to the identification and treatment of dental neglect within the military. However, the relationship between child abuse and neglect and the condition of the oral environment has not been determined. The following study was developed to determine if any relationship existed between child abuse/neglect cases and the def/DMF rate.

Methods and Materials

This study consisted of 2 groups of children who were family members of active duty military. The groups were taken during a 1-year time period when children were referred for dental evaluation as part of the data base assessment of the child's condition. No effort was made to formulate distinct groups; these children are those who simply presented.

These groups of children identified as active cases of child abuse/neglect by the military therapy groups were given a dental oral examination. A standard dental mirror and explorer with dental light were used. Caries was noted as enamel penetrations with the explorer on both primary and permanent teeth. No radiographs were taken and no distinction was made between permanent and primary teeth. Missing teeth were those which were expected to be present normally but were not, and exfoliated teeth were not included as missing teeth.

Group A consisted of 42 children ages 2-12 years old (26 females, 16 males). Two subgroups were formed for statistical purposes: ages 2-5 and 6-12. Group B consisted of 26 children ages 4-19 years old (11 females, 12 males). Three subgroups were formed: ages 2-5, 6-12, and 13-19.

The means and standard deviations were estimated for each age group within Groups A and B, and for the 2 groups combined. Using a 1-sample Student's *t*-test, these groups then were compared to national means for similar age groups. A level of .05 was used to control for Type I error. Finally, assuming that a difference of 1.5 def/DMF would be clinically significant, the power for each comparison was estimated.

Results

Findings from the 1965 Division of Health Examinations Statistics survey indicated that children 6-11 years old averaged 1.4 DMF ± 1.9 teeth per child and those 12-17 years old averaged 6.1 DMF ± 4.7.

The mean and standard deviations for the 3 age groups within Groups A and B, for the 2 groups combined, are shown in Table 1.

The results of the comparisons to the national means were that the children in Groups A and B had mean def/DMF rates that were not significantly different from the national means (age groups 6-12 years and

Table 1. Mean def/DMF per Child[a] for Groups A, B, and A and B (Combined) by Age Group

	Sample Group		
Age Group	A	B	A and B
2-5 yr	1.5 ± 2.3 (27)	0 ± 0 (4)	1.3 ± 2.2 (31)
6-12 yr	1.6 ± 1.7 (15)	1.6 ± 3.1 (10)	1.6 ± 2.3 (25)
13-19 yr	±	6.3 ± 4.2 (12)	6.3 ± 4.2 (12)

[a] Expressed as mean ± SD, ( ) = sample size.

* The opinions or assertions contained herein are the private views of the author and are not to be construed as official or as reflecting the views of the Department of the Army or the Department of Defense.

13-19 years only). The results of the *t*-test and the power of the tests are shown in Table 2.

As can be seen from Table 2, Groups A and B are not significantly different statistically from the national means. Although the samples are small, the power of the tests is sufficient to rule out the possibility of Type II error.

In spite of the fact that the 2 groups were taken from distinct geographic areas, the rates were similar. Also, while the military children experience periods of access to gratis dental care, the rates are the same for the study groups and national figures.

TABLE 2. Results of Comparison of Groups A, B, and A and B (Combined) With National Means, by Age Group

	n	*p-value*	*Conclusion*[a]	*Power*[b]
Group A				
Ages 6-12 yr	15	.26	NS	99%
Ages 13-19 yr	- -	- - -	- -	- -
Group B 6-12 yr	10	.42	NS	92%
Groups A and B				
Ages 6-12 yr	25	.34	NS	99%
Ages 13-19 yr	12	.47	NS	87%

[a] NS = not significantly different from the national mean for that age group.

[b] Power = $(1 - \beta)$ 100, where B is the probability associated with t under the alternative hypothesis that $X - \mu = d = 1.5$ and μ is assumed to be the national mean for that group.

Conclusion

Abused and neglect children in this study display no significant differences in def/DMF rates from the national averages.

Dr. Badger currently is serving with the U.S. Army at Walter Reed Army Medical Center. Reprint requests should be sent to: Dr. Gary R. Badger, 9804 Campbell Dr., Kensington, MD 20895.

1. Davis GR, Domoto PK, Levy RL: The dentist's role in child abuse and neglect. J Dent Child 46:17–24, 1979.
2. Badger GR: Dental neglect: a solution. J Dent Child 49:285–87, 1982.