
A Study of Dental Needs, DMF, def, and Tooth Eruption in Migrant Negro Children

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The inability of farm communities to meet their labor needs during the peak harvest season requires the use of seasonal farm workers. Since this need exists only for a short period of time in each area, the seasonal farm worker must migrate frequently, following the crops.¹ In 1966, Monroe County, New York, had an estimated population of 1,250 migrants, mainly southern Negroes moving northward following the Atlantic Coast Stream.²⁻⁴ A small percentage were from Texas and Puerto Rico.

The medical and dental problems of the seasonal worker and his family stem from a complex set of socioeconomic factors. A complete discussion of these factors is beyond the scope of this report. Suffice it to say that the migrant is impoverished, mobile, remote from society and lacking in health consciousness. Numerous authors have discussed these problems and a host of others confronting the migrant.⁵⁻⁷ However, only a few

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investigators have studied the migrant's dental problems per se.⁸⁻¹⁰ Thus, a survey of oral health status was initiated in order to assess the dental conditions and needs of the Negro migrant child.

Methods

The condition of the teeth of sixty-one Negro migrant children, ranging in age from five to twelve years, was surveyed at two day care centers in Monroe County, New York, during the summer of 1966. Age to the nearest birthday and sex of these children is shown in Table 1.

The sixty-one children included all the Negro migrant children attending the two day care centers and almost the entire population of the migrant children in Monroe County according to public health nurses who worked in the camps. These children were from several camps throughout the county and had migrated from Alabama and Florida.

The children were all examined by one dentist (R.G.B.) using a method similar to that employed in the U.S. Public Health Service National Health Survey.¹¹ The subjects were seated in a dental chair and the teeth were inspected under similar lighting conditions using a mouth mirror and explorer. The teeth were not dried or radiographed, and the explorer was used only to check whether grooves were carious.

Although there was no attempt to obtain a representative sample of urban Negro children, the same dentist examined all five-to twelve-year-old Negro children being admitted for the first time, or on a six-month recall visit, to the Eastman Dental Center Clinic in Rochester, New York, during a three-month period in the fall of 1966. This group, consisting of 60 girls and 58 boys, was used as a basis for comparison to determine whether there were gross differences between migrant and urban Negro children in respect to dental care and dental needs. In addition, we wanted to determine whether the well-known sex-related difference in eruption timing occurred in both groups.¹²

Results

Previous Dental Treatment

Previous dental treatment of the children was judged by the number of filled teeth in each group (Table 2). The migrant children showed almost a complete absence of restorative dental treatment (seven fillings in 1,530 permanent and primary

TABLE 1

Age	Male	Female
5	4	2
6	4	3
7	4	3
8	6	4
9	6	5
10	2	4
11	3	4
12	3	4
Totals	32	29

TABLE 2
Restorations Found in Migrant and Urban Children

	Number of Teeth	Number of Fillings
Migrant	1530	7
Urban	2691	260

teeth examined). The urban Negro children in the group selected had had considerable restorative treatment with about 10 percent filled teeth. From these data it is evident that the migrant child was almost completely lacking in dental care except for possible treatment of an emergency nature.

Need for Dental Treatment

Data for comparison of active caries rates (percentage decayed) for primary and permanent teeth within each age group are shown in Table 3. The differences in active caries rates were ranked by use of Wilcoxon's method.¹³ A summary of the data from Table 3 used for Wilcoxon's test is shown in Table 4.

In five of the six groups, the migrant children had a higher percentage of decayed primary teeth (Tables 3, 4). Active caries was present in permanent teeth in a greater number of urban groups (five out of seven) with higher percentages of affected teeth (Tables 3, 4).

The Wilcoxon test showed the differences for both primary and permanent teeth were not statistically significant.

def and DMF

The def and DMF comparisons by age groups are shown in Table 3. Table 4 summarizes the data from Table 3 that was used for the Wilcoxon test.

For def teeth (Table 3) the differences between migrant and urban children were not significantly different statistically, although a higher def was found in the urban group in five of six comparisons (Table 4).

For DMF teeth (Table 3), there was a statistic-

M53
d 296
P-413
771

TABLE 3

Comparisons of Active Caries, def, and DMF in Migrant and Urban Children

Age	Active Caries* PRIMARY		Active Caries* PERMANENT		def*		DMF*	
	M	U	M	U	M	U	M	U
5	28.57	22.08	—	—	28.57*	34.63	—	—
6	33.04	35.86	2.70*	7.32	33.04	42.07	2.70*	7.32
7	47.62	30.53	17.65	12.60	47.62	44.74	17.65	17.65
8	32.20	27.52	12.23	20.77	32.20	53.21	12.23	28.02
9	47.67	37.37	20.83	21.85	52.32	53.16	23.44	27.41
10	40.00	37.50	12.61	13.09	40.00	46.25	12.61	19.13
11	—	—	15.89	15.55	—	—	15.89	21.60
12	—	—	13.47	13.53	—	—	13.47	21.26

* percentage of teeth affected
M = Migrant
U = Urban

TABLE 4

Comparison of Migrant and Urban Active Caries, def and DMF by Wilcoxon's Test*

Comparison	N**	Ages Used	Wilcoxon's T Value	P	Number of groups showing higher score	
					M	U
Active caries primary	6	5-10	2	N.S.	5	1
Active caries permanent	7	6-12	8	N.S.	2	5
def primary	6	5-10	2	N.S.	1	5
DMF permanent	7	6-12	0	.02	0	7

* for detailed data see Table 3
** Number of groups compared

TABLE 5

Average Number of Teeth Per Child by Age and Sex

	Migrant Primary		Urban Primary		Migrant Permanent		Urban Permanent	
	Male	Female	Male	Female	Male	Female	Male	Female
5	19.00	18.00	19.33	19.22	—	—	.67	.75
6	14.20	20.50	16.11	*	3.40	10.00	4.56	*
7	12.50	12.75	14.86	12.29	9.50	11.25	6.86	10.14
8	10.00	11.60	12.67	11.55	13.33	11.80	10.67	12.33
9	8.50	5.83	10.27	7.55	14.83	17.17	11.91	15.44
10	0.50	4.25	4.50	5.17	18.50	18.50	19.00	18.42
11	2.00	2.25	3.36	1.30	23.33	20.25	21.54	22.60
12	—	—	—	—	27.67	27.50	24.25	27.50

TABLE 6

Comparison of Migrant and Urban Children's Eruption Status by T Test for Paired Comparison.*

Teeth	Comparison	Mean* difference	Group with larger means	T	P
Primary	Migrant males versus females	1.069	females	.991	N.S.
	Urban males versus females	1.319	females	2.33	.1<P>.05
	Migrant males versus urban males	1.763	migrant	4.76	<.01
	Migrant females versus urban females	.059	urban	.926	N.S.
Permanent	Migrant males versus females	.68	females	.24	N.S.
	Urban males versus females	1.78	females	2.79	.1<P>.05
	Migrant males versus urban male	1.70	migrants	4.33	<.01
	Migrant females versus urban female	.457	urban	.354	N.S.

ally significant difference at the .02 level of probability, the urban children showing greater caries activity in six of seven age groups.

Sex-Related Differences in Eruption

Table 5 shows the average number of primary and permanent teeth per child for migrant and urban children grouped by sex and age. Table 6 shows t test comparisons, using the paired comparison method.¹⁴

For migrants, two of seven groups of girls showed earlier loss of primary teeth in comparison to boy's groups (Table 5). This difference was not statistically significant (Table 6). Also three of eight female groups showed advanced permanent tooth eruption in comparison to that in male groups (Table 5). Also, this difference was not significant statistically (Table 6). Thus, no sex-related differences in eruption were found in the migrant groups.

The sex-related difference in eruption was more evident in the urban groups, even though statistical significance (at $p < .05$) was not achieved with either primary or permanent teeth. Five of six female groups showed early loss of primary teeth in comparison to males (Table 5). Also, six of seven female groups showed advanced permanent tooth eruption in comparison to males (Table 5). There was a pronounced difference ($p < .01$) between migrant males when compared to urban males in respect to permanent and primary teeth.

Discussion

There seems to be little doubt that the migrant child lacks dental care. This is clearly shown by the low incidence of fillings in the migrant children. Other dental investigators have found a similar lack of restorations in migrant children.⁸⁻¹⁰ Coupled with this lack of care, a high active caries rate (thus an acute need for treatment) was also found in the migrant group, which about equaled the rate of active caries in the urban group. There was no attempt to evaluate the severity of caries, although the general impression of the examiner was that caries in the migrants' teeth was most severe; crown disintegration was seen.

The lack of dental care in the migrant group is probably related to low socioeconomic status and nonaccessibility of dentists. It seems that an intensive effort will be required to bring the migrant child to a level of dental care consistent with good health.

The active caries comparisons in both primary

and permanent teeth were quite similar in both groups. These comparisons did not take into account carious teeth that had been extracted. There were more extracted teeth in the urban group; the def and DMF comparisons, therefore, tended to be higher in urban groups.

In order to account for the lower DMF or def teeth in migrants, the following explanations may be offered:

- The method of scoring might result in lower ratings in populations with lower incidence of filled teeth since it would be easier to miss a carious lesion than a filling. However, higher ratings might also be obtained in populations with severe and obvious caries. In spite of these factors, the tooth method of scoring gives a valid estimate of the caries problem, as shown by Knutson.¹⁵
- The groups studied were small and probably not representative of the total population. Small nonrandom groups were a limitation of our study. Further study of larger more representative populations, using proper sampling methods, should be carried out to determine the biological and statistical significance of the finding.
- The lower socioeconomic status of the migrant might favor a lower intake of refined carbohydrates. The relationship between refined carbohydrates and caries is well established.¹⁶ On this basis, one could speculate that as the socioeconomic status of the migrant improves, the caries rate will approach that of urban Negro children. McCauley reported this relationship between socioeconomic status and caries in another group.¹⁷
- Finally, the lower caries experience of the migrant might be explained on a geographical basis. Some evidence indicates that as one proceeds from North to South, caries incidence decreases.¹⁸ Since migrant agricultural workers usually spend most of their time in the South, caries inhibiting factors may have had an influence.

In this survey, migrant boys and girls showed similar eruption patterns, contrary to the well-known sex-related difference in eruption.¹⁶ The sex-related difference was more evident in the urban group.

The fact that statistical significance at $p=.05$ was not achieved is probably related to the small size of the sample. In further comparisons, it was found that tooth eruption in migrant girls was similar to tooth eruption in the urban girls, and that eruption in migrant boys was far ahead of that in the urban boys. These observations on eruption should be subjected to further epidemiological studies to determine whether statistical significance can be obtained in a properly sampled population. Hypotheses related to the biological significance of the results should await this type of test. ■

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