REVIEW OF MIGRANT DENTAL STUDIES

1957-1987

By

Betty DeBerry-Sumner, DDS, MPH

Dental Public Health Resident
Raleigh, North Carolina
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II. REVIEW OF THE LITERATURE

A. INTRODUCTION

The literature was reviewed to determine the extent of health research specific to the oral health status of children of migrant farmworkers. In addition, the review was to identify the dental knowledge and behavior patterns of parents and their children. Unfortunately, available literature describing the oral health status, dental knowledge and behavior patterns of migrant children and their parents is minimal.

The following is a review of the studies published which describes caries experience of children and adults of migrant farmworkers in the United States. A list of the studies and the methodologies are presented in table 1.

B. Dental Surveys

In 1965, Arra examined 75 hispanic children (ages 5-12 years) in a health clinic and migrant camps in Wisconsin and reported a mean DMFT score of 5.5 per person. Only 16 percent of children were caries free, and 0 percent had decayed teeth filled. The methodology and criteria employed were not described in this study. However, because of the high proportion of unmet treatment needs, the report suggests ways of increasing access to care for these children.[66]

Bachard, R.G. et al. (1966), selected a convenience census sample of 61 black schoolchildren of migrant farmworkers aged 5-12 living in Monroe, New York. One dentist examined and compared these children with 118 urban black children of the same age. He described the DMFT, deft, dental needs and tooth eruption pattern of these children. The mean DMFT score per migrant child was 1.6 while the mean DMFT per urban child was 2.1. Caries prevalence was greater among the urban black children than among migrant children. However, the proportion of decayed and unfilled teeth was greater among the migrant children (less than .5 percent of decayed teeth were filled).[30] Intraexaminer reliability was not mentioned. The methodology employed was similar to the 1965 USPHS National Health Survey.

Gangarosa (1966) was one of the investigators in Bachard's study in 1966. He described the dental care received by the children examined in the study above, (Bachard et al.) and found that migrant children showed almost a complete lack of restorative treatment. Only 7 fillings were found in 1,530 permanent and primary teeth, thereby, suggesting a high degree of unmet treatment needs.[40]

In 1966, Abrams et al. conducted a study to determine what it would cost to treat indigent children in a dental practice. They examined 89 Puerto Rican children in New Jersey using x-rays as one of the diagnostic tools. The study showed that each child would require 3 hours of treatment to meet their dental health needs because of the low level of restorative and preventive care previously received. The mean DMFT was 5.5 with x-rays, and without x-rays, the mean DMFT was 4.6. Only .7 percent of decayed teeth had been treated. Data show that without the use of x-rays 20 percent of required work would not have been noted.[64]

A Ten State Nutrition Status Assessment was conducted on Mexican American children of migrant farmworkers in 1970. The study reported a high prevalence of decayed teeth among children aged 2-15 years. 31 percent of children experienced 1-4 mean DMFT and 16 percent had 5 or more DMFT. Deficiencies of vitamin A and D prompted investigators to determine a correlation between it and the high incidence of decay found in these children. The methodology used to measure caries experience was not mentioned.[28]

Oregon State Board of Health received federal funds in 1963 for five years to provide health services to migrant farmworkers and dependents. In 1970 a migrant health survey was conducted by the Board to assess the dental need of the migrant population. The methodology was not described. The study reported a combined mean DMFT/def score of 4.71 per person. 59 percent of children aged 2-15 years had early to moderate caries, while 21 percent required urgent dental care (teeth decayed to gum line or abscessed).[51]

In 1972, Gluck et al., assessed the oral health status of a convenience sample of 390 adult male Puerto Rican migrant farmworkers in Massachusetts. When migrant men aged 18-24 years were compared with U.S. males, migrant men were found to have a higher mean number of decayed teeth (3.8) than U.S. males (2.1). The overall mean DMFT score (6.8) for migrant men was lower than that of U.S. men (6.8). This was because of the lower number of filled teeth (.5 FT) experienced by migrant men. Unmet needs for migrant men were 88 percent compared with 22 percent for U.S. men.[29] Methodology used was similar to the 1965 National Health Survey.

Avery (1972) compared the dental health of 454 black migrant children ages 6-11 with black seasonal farmworkers' children in Florida. He found that children of seasonal farmworkers experience more dental disease and received less treatment than children of migrant farmworkers. Mean DMFT per child for migrant children was 1.07, and 1.16 for seasonal farmworkers children. He concluded that, although migrant children had a lower caries experience than children of seasonal farmworkers, both seasonal and migrant children received inadequate dental treatment (.05 FT and .28 FT respectively).26

Avery also examined 115 black adults aged 18-64 years and reported a mean DT of 6.76, a mean MT of 6.47, a mean FT of .77. Avery's conclusion was that the need for full and partial dentures, extractions, and periodontal therapy was great for these adults.[26,27,83]

Ragno et al. (1975) conducted a study to describe dental caries experience in 400 3-16 year-old migrant hispanic children in Connecticut. They compared the caries experience of migrant children with children in a fluoridated community and found migrant children to be comparable to children in the fluoridated community. He reported the treatment needs of migrant children were greater than children in the fluoridated community, with 63 percent of migrant children needing treatment. 12 percent of migrant children treatment was completed and 24 percent were caries free. 23 percent of teeth experiencing caries were decayed and untreated in 6-9 years-old while 30 percent of DT were found in children 10-12 years-old. 68 percent of 6-9 years-old and 47 percent of 10-12 years-old were caries free. Examiners were standardized according to standards for Connecticut School Dental Program.[24]

In 1977, Cisneros et al., examined a volunteer sample of 156 latinos aged 2-84 in Minnesota. Mean DMFT per latino volunteer was compared with results from the 1962 National Health Examination Survey. Children aged 6-12 years-old had a mean DMFT score of 5.32. When adult latinos were compared with U.S. black and white adults, the mean DMFT for the latinos was 13.65 and 14.50 and 21.20, respectively. Residents who lived in Minnesota for more than 5 years had a slightly lower dental care need than those who had lived in Minnesota fewer than 4 years. Recently "settled" and settled Latinos utilized services and maintained oral hygiene levels similar to the U.S. population.[68]

Cipes et al., (1978) examined 513 hispanic migrant children aged 3-17 years in Connecticut. They compared the caries experience of these children to children living in a nearby fluoridated community and with an earlier study of migrant children conducted by Ragno et al., (1975). Cipes found migrant children to have lower caries free levels and greater percentage of caries than the fluoridated community and migrant children in Ragno's study. However, what was different in the two studies was the percent FT. Cipes found that the percent of FT was greater for migrant children (19 percent) when compared with the fluoridated community (10 percent), and the previous study of migrant children by Ragnos (9 percent). Children who had settled out or had not moved within a five period, were still classified as migrants. The migrant status of these children, and being connected to a stable school program, were probable reasons for this difference in treatment need.[23]

DiAngelo et al., (1978) surveyed 578 Mexican American children ages 3-13 in Minnesota. 75 percent of children ages 6-13 years old had 3-4 permanent teeth decayed and unfilled. By age 13, 73 percent of the occlusal surfaces of the 4 permanent first molars were either decayed or filled. Mean DMFT and DMFS per child aged 6-13 were 3.2 and 4.0, respectively. Three dentists were calibrated prior to the examination, but the methodology and criteria were not described.[25]

Woolfolk et al., (1982) conducted a study in Michigan to assess the oral health status of 203 hispanic children of migrant farmworkers. Mean DMFT per child was 2.2 and mean DMFS was 2.9 for children aged 5-14 years. Migrant children aged 5-14 years were compared with U.S. children in the 1979-80 National Dental Caries Prevalence Survey (NDCPS). 65 percent of teeth of migrant children had decayed surfaces, compared to 17 percent of teeth with decayed surfaces for United States school children. The same study showed that less than 25 percent of migrant children (5-11 years) had caries-free permanent teeth. Over 58 percent of the United States school children (5-11 years) had caries free permanent teeth. All children were examined by one dentist. Intraexaminer reliability analysis was not mentioned.7

In 1982, a survey was conducted to compare the health status of migrants with local residents in Colorado. 31 percent of local residents were caries free compared to 14 percent of migrants. Over 43 percent of children of migrant farmworkers had a least one decayed tooth compared to 31 percent of local children. The average decayed tooth per migrant child was 2.1 compared to 1.78 per child for local children. Although, migrants' oral health was worst than local residents, migrants perceived their health to be better than the local's self perception of health.[52]

Call et al., (1984) described the caries experience in permanent teeth of 534 Mexican American children of migrant farmworkers in Colorado. Mean DMFS per child was 3.56 for children aged 6-15 years old. For children aged 6-10 years old, mean DMFS per child was 2.54 and 5.81 for children aged 11-15 years. Caries in migrant children was higher than the national and regional averages for school children. Regional mean DMFS per child for the SW region was 3.2 and the national average for DMFS was 4.8 in 1980. The study reported that 23 percent of migrant children in Colorado were caries free, compared to 44.7 and 36 percent for the SW region and the nation, respectively. This study stressed the importance of a sealant and fluoride application program for these children. Methodology was similar to WHO and NDCPS (1979).[22]

DeBerry (1987) conducted a migrant oral health status pilot study in three counties in North Carolina. The purpose was three-fold: 1) to describe the caries experience of migrant school children; 2) to test procedures for this larger statewide survey and 3) to compare the caries experience of migrant children with resident schoolchildren in North Carolina. The report found that the prevalence of dental disease for 5-9 years-old was significantly greater for migrant children (mean DMFT=1.1) than for nonmigrant children (mean DMFT=.03). Mean DMFS score was 2.6 per child for 164 predominately hispanic migrant children aged 5-13, compared to a mean DMFS score of 1.4 for nonmigrant schoolchildren.[84]

C. Dental Knowledge and Health Behavior

Dental knowledge and health behavior of migrant mothers and children were studied by Woolfolk et al., (1982) in Colorado. 68 percent of children felt that brushing was the best way to prevent cavities. The role of fluoride, and the relation between sweets and caries were weakly understood by both mother and child.[10]

In 1979, Slesinger et al., surveyed 262 female farmworkers in Wisconsin to describe the medical utilization patterns of hispanic farmworkers. Older female english speaking workers were most likely to have seen and have taken their children to a dentist within the last year. Barriers to care were listed as; time, distance, language, and money. Slesinger noted a correlation between age of mother and the age of the child (r=.61) when associating frequency of dental visits. Mothers's education or ability to speak english were not associated with whether a child received an annual dental or physical exam. The older or school age child was more likely to have had a dental examination and treatment if that child was enrolled in school.[44,54]

A comparative analysis was conducted of local residents in northern Colorado and migrant families attending the Sunrise Community Health Center by Ackerman et al., (1983). The study found that although migrant adults' oral health status was as bad or worse than local residents, they perceived themselves as healthier than the local residents. This study concluded that dental education programs and greater outreach on dental care were needed.5[2]

D. State and Local Dental Programs

Studies reported from Koos (1957) and Browning (1961) describing the plight and unmet treatment needs of the migrant farmworkers, facilitated Florida State Board of Health in 1963 to receive a grant from the United States Public Health Service. This grant initiated a migrant project entitled "A Project to Develop a Basic Statewide Program of Health Services for Migrant Farmworkers and their Dependents in Florida." The project included 15 counties which provided initially, basic health care. In 1965 treatment beyond the basic scope of care was rendered. The program was funded for five years.[53]

A unique collaborative effort between Colorado's Migrant Education and Colorado's Health Programs was discussed in a 1985 annual state report. The report showed that Colorado Migrant Education Health Program, (a comprehensive health program for students enrolled in migrant summer schools) had over 200 physicians, dentists, pharmacists, and allied health providers. The dental program included 20 dental hygienists, 30 dental students or recent graduates who incorporate health education into the migrant school curriculum. All health team members participated in classroom education and discussion groups. In spite of 13 years of comprehensive health and dental care to migrant children in Colorado, screening outcomes of the needs of migrant children showed that 62 percent of children needed dental care; 15.5 percent required referral for relief of pain; and 76 percent of fillings were occlusal surface fillings, suggesting need for occlusal sealants.[52]

Dental students in Michigan, Minnesota, New Jersey, New York, California, Colorado, Connecticut, Iowa and Wisconsin sought ways to increase accessibility to dental care for migrant children and adults. One way of increasing accessibility for these students was by using mobile dental units to screen and treat patients in summer schools and migrant camps.[8,23,24,42,45,46,50,69]

Slesinger (1979) conducted a study called the preventive medical care mortality and morbidity among children of migrant farmworkers in Wisconsin. The study showed that only 1/3 of migrant children under age 16 had received annual dental checkups, compared to 50 percent of children in the general population. Inference is made to the association of income and utilization of health care. Slesinger contends that as long as income was low among migrant farmworkers, one could expect that health care/dental care would only be sought when there was a need.[44]

In spite of outreach programs provided by federal, state and local dental programs, the prevalence of dental disease among migrant children still appears to be great. The study by Woolfolk et al., (1984) measuring the behavior and dental knowledge of children of migrant farmworkers in Michigan found that dental knowledge was lacking. In order for a decision-making process to occur within this population, health education has to be incorporated into their daily lifestyle.4[8]

E. Conclusions

All epidemiological studies to the residents knowledge, describing the oral health status of migrant schoolchildren in the U.S. are presented in this study. Only five of the 15 studies presented used methods and criteria similar to the national oral health surveys (1971,1979).[7,22,29,68,84]

Most of the studies were conducted on children in schools, and a few studies were conducted on adults in camps or in a community health clinic. Only one of the studies reviewed selected a random sample from the population to examine (most likely because of the difficulty in knowing in advance the true or approximate number of migrants to expect at any given time). The samples selected were either convenience samples or census samples of small defined groups of the population. Convienience samples often prevent studies from being truly representative and generalizable to the greater migrant population.

The overall consensus from each study was that when oral health conditions of migrants were compared with the general population, the prevalence of oral disease was greater among migrants than the general population. More significant was the low level of treatment received by migrants. All authors except one, Cipes et al., described the level of treatment for migrants as being significantly less than that received by the general population.

The high degree of mobility, low socioeconomic status, language difficulty, culture, and transportation are only a few of the barriers mentioned which impedes access to medical and dental care. These barriers and others account for the greater prevalence of dental disease, the low level of dental knowledge and low level of utilization of care among this group of people.

Table 1

MIGRANT ORAL HEALTH

STUDIES

Study/Author/State	Year	Migrant Stream	Sample (N)	Sample Methodology	Race	Age (Years)	DMFT	DMFS	dft/def
A Report of the Dental Program for Migrants. Arra, MC Endeavor, Wisconsin	1965	Midwestern	75	Convenience	Hispanic	5-12	5.5		
A Study of Dental Needs, DMF, def, and Tooth Eruption in Migrant Negro Children. Bachand, RG., Gangarosa, LP, Bragassa, C. Monroe Co., NY	1966	Eastern	61	Census Sample	Black	5-12	1.6		
Budgeting Dental Care for Indigent Children. Abrams, WZ., Tappan, MW New Jersey	1966	Eastern	89	Convenience	Puerto Rican Mixed Group	5-12			
Dental Health of Puerto Rican Migrant Workers. Gluck, GN., Knoz, CD., Glass, RL., Wolfman, M. Massachusetts	1972	Eastern	390	Convenience Sample	Puerto Rican	18-64			
The Oral Health Status of Migrant and Seasonal Farmworkers and Their Families in Florida. Avery, KT. St. Johns River Basin, Florida	1972-73	Eastern	454	Convenience	Black	6-11	1.07	2.3	
Dental Health of Migrant Agricultural Workers. Avery, KT St.Johns River Basin, Florida	1972-73	Eastern	115	Random Sample	Black	18-64	14.0		
The Dental Health of Children of Migrant and Seasonal Agricultural Farmworkers. Avery, KT St. Johns River Basin, Florida	1972-73	Eastern	644	Convenience	Black	6-11	1.07	1.49	2.29
Dental Health in a Group of Migrant Children in Conn. Ragno, J., Castaldi, CR Connecticut	1975	Eastern	400	Convenience	Hispanic	3-16 6-9 10-12	 1.3 2.1		

MIGRANT ORAL HEALTH STUDIES

Study/Author/State	Year	Migrant Stream	Sample (N)	Sample Methodology	Race	Age (Years)	DMFT	DMFS	dft/def	
Oral Health Findings in a Minnesota Latino Population. Cisnernos, HC., DiAngelis, AJ., Katz, RV Ramsey Co., Minnesota	1977	Midwestern	156	Convenience	Latinos	2-82 6-12	13.65 5.32(DMFT/dft)			
Dental Health of Children of Migrant Farmworkers in Hartford, Connecticut. Cipes, MH., Castaldi, CR. Hartford, Connecticut	1978	Eastern	513	Convenience	Hispanic	3-17 6-9 10-12	 1.5 	 2.7		
Dental Needs in Children of Mexican-american Migrant Farmworkers. DiAngelis, AJ., Katz, RV., Jensen, ME., Pintado, M, Johnson, B. Red River Valley, Minnesota	1978	Midwestern	578	Census	Hispanic	3-13	3.1	4.0(DMFS/dfs)		
Oral Health of Children of Migrant Farmworkers in Northwest Michigan. Woolfolk, M., Hamard, M., Bagramian, RA Michigan	1982	Midwestern	203	Convenience	Hispanic	5-14	2.2	2.9	2.9	4.8
Dental Caries in Permanent Teeth in Children of Migrant Farmworkers. Call, RL., Entwistle, B., Swanson, T. Colorado	1984	Western	534	Convenience	Hispanic	6-15		3.56		
Dental Caries in Children of Migrant Farmworkers in Three Counties in North Carolina. DeBerry-Sumner, BJ. North Carolina	1987	Eastern	164	Census	Hispanic	5-9 5-13	1.1 	 2.6		

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