

# A demographic survey of pedodontic practice in the United States

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## Abstract

*The purpose of this study was to evaluate the demographics of pedodontic practice in the United States and to present an overview of selected geographical characteristics, biographical attributes, and indicators of the quality of pediatric dentistry as provided by responding members of the American Academy of Pedodontics. The findings indicated that a typical respondent to the survey was approximately 42 years of age, had been in practice approximately sixteen years, and had specialized in pedodontics for thirteen of those years. Most of the respondents practiced in one of the more populous states of the union in a city of less than 100,000. Respondents indicated satisfaction with the quality of their practice, and perceived that the majority of their patients were satisfied with the services provided by them.*

## Introduction

In recent years, several studies have examined the trends of dental practice in the United States.<sup>1-8</sup> Few studies, however, have provided specific information about the demographics of pedodontic practice.

For example, in 1965, the Division of Dental Health (N.I.H.) worked with the American Association of Dental Examiners to develop a national data compilation system designed to collect essential information on the dental manpower supply.<sup>9</sup> Data included information on location, age, and current professional activities of the dentists, their professional background, and selected practice characteristics, including their areas of specialization and utilization of aux-

iliary personnel. Although several separate analyses were made, no information specific to the specialty of pedodontics was presented.

Another example is the *Survey of Dental Practice*.<sup>10</sup> Although this study is one of the most comprehensive overviews of dentistry and is updated and published every two to three years by the American Dental Association's Bureau of Economic Research and Statistics, little information has been presented about pediatric dentistry. Traditionally, the survey has consisted of reported statistics on dentists' income and expenses, auxiliary personnel, numbers of patient visits, dentists' work weeks, and other practice measures. These variables have been compared with geographic region, graduation year, and the size of the city in which the dentist practices. However, only limited information has been provided by the type of specialty practice. Quite frequently, if these data are available, the findings are presented for certain specialties, such as oral surgery, and orthodontics, with specific information about other specialties, such as pediatric dentistry, absent from the analysis.

The purpose of this paper is to evaluate the demographics of pedodontic practice in the United States, and to address the present status of this specialty which accounts for approximately 1.2% of all dentists currently in practice.<sup>11</sup> Approximately 254 students, or 12.5% of the 2,000 students who are in advanced programs in U.S. dental schools, are enrolled in pedodontics.<sup>12</sup> It is the intention of this study to present an overview of selected geographic characteristics, biographical attributes, and indicators of the quality of pediatric dentistry as provided by members of the American Academy of Pedodontics (AAP). The data will inform the membership about the status of the profession in order to enable the Academy to more ac-

curately determine the dental health manpower needs of particular regions of the United States.

## Methodology

The data of this study were obtained from a national survey of the membership of the AAP. Data collected for this survey included information on the practicing pedodontists and selected practice characteristics. Variables such as the geographic region, state where the pedodontist practiced, size of the city, age of the practitioner, number of children in the dentist's family, number of years in general practice, years in pedodontic practice exclusively, the pedodontist's perception of patient satisfaction, and whether patients minded returning for treatment were among the variables that were used to investigate the characteristics of pedodontic practice.

To gather the data, a questionnaire was developed over a six-month period to elicit specific information from pedodontists. To assess the validity of the survey instrument, it was field tested prior to distribution to eliminate ambiguity in any of the items. After revision, 1,399 questionnaires were mailed in April, 1978, to the dentists whose names appeared on the membership roster of the AAP. Of the original sample, 963 or 69% were returned over a period of four months. A total of 927, or 66% of the original sample, were usable returns and were the basis for the analysis.

Programs for the *Statistical Package for the Social Sciences*<sup>13</sup> (S.P.S.S.) provided a preliminary analysis of the profile of the pedodontist who is a member of the AAP. A secondary analysis was conducted to provide information on the geographical distribution of pedodontists in the United States as it related to the variables of the study. Table 1 compares the geographic region with the other variables of the study and permits a more critical assessment of the data.

## Results

### Geographic Region

The results of the survey indicated that the highest concentration of respondents practiced in the Southeastern region of the United States (21.5% of the pedodontists surveyed), followed by the Eastern region (19.7%), Great Lakes region (17.4%), Western region (17.0%), South Central region (15.8%), and North Central region (6.0%). Only 1.6% of the respondents were members of the AAP in a foreign country, and 1.0% were in the military at the time of the survey.

Within each geographical region, a separate analysis was made of the three states in which the majority of the respondents practiced. In the Southeast-

ern region, 23.5% of the members practiced in Florida, 16% in Georgia, and 13.5% in North Carolina. In the Eastern region, 24.6% of the respondents practiced in New Jersey, 23.5% in Pennsylvania, and 21.9% in New York. In the Great Lakes region, 29.2% practiced in Illinois, 24.2% in Ohio, and 19.3% in Indiana. In the Western region, 94.8% practiced in California, 8.9% in Washington, and 6.3% in Arizona. In the South Central region, 38.4% practiced in Texas, 15.8% in Louisiana, and 13.7% in Colorado. In the North Central region, 33.9% practiced in Iowa, 30.4% in Minnesota, and 16.1% in Nebraska.

An examination of the response from the United States showed that over 50% of the responding members of the AAP practiced in the following ten states: California (12%), Texas (6%), New Jersey (5%), Pennsylvania (5%), Illinois (5%), Florida (5%), New York (4%), Ohio (4%), Indiana (3%), and Georgia (3%).

In most of the geographical regions of the United States (Southeastern, Eastern, Western, and North Central), pedodontists most frequently responded that they practiced in a community with a population between 50,000 to 100,000. In the South Central region, pedodontists tended to practice in cities of 100,000 to 500,000, and in the Great Lakes region, the most common response was that the pedodontists practiced in the large metropolitan areas of 1,000,000 or more. Twenty-six percent of the U.S. respondents practiced in a community of 50,000 to 100,000, 24% practiced in a city with a population of 100,000 to 500,000, 22% practiced in large metropolitan areas of 1,000,000 or more, 20% in large cities from 500,000 to 1,000,000, and the remaining 8% practiced in towns of fewer than 50,000 people.

Of those pedodontists with practices in a foreign country, most of them responded that they practiced in communities of 50,000 to 100,000 people, and of those who were in the military, most practiced in areas near large cities of 500,000 to 1,000,000 people where larger military bases might be located.

### Age of the Practitioner

The average age of the respondents in each of the regions of the United States was as follows: Southeastern region, 39.1 years of age; Eastern region, 39.8 years of age; Great Lakes region, 41.6 years of age; Western region, 44.9 years of age; South Central region, 43.6 years of age; and the North Central region, 41.6 years of age.

The age range of pedodontists who responded to the survey indicated that the youngest was 24 and the oldest was 84. The average age was 41.6 years of age.

Further analysis of the respondents who practiced in the United States showed that more than 50% of the pedodontists were less than 40 years of age,

whereas, only 2.4% were older than 61. Of those pedodontists under 30, 29% practiced in the states of New York, Florida, and California. Among the pedodontists over 50, a large proportion practiced in California (Table 1).

The data also showed that younger pedodontists tended to practice in smaller cities with populations under 100,000, and older pedodontists tended to practice in larger cities and metropolitan areas where the population was between 50,000 and 500,000. There was considerable variation in the age of the practitioner in the large metropolitan areas where the population was greater than one million people.

The mean age of those pedodontists responding from a foreign country was 41.0 with ages ranging from 29 to 57. Members of the AAP who practiced in the military had a mean age of 39.7 and ranged in age from 31 to 53 years.

### **Number of Children**

Most of the respondents had children, with the largest families found in the North Central region of the United States and the smallest families found in the Southeastern region of the United States. The average number of children in each of the regions of the United States was as follows: Southeastern pedodontists' families ranged from zero to nine children with an average of 2.7; Eastern pedodontists' families ranged from zero to six children with an average of 2.8; Great Lakes pedodontists' families ranged from zero to seven children with an average of 3.3; South Central pedodontists' families ranged from zero to seven children with an average of 3.1 children; North Central pedodontists' families ranged from zero to 10 children and had an average of 3.7 children.

The mean number of children for those pedodontists responding from a foreign country was much higher than for those who practiced in the United States. Foreign pedodontists had an average of 5.3 children with families ranging from three to six children.

Pedodontists practicing in the military had from zero to six children, with an average of 2.9. An analysis of the respondents indicated that the majority of the pedodontists (88%) had children of their own and families ranged in size from zero to 10 children, with an average of 3.0.

### **Years in General Practice**

The number of years the responding members of the AAP spent in general practice ranged from one to 53 years. The average number of years that pedodontists had been in practice at the time of this survey was 15.7 years, and, depending on region, ranged from 13.1 years to 19.4. The data indicated that re-

spondents tended to practice a longer period of time in the Western region of the United States. The data showed that in the Southeastern region, the mean number of years in general practice was 13.3, with 14.2 in the Eastern region; 16.2 in the Great Lakes region; 19.4 in the Western region; 16.9 in the South Central region; and 14.7 in the North Central region.

Of those pedodontists responding from foreign countries, the average number of years in general practice was 16.9, and of those pedodontists who practiced in the military the average number of years was 14.1.

In comparing the number of years of general practice with the data collected along the other dimensions of the survey, pedodontists who had been in practice a fewer number of years (one to 15 years) tended to practice in smaller communities than pedodontists who had been in practice a longer period of time (16 to 58 years). There was a positive correlation between the pedodontist's age and the number of years in general practice.

### **Years in Pedodontic Practice Exclusively**

The average length of time spent by respondents in the exclusive practice of pedodontics in the U.S. ranged from 10.7 to 16.2 years. The data indicated that a typical respondent spent about three years in general practice before beginning a pedodontic practice. The average number of years in exclusive pedodontic practice in each of the regions of the U.S. was as follows: Southeastern region, 10.6 years; Eastern region, 10.7 years; Great Lakes region, 13.8 years; Western region, 16.2 years; South Central region, 14.0 years; and the North Central region, 12.4 years.

For those respondents practicing in a foreign country, the mean number of years in pedodontic practice exclusively was 13.9 years, and for those in the military, 9.1 years. The data from the respondents showed that the mean number of years in pedodontic practice was 12.7 with a range between one and 58 years.

In comparing the number of years of exclusive pedodontic practice with the other dimensions surveyed, pedodontists who had been in practice a fewer number of years (one to 15 years) tended to practice in smaller communities than pedodontists who had practiced a longer period of time (16 to 58 years). As in general practice, there was a positive correlation between the age of the pedodontist and the number of years the dentist had been in practice.

### **Pedodontist Perception of Patient Satisfaction**

The quality of pedodontic practice was indicated by the perceptions and attitudes of the practicing dentist. Individual pedodontists perceived patient satisfaction with treatment as extremely high. There was

very little variation along this dimension in relation to geographic region with the range in satisfaction between 87% and 93% among those respondents who practiced in the U.S. A similar level of satisfaction was perceived by the responding pedodontists practicing in foreign countries who felt 100% of their patients were satisfied with their dental treatment.

Of all respondents 91.1% indicated that children in their practices were happy in the way that treatment was provided.

The data indicated that the younger dentist who had practiced pedodontics a fewer number of years tended to perceive his or her patients as most satisfied with the treatment that was provided.

### **Pedodontist Perception of Whether Patients Mind Returning For Treatment**

Respondents were asked whether they thought their patients minded returning for treatment. While there was a lower mean response to this item in relation to dentist perception of satisfaction, the magnitude of the response continued to be high. In the Southeastern region, 77% did not mind returning; in the Eastern region, 79%; Great Lakes region, 80%; Western region, 80%; South Central region, 85%; and North Central region, 86%.

Of those responding pedodontists practicing in a foreign country, 77% perceived that their patients did not mind return visits, and of those in the military, 100% perceived that their patients did not mind returning. Composite analysis of the total sample showed that 80% of the respondents perceived that patients did not mind a return visit for treatment.

### **Parents Allowed in Operatory**

In response to whether pedodontists allowed parents in the operatory, 57% responded affirmatively. There was considerable disagreement on this issue and there was considerable variation within each of the geographical regions of the U.S. In the Southeastern region, 48% of the pedodontists allowed parents in the operatory; in the Eastern region, 67%; Great Lakes region, 58%; Western region, 64%; South Central region, 49%; and North Central region, 53%.

Of those responding members of the AAP who were currently practicing in a foreign country, over 73% allowed the parents to be with their children and the dentist, and 100% of those members in the military allowed the parent to be in the operatory.

There was no apparent difference in terms of whether older or younger dentists were more inclined to allow parents in the operatory, and the data also indicated that the number of years a pedodontist had been in practice had no direct relationship to allowing parents in the operatory. The data also indicated that

in smaller towns, parents were more frequently allowed to stay with their child. Sixty-nine percent of the responding pedodontists practicing in towns with a population of fewer than 50,000 allowed parents in the operatory, whereas only 39.7% of the pedodontists practicing in cities with a population between 50,000 and 500,000 allowed parents in the operatory.

### **Parents Allowed in Operatory On Which Visit**

Of the responding pedodontists who allowed parents in the operatory, 97% allowed parents to be with their children on the first visit only, with the remaining 3% allowed part of the time, or as the age of the patient dictated. In the Southeastern, Eastern, South Central, and North Central regions of the United States, 100% of the pedodontists allowed parents in the operatory on the first visit only. In the Great Lakes region, 91% of the pedodontists allowed parents on the first visit only and 9% allowed parents part time only. In the Western region, 96% allowed parents on the first visit only, and 4% allowed parents depending on the age of the patient. Of those pedodontists who practiced either in a foreign country or were in the military, 100% allowed parents in the operatory on the first visit only.

## **Discussion**

An analysis of the data collected from the survey provided a composite on the present status of the responding practicing pedodontists who are members of the American Academy of Pedodontics. A typical respondent is approximately 42 years of age, has been in practice approximately 16 years, specializing in pedodontics for 13 of those years. The pedodontist practices in one of the more populous states of the union in a city of less than 100,000 and has three children. The pedodontists are very satisfied with the quality of their practice and feel that the great majority of their patients are satisfied with the services provided and did not mind returning for further treatment.

The pedodontists usually did not allow parents in the operatory, but when they did, it was usually for the first visit only, or as the age of the patient dictated.

A more detailed analysis of the findings compared the characteristics of pedodontic practices in different regions of the country in relation to the variables of the study which included selected geographical characteristics, biographical attributes, and indicators of the quality of pedodontic practice. In comparing the data from this study with current population information, it was apparent that the distribution of pedodontists throughout the country differed markedly

Table 1. Profile of a Pedodontist

Geographic Region (Sample Size) (% of Sample)	State Where Practice Located (% of Geographic Region)	Size of City (Mode)	Age of Practitioner (Mean) (Range)	No. of Children (Mean) (Range)	Years in General Practice (Mean) (Range)	Years in Pedodontic Practice Exclusively (Mean) (Range)	Pedodontist Perception Of Patient Satisfaction	Pedodontist Perception Whether Patient Minds Returning	Parents Allowed In Operatory	Parents Allowed in Operatory on Which Visit
Southeastern n = 199 (21.5% of sample)	Florida (23.5% of Southeastern Region) Georgia (16.0%) North Carolina (13.5%)	50-100,000 (most frequent response)	39.1 yrs. (mean age) 25-58 yrs. (age range)	2.7 children 0-9 (range)	13.1 yrs. (mean) 2-36 (range)	10.6 yrs. (mean) 1-35 (range)	90% satisfied	77% return	48% allowed	100% first visit only
Eastern n = 183 (19.7% of sample)	New Jersey (24.6% of Eastern Region) Pennsylvania (13.5%) New York (21.9%)	50-100,000 (most frequent response)	39.8 yrs. (mean age) 24-71 yrs. (age range)	2.8 children 0-6 (range)	14.2 yrs. (mean) 2-45 (range)	10.7 yrs. (mean) 2-39 (range)	87% satisfied	79% return	67% allowed	100% first visit only
Great Lakes n = 161 (17.4% of sample)	Illinois (29.2% of Great Lakes Region) Ohio (24.2%) Indiana (19.3%)	1,000,000+ (most frequent response)	41.6 yrs. (mean age) 27-76 yrs. (age range)	3.4 children 0-7 (range)	16.2 yrs. (mean) 1-55 (range)	13.8 yrs. (mean) 2-53 (range)	93% satisfied	80% return	58% allowed	91% first visit only 9% part-time
Western n = 158 (17.0% of sample)	California (72.8% of Western Region) Washington (8.9%) Arizona (6.3%)	50-100,000 (most frequent response)	44.9 yrs. (mean age) 24-80 yrs. (age range)	3.3 children 0-7 (range)	19.4 yrs. (mean) 2-58 (range)	16.2 yrs. (mean) 1-35 (range)	92% satisfied	80% return	64% allowed	96% first visit only 4% depends on age
South Central n = 146 (15.8% of sample)	Texas (38.4% of South Central Region) Louisiana (15.8%) Colorado (13.7%)	100-500,000 (most frequent response)	43.6 yrs. (mean age) 24-84 yrs. (age range)	3.1 children 0-7 (range)	16.9 yrs. (mean) 2-43 (range)	14.0 yrs. (mean) 2-41 (range)	93% satisfied	85% return	49% allowed	100% first visit only
North Central n = 56 (6.0% of sample)	Iowa (33.9% of North Central Region) Minnesota (30.4%) Nebraska (16.1%)	50-100,000 (most frequent response)	41.6 yrs. (mean age) 28-59 yrs. (age range)	3.7 children 0-10 (range)	14.7 yrs. (mean) 4-32 (range)	12.4 yrs. (mean) 2-30 (range)	91% satisfied	86% return	53% allowed	100% first visit only
Foreign n = 15 (1.6% of sample)	No State	50-100,000 (most frequent response)	41.0 yrs. (mean age) 29-57 yrs. (age range)	5.3 children 3-6 (range)	16.9 yrs. (mean) 4-34 (range)	13.9 yrs. (mean) 3-34 (range)	100% satisfied	77% return	73% allowed	100% first visit only
Military n = 9 (1.0% of sample)	No State	500,000-1,000,000 (most frequent response)	39.7 yrs. (mean age) 31-53 yrs. (age range)	2.9 children 0-6 (range)	14.1 yrs. (mean) 3-25 (range)	9.1 yrs. (mean) 1-25 (range)	100% satisfied	100% return	56% allowed	100% first visit only
Composite Totals n = 927	California (12% of total) Texas (6%) New Jersey (5%) Pennsylvania (5%) Illinois (5%) Florida (5%) New York (4%) Ohio (4%) Indiana (3%) Georgia (3%)	50-100,000 (most frequent response)	41.6 yrs. (mean age) 24-84 yrs. (age range)	3.0 children 0-10 (range)	15.7 yrs. (mean) 1-53 (range)	12.7 yrs. (mean) 1-58 (range)	98% satisfied	80% return	57% allowed	97% first visit only 2% part-time 1% depends on age

from the distribution of the population. In several regions, the population per pedodontist was much greater than in other regions of the country. Earlier studies indicated that this was not unique to pedodontics, but was also true of general dentistry.<sup>14</sup> One study concluded,

... ratios of population to dentistry will never be equal among all states, nor should they be. Some dentists are more productive than others. There is geographic variation in needs for dental care, economic conditions, and appreciation of dental health. It appears, however, that the disparity in population to dentist ratios is too great to be accounted for by these factors. Undoubtedly, many dentists have chosen their practice location without the benefit of facts on the distribution of dentists and population.<sup>15</sup>

This conclusion suggested that dissemination of this type of information to pedodontists would be of great value. The data presented in this survey showed that pedodontists who were deciding to re-locate, or who were just graduating or completing a tour of duty with the military, might consider the relatively large ratio of pedodontists to population in the North Central, Great Lakes, and Western regions of the U.S. and the relatively small ratios in the Eastern, Southeastern, and South Central regions. Pedodontists might have a better opportunity of establishing a practice in some of the less populous states in communities of fewer than 50,000 or in larger metropolitan areas of 500,000 or more. Many of the experienced pedodontists tended to practice in California where climate may be more desirable, and tended to practice in large cities and metropolitan areas where there were between 50,000 and 500,000 individuals. Many of the younger pedodontists tended to practice in the Eastern region of the United States in the smaller communities of fewer than 100,000.

A positive finding of the survey was that dentists who practice pedodontics perceived their patients as having a very high degree of satisfaction with the professional services provided. Over 90% of the pedodontists who responded felt that patients were satisfied with their treatment and approximately 80% of the pedodontists reported that their patients did not mind returning. The data suggested that the great majority of the pedodontists who were members of the AAP had positive attitudes about their chosen profession.

## Conclusion

This study was intended to provide necessary information about the supply of dentists in relation to

the geographic regions in which their practices were located. However, it should be noted that the findings presented in this study need to be supplemented with additional information on other aspects of pedodontic practice.

It is recommended that a more extensive follow-up survey of pedodontic practice be conducted concerning productivity of the dentist, as well as various socio-economic characteristics of the communities in which the practice is located. If it were deemed appropriate, further information on the financial status of the pedodontic practices might also be collected. Such information might include data relative to professional expenses such as office rent or equivalent mortgage payments, salaries or commissions paid to employees, insurance related to dental practice, legal and professional fees, etc. This information could be compared with the income of the dentists and other variables such as the location of the practice, the number of patients, and whether the pedodontist uses auxiliaries.

Information from such a survey might be collected from the members of the AAP on a biennial basis. Statistical programs could be written to analyze the data so it could be presented every other year in the *Journal of Pediatric Dentistry*. Such information would be of value to the profession since it would provide a comprehensive report on the status of pedodontics and would enable the Academy to more accurately determine the health manpower needs of different regions of the country.

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