

Self-Confidence of General Dentists in Diagnosing Malocclusion and Referring Patients to Orthodontists

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During the past 20 years, the provision of dental care in the United States has changed, partly due to a decline in dental caries and an increase in the number of dentists.¹ More general dentists and pediatric dentists have begun to practice some form of orthodontics, including a wide range of preventive, interceptive, and adjunctive services.

In 1981, Dugoni reported that 55% of the orthodontic care provided through prepayment programs was furnished by non-orthodontists.² A survey of 500 general practitioners and 71 pediatric dentists in Indiana revealed a 30% increase in orthodontic procedures performed by the GPs over a five-year period (1982/83-1987/88).³ In addition, 30% of the pediatric dentists reported handling at least some full-bonded cases. A recent survey by Wolsky and McNamara of a sample of dentists in Michigan reported 80.7% of the general dentists providing some sort of orthodontic services, although only 19.3% were treating full-bonded cases.⁴

Orthodontic education has historically made up only a small part of the predoctoral dental curriculum. The 1976 Council on Dental Education Guidelines for Teaching Orthodontics in Dental Education stipulated that instruction in orthodontics should prepare dental students "to deal with the continuum of malocclusions observed in general practice" and "to select and treat appropriate orthodontic problems".⁵ Consequently, most orthodontic courses have been aimed at providing dental students with sufficient knowledge to evaluate the severity of malocclusions and the degree of treatment difficulty. A University of Nebraska survey of dental and orthodontic alumni, however, showed that the general dentists favored the teaching of comprehensive orthodontics as part of a predoctoral program.⁶

New educational guidelines implemented in 1986 mandate that each dental school provide "meaningful clinical orthodontic education to its students".⁷ According to the 1990 Undergraduate Orthodontic Survey by the American Association of Dental Schools,⁸ 34 of 60 dental programs in the United States and Canada had clinical requirements that each student complete one or more orthodontic cases prior to graduation. A typical predoctoral orthodontic program now consists of 50 hours of didactic lectures, 40 hours of preclinical laboratory exercise, and a clinical requirement under which each student completes at least one case with limited tooth movement.

It is not clear, however, what influence these changes in curricula are likely to have on the orthodontic diagnoses and services rendered in general practices. Are dental graduates competent in diagnosing malocclusions and referring patients appropriately to orthodontic specialists? Are dental graduates with increased predoctoral orthodontic training more likely to treat more complex orthodontic problems?

Few authors have surveyed both general dentists and orthodontists from the same state on this subject. The present study was designed to determine the self-confidence of recently graduated Ohio general dentists in diagnosing malocclusions and referring patients, as well as their practice behavior regarding orthodontic treatment. It also sought the opinions of Ohio orthodontic specialists about their dentist referral sources.

Methodology

Samples of 330 Ohio general practitioners who were graduated from dental schools in 1989 or 1990 (three to four years after the implementation of the new educational guidelines) and 195 practicing Ohio orthodontists were randomly drawn from the data bases of the American Dental Association and the American Association of Orthodontists, respectively.

The appropriate questionnaire, accompanied by an explanatory letter and a stamped, addressed return envelope, was sent by first-class mail to each dentist or orthodontist in the sample. One month later, a second mailing was sent out to all who did not respond to the first survey form.

The general dentists' questionnaire asked about their self-perceived confidence in their ability to recognize malocclusions with the knowledge gained in dental school, accurately diagnose malocclusions using a set of orthodontic records, refer appropriate orthodontic patients to an orthodontist, and perform limited orthodontic treatment. Another set of questions focused on the dentists' practice behavior after graduation from dental school, including the type of orthodontic procedures that their dental schools encouraged them to perform in their practices, the orthodontic services they were currently providing, the reasons why orthodontic procedures were not incorporated in their practices, if applicable, and the sources of their orthodontic knowledge.

A separate survey was developed to collect data from practicing orthodontists on the frequency and types of cases referred to them by dentists and the confidence they perceived from general dentists in referring cases to orthodontic specialists.

Frequency tables were tabulated with the responses to each question.

Results

The survey was closed two months after the initial mailing. At this time, a total of 171 questionnaires had been returned by the general dentists (52%) and 117 by the orthodontists (60%), for an overall response rate of 56%. The sensitivity of the questions, which required the dentists to admit they were not confident in diagnosing malocclusions or the orthodontists to say that their referring dentists were not competent in their diagnoses, may have affected some responses.

Of the general dentists responding, 73.5% felt their orthodontic training in dental schools had encouraged them to recognize and diagnose malocclusions in their practice, 76.9% were confident in recognizing developing malocclusions in children, 74.0% believed they could accurately diagnose a malocclusion if given a set of orthodontic records, and 95.3% were comfortable in assessing patients for referral to orthodontists (Table 1). On the other hand, only 19.5% of the respondents felt they had received enough clinical training to perform limited orthodontic treatment, and 49.9% said they had been given enough didactic material to render good orthodontic clinical judgments.

In general, the orthodontic procedures encouraged by dental schools were the ones that the GPs actually incorporated into their practices (Table 2). The majority of the dentists performed space maintenance, and nearly a third offered interceptive orthodontic care, but fewer than 9% treated any comprehensive cases. Nearly half of the respondents performed model analysis on their cases, but few utilized space analysis or cephalometric analysis. For the cases requiring referral to orthodontic specialists, 54.3% referred to several orthodontists, 21.7% referred to one particular orthodontist, and 13.0% had orthodontists in their offices.

Of the respondents who did not perform any orthodontic services in their practices, 22.5% cited inadequate didactic knowledge as the reason, 36.7% inadequate clinical knowledge, and 25.1% availability of competent orthodontists for referral in their community. When asked where their current orthodontic knowledge was acquired, the dentists were most likely to list dental schools, textbooks, and discussions with colleagues. Only a few said they had gained their knowledge from continuing education courses or advanced orthodontic training.

Of the orthodontists responding, 61.5% reported that more than half of their patients came from dentists' referrals (Table 3). A small percentage of the referred cases required limited orthodontic tooth movement, but the majority required comprehensive orthodontic treatment. Fully 76.9% of the orthodontists were comfortable with the ability of their referring dentists to assess the orthodontic needs of patients, 61.6% felt their local dentists were sufficiently trained in dental schools to refer patients, and 60.7% thought the majority of the cases were accurately diagnosed by the referring dentists as to type of malocclusion and age for referral. The orthodontists agreed with the general practitioners that most referring dentists were confident in assessing the need of their patients for orthodontic treatment.

Discussion

Most of the general dentists in this survey said they performed space maintenance, and a sizable number performed interceptive orthodontic care, as has been encouraged by dental schools. The orthodontists substantiated this result, reporting that most of the cases referred to them by dentists were comprehensive. Fewer than 9% of the dentists provided comprehensive Class I, II, or III orthodontic care as part of their services—less than the 19.3% reported by Wolsky and McNamara in Michigan⁴ or the 17.9% reported by Koroluk and colleagues in Indiana.³

Although the present study was limited to Ohio, it supports the contention that providing meaningful orthodontic experience in dental schools will not necessarily increase the number of dentists practicing comprehensive, full-bonded orthodontics. In fact, several authors have shown that increasing the number of contact hours in orthodontics may improve dental students' recognition of patient needs in their diagnoses.^{9,10}

Only 19.5% of the general practitioners in this survey felt they had been given enough clinical exposure to perform limited orthodontic treatment, while 49.9% felt they had been given enough didactic materials to render good orthodontic clinical judgments in their practices. This is probably realistic, since the ADA guidelines mandate that dental students only be exposed to active orthodontic tooth movement. Another reason for general dentists not to practice orthodontics is access to good specialists in their community or their own practices, as mentioned by respondents to this survey.

About half of the dentists surveyed said they had obtained their current orthodontic knowledge from dental schools and discussions with colleagues, but they were responding only a few years after graduation from dental schools. Dentists who have been in practice longer may be more likely to take short- or long-term continuing education courses to broaden the scope of their orthodontic services. The extent of this continuing education might also have an effect on their confidence levels and practice behavior. □

TABLES

TABLE 1
GENERAL DENTISTS'
SELF-CONFIDENCE IN
ORTHODONTIC DIAGNOSIS

<i>1. Do you feel that your orthodontic training in dental school has encouraged you to recognize and diagnose malocclusions in your practice?</i>	
Strongly agree	19.6%
Agree	53.9%
Disagree	22.1%
Strongly disagree	4.4%
<i>2. Do you feel that you are confident in recognizing a developing malocclusion in a child patient with the knowledge taught during dental school?</i>	
Yes, I feel very confident	29.5%
Yes, I feel confident	47.4%
No, I do not feel confident	23.1%
No, I am not confident at all	0.0%
<i>3. Do you feel you could accurately diagnose the malocclusion if you were given a set of orthodontic records?</i>	
Yes, I feel very confident	24.1%
Yes, I feel confident	49.9%
No, I do not feel confident	22.5%
No, I am not confident at all	3.5%
<i>4. Do you feel comfortable in assessing the appropriate orthodontic patients for referral to an orthodontist?</i>	
Yes, I feel very confident	33.9%
Yes, I feel confident	61.4%
No, I do not feel confident	4.7%
No, I am not confident at all	0.0%
<i>5. Do you feel that your dental school has given you enough clinical exposure to perform limited orthodontic treatment on your patients?</i>	
Excessive	2.7%
Adequate exposure	16.8%
Marginal exposure	36.4%
Inadequate exposure	44.1%
<i>6. Do you feel that your dental school has given you enough didactic materials to render good orthodontic clinical judgment in your practice?</i>	
Excessive	0.9%
Adequate exposure	49.0%
Marginal exposure	31.4%
Inadequate exposure	18.7%

Table. 1

TABLE 2
GENERAL DENTISTS'
PRACTICE BEHAVIOR

1. *Your orthodontic training in the dental school has encouraged you to perform which of the following orthodontic procedures in your practice?*

Space maintenance	73.7%
Interceptive orthodontics	26.0%
Comprehensive orthodontics (Class I)	9.8%
Comprehensive orthodontics (Class II)	9.0%
Comprehensive orthodontics (Class III)	9.0%

2. *How many of the following orthodontic conditions/procedures are you presently incorporating in your practice?*

Space maintenance	77.4%
Interceptive orthodontics	31.7%
Comprehensive orthodontics (Class I)	8.6%
Comprehensive orthodontics (Class II)	4.9%
Comprehensive orthodontics (Class III)	0.9%

3. *Do you do any of the following diagnostic procedures in your office?*

Model analysis	43.4%
Space analysis	23.9%
Cephalometric analysis	10.8%

4. *How are you referring your patients to the orthodontist?*

Refer to one particular orthodontist	21.7%
Refer to several orthodontists	54.3%
Orthodontist in my office	13.0%

5. *I have not incorporated any orthodontic procedure in my practice due to . . .*

Inadequate didactic knowledge	22.5%
Inadequate clinical knowledge	36.7%
Inventory problems	9.0%
Good orthodontists to refer to	25.1%
Other	8.2%
Not applicable	23.4%

6. *Most of my current orthodontic knowledge was gained from:*

Advanced orthodontic training	11.0%
Didactic courses in dental school	50.5%
Clinical courses in dental school	32.0%
Textbooks	28.6%
Long-term continuing education	6.5%
Short continuing education courses	8.7%
Discussions with colleagues	45.6%

Table. 2

TABLE 3
ORTHODONTISTS'
DENTAL REFERRALS

<i>1. What percentage of your patient pool comes from general dentists' referrals?</i>	
Less than 30%	13.7%
30-50%	24.8%
50-70%	42.7%
More than 70%	18.8%
<i>2. What percentage of your referred cases require limited orthodontic tooth movement?</i>	
Less than 30%	92.3%
30-50%	5.1%
More than 70%	0.9%
<i>3. What percentage of your referred cases require comprehensive orthodontic treatment?</i>	
30-50%	1.7%
50-70%	40.2%
More than 70%	56.4%
<i>4. In general, do you feel comfortable with the ability of your referring dentists in assessing the need for orthodontic care of patients that are referred to your office?</i>	
Yes, very confident	9.4%
Yes, confident	67.5%
No, not confident	17.9%
No, not confident at all	3.4%
<i>5. Do you feel that your local dentists are sufficiently trained in the dental school to refer patients to your office for orthodontic treatment?</i>	
Yes, well trained	6.0%
Yes, adequately trained	55.6%
No, inadequately trained	32.5%
No, poorly trained	4.3%
<i>6. The majority of referred cases are accurately diagnosed by the referring dentist as to the type of malocclusion.</i>	
Strongly agree	5.1%
Agree	55.6%
Disagree	30.8%
Strongly disagree	3.4%
<i>7. Referring dentists are referring patients to my office at the appropriate age for evaluations.</i>	
Strongly agree	3.4%
Agree	59.8%
Disagree	29.9%
Strongly disagree	3.4%
<i>8. Overall, do you think that general practitioners are confident in identifying malocclusions and assessing the need of their patients for orthodontic treatment?</i>	
Yes, very confident	5.1%
Yes, confident	64.1%

Table. 3

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