

Media Advertising Effects on Consumer Perception of Orthodontic Treatment Quality

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ABSTRACT

Objective: To determine the effect of media advertising on consumer perception of orthodontic treatment quality.

Materials and Methods: A survey instrument was designed to evaluate factors influencing consumer selection of an orthodontist and consumer perception of different forms of media advertising (radio, television, newspaper, magazine, direct mail, and billboard) by orthodontic practices. The surveys were distributed by eight orthodontic offices in and around the Richmond, Virginia area. The survey return rate was 97%.

Results: Respondents most often cited dentist and patient referrals as how they learned of the orthodontic practices they visited (50% to 57%). A caring attitude and good practitioner reputation were the top reasons influencing actual selection of an orthodontist (53% and 49%, respectively). Of respondents, 14% to 24% felt that advertising orthodontists would offer a lower quality of care than nonadvertising orthodontists. Newspaper, magazine, and direct mail advertisements were viewed more favorably than radio, television, and billboard advertisements. Chi-square analyses revealed few statistically significant differences in perception between different income and education groups.

Conclusions: The majority of patients do not perceive advertising to reflect poorly on the quality of orthodontic care. However, patients with different income and education levels perceive media advertising differently.

KEY WORDS: Advertising; Consumer; Orthodontic treatment; Treatment quality

INTRODUCTION

In modern societies, most providers of professional services compete for consumers, and dental health care services are no exception. Marketing plays a central role in the retail industry, its primary purpose being to present products or services to potential consumers

in a manner which increases their desirability.¹ This applies to orthodontics, which can, at times, be regarded as a discretionary service.²

The main ways of acquiring orthodontic patients are through patient referrals, dentist referrals, staff referrals, visibility through community involvement, advertising, and insurance sources.³ Traditionally, most new orthodontic patients come from general dentist referrals and patient referrals, which have typically yielded satisfactory patient numbers.³ According to the 2005 *Journal of Clinical Orthodontics* Practice Study, general dentists accounted for a median of 50% of all referrals, and patients accounted for a median of 30% of all referrals.⁴

Most established orthodontic practices rely on internal marketing strategies to inspire referrals from patients and parents. Internal marketing involves interacting with existing patients in a deliberately effective and positive way, encompassing the practice philosophy, practice climate, office design, interior décor, and quality of customer service.⁵ In contrast, external marketing is promotional communication directed toward

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potential patients and referral sources including advertising, sponsorships, sales promotions, and public relations.⁵

In the past, several professions imposed codes of conduct on their members prohibiting most promotional activities and deeming them unethical. In 1977, the US Supreme Court in *Bates v The State Bar of Arizona* (433 US 350,384) ruled that restraints on advertising by professionals violated the right to free speech protected under the First Amendment of the Constitution.⁶ The Federal Trade Commission also sought to prohibit professional associations from restricting advertising, arguing that consumers should not be deprived of the free flow of information.⁷ In 1982, the Commission won its 7-year antitrust suit against the American Medical Association, claiming that bans on physicians' advertising reduced competition and resulted in higher prices for consumers.^{8,9} The American Dental Association amended its code of ethics in 1979 to remove restrictions on advertising.¹⁰ Although dentists, physicians, lawyers, accountants, and other professionals are now free to advertise to solicit business, many professionals feel that advertising commercializes, and hence demeans, professional services.⁸ This issue is particularly conflicting for health care practitioners because they are held to a high ethical code, with maintenance and improvement of health as the primary goal.

Since 1977, there has been an increase in advertising by health care professionals fueled by consumer awareness and escalating competition. Darling and Bergiel¹¹ described increasingly favorable attitudes of professionals toward the use of media advertising from 1977 to 1987, and Caruana⁸ in 1997 reported that the general public had a more positive attitude toward advertising than did medical professionals.

Advertising can provide relevant information and can foster communication between providers and recipients of a service. Advertising also transmits news of innovative technology and can stimulate demands and markets for new and existing services.¹² Becker and Kaldenberg¹⁰ in 1990 conducted a survey of 386 dental practitioners in Oregon and found that 54% of the practices used some form of media advertising (television, radio, magazines, or newspapers). Those most likely to advertise had either the smallest or largest practices based on annual gross income. Younger practitioners were more likely to advertise, and general practitioners were more likely to use media advertising than specialists. Based on the 2005 *Journal of Clinical Orthodontics* Practice Study, 20.4% of American orthodontists advertised in local newspapers, 13.1% used direct mail promotions, 5.6% advertised on local radio, and 3.9% advertised on local television.¹³

More consumers are currently demanding information and options as they make choices. According to

McGarvey,¹⁴ the post-baby boom generation or Generation X is technology savvy, self-reliant, and more rule-shy than baby boomers. This subset of the American population (44 million individuals) comprises the bulk of consumers currently seeking orthodontic treatment for themselves and their children. They are heavily influenced by the media and, thus, may be receptive to media promotional strategies.¹⁴

Consumers seek orthodontic services based on individual attitudes and perceptions as well as influential factors in the environment. Advertisements can be informative and tastefully designed to stimulate interest, educate consumers, and differentiate one practitioner from the others. However, many orthodontists are hesitant to use media advertising due to cost concerns and the belief that some consumers may interpret advertising as an indication of lesser treatment quality.⁵

The purpose of this study was to determine how consumers of orthodontic services perceive the treatment quality of orthodontic practitioners who utilize different forms of media advertising. The null hypotheses tested in this study were that consumers perceived no difference in quality of treatment between orthodontic practitioners who use media advertising and those who do not use media advertising and that there was no difference in perceptions between individuals in different income groups and with different education levels.

MATERIALS AND METHODS

A survey of 20 questions was developed with input from the Virginia Commonwealth University Survey Research Laboratory and a statistician. Institutional Review Board approval was granted by the Virginia Commonwealth University Office of Research Subject Protection. Thirty-nine practitioners in the Richmond, Virginia metropolitan area with listings in the 2005 American Association of Orthodontists (AAO) directory were contacted, describing the study and seeking their involvement. Eight (11 sites) agreed to participate. Seven of the eight participating offices were full-time solo-orthodontist practices. The remaining site was the Virginia Commonwealth University Orthodontic clinic. The solo practitioners were in practice an average of 23.5 years (range: 13 to 41 years).

The anonymous survey and an explanatory cover page were offered to parents and adult patients. Participants were asked to complete the survey while in the reception area and to place it in a provided collection box. The survey sought information on consumer demographics, factors influencing selection of orthodontic practices, and perceptions of media advertising by health care professionals. A total of 676 surveys

Table 1. Description of Respondents

Characteristic	n (%)		
Female	494 (80)		
Male	123 (20)		
Married	513 (81)		
Unmarried	121 (19)		
	Mean	SD	Range
Age, years	42.8	8.2	18–83
Number in household	4.0	1.3	1–11

Table 2. Respondent Status

Respondent Status	n (%)
Parent of patient	517 (80)
Patient of practice	80 (13)
Both (parent of patient and patient)	47 (7)

Table 3. Educational Levels of Respondents

Highest Education Level	n (%)
Some high school	17 (3)
High school graduate	86 (13)
Some college	167 (26)
College graduate	248 (39)
Post-graduate education	119 (19)

were offered to parents and adult patients and collected over a 4-week period.

Statistical analyses were conducted using SAS software (SAS Institute Inc, Cary, NC). Descriptive statistics for demographic data and factors influencing consumer selection of an orthodontic practice were calculated. To determine whether the responses to advertising options differed significantly among different income and educational groups, chi-square analysis was used. The significance level was set at $P \leq .05$.

RESULTS

A total of 676 surveys were offered to parents and adult patients, and 655 surveys were returned, for a response rate of 97%. Five hundred ten (75%) surveys were filled out completely. When nonresponse to a question affected the validity of data analysis, the incomplete survey was not included. Demographic characteristics of the respondents are shown in Tables 1 through 4. Respondents ($N = 655$) were predominantly female (80%), married (81%), parents of patients (87%), and in their early 40s (average age 42.8 years). The majority were college graduates (58%), and 84% had at least some college education. Of the respondents, 76% had annual household incomes of greater than \$50,000, and 57% had incomes greater than \$75,000.

Respondents identified the factors influencing their

Table 4. Annual Household Income (2004 Pretax)

Annual Household Income	n (%)
<\$25,000	45 (7)
\$25,000–\$50,000	104 (17)
\$50,001–\$75,000	116 (19)
\$75,001–\$100,000	133 (22)
\$100,001–\$125,000	101 (16)
\$125,001–\$150,000	48 (8)
\$150,001–\$175,000	20 (3)
\$175,001–\$200,000	11 (2)
>\$200,000	35 (6)

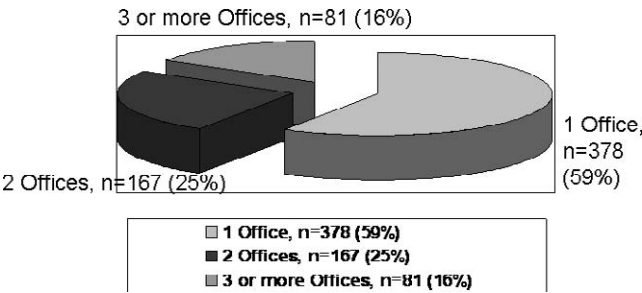


Figure 1. Number of offices visited by respondents seeking orthodontic treatment.

decision to visit a specific orthodontic provider including the number of orthodontic practices visited and how they became aware of the practice(s) they visited. They were also asked to choose the top three factors influencing their decision in finally selecting an orthodontic provider.

Of the 655 returned surveys, 59% of respondents reported visiting only one practitioner, 25% reported visiting two orthodontists, and 16% reported visiting three or more offices (Figure 1). Fifty-seven percent of respondents learned of the orthodontic office(s) they visited through referral from a general or pediatric dentist (Figure 2). Fifty percent reported learning of the office(s) through referral from friends or family. Visibility of the office/signage attracted 6% of respondents. Four percent of respondents became aware of the practice(s) they visited through yellow page advertisements and 1% through print advertisements and Internet sites. These total more than 100% because respondents were asked to select any factor which applied, and some respondents selected multiple factors.

The top factors reported in final selection of an orthodontist were: caring attitude of the orthodontist (53%), good reputation (49%), dentist referral (38%), and convenient office location (38%) (Figure 3). Affordable fees and a convenient payment plan were each reported by 27% of respondents. Eighteen percent of respondents reported the atmosphere in the office, and 11% reported current treatment techniques

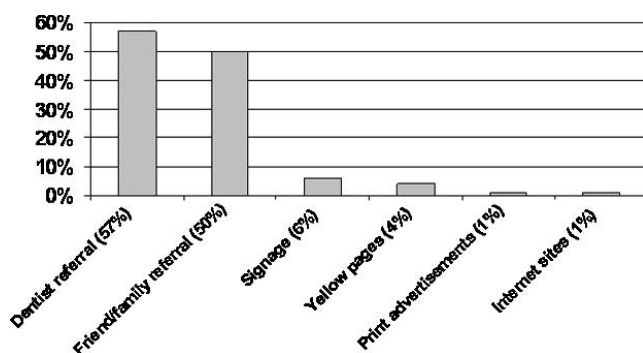


Figure 2. Ways in which respondents became aware of the orthodontic practices they visited in their search for an orthodontist.

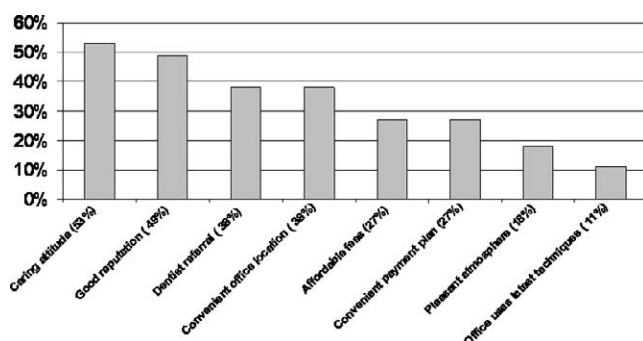


Figure 3. Most influential factors in selection of an orthodontic provider.

as one of the top factors influencing their selection of an orthodontist.

In the second part of the survey, consumer perceptions of media advertising on orthodontist quality of care were assessed. Respondents were asked whether they felt health care providers who advertise through radio, television, newspapers, magazines, direct mail, or billboards offer a quality of care which is the same as, better than, or lesser than the quality of care offered by providers who do not advertise in these ways. They were also asked whether this perception would hold true for orthodontic providers.

In 94% of the responses to these questions, respondents reported that their view on advertising held true for orthodontists. The 6% of instances where perceptions did not pertain to orthodontists were excluded from the analysis so the conclusions drawn could be applied accurately to orthodontic professionals. Also, selections of "the same" or "better" were combined to simplify the analyses.

The majority of respondents, (76% to 86% depending on the advertising modality), reported feeling that orthodontists who advertise through radio, television, newspapers, magazines, direct mail, and billboards offer a quality of care which is the same as, or better than, those who do not advertise in these ways. Thus, 14% to 24% of respondents felt that orthodontists who use media advertising offer a lower quality of care than those who do not.

Overall, newspaper, magazines, and direct mail advertising were viewed more favorably than other modes of advertising, (radio, television, and billboards). Eighty-six percent felt that the quality of care delivered by practitioners who advertise using newspaper, magazine, or direct mail was the same as, or better than, that of practitioners who did not advertise in these ways. For radio advertising, 80% of respondents felt that the quality of care delivered by practitioners was the same as, or better than, that of nonadvertising practitioners, and this proportion was 78% for television advertising. Billboard advertising was the least favorable mode of advertising; 76% of respondents felt that the quality of care delivered by practitioners advertising on billboards was the same as, or better than, that of nonadvertising practitioners.

Chi-square analyses were used to assess whether there were any differences in perception between respondents in different income groups or with different education levels. Statistically significant differences are discussed in this section. Table 5 demonstrates that respondents with annual household incomes greater than \$50,000 viewed newspaper and maga-

Table 5. Chi-Square Analyses of Quality of Care Perception of Advertising Practitioners Between Individuals with Annual Household Income of Less Than, or Equal to, \$50,000 and Greater than \$50,000

Respondent Choice	Income ≤ \$50,000 n (%)	Income > \$50,000 n (%)	Total n (%)
Newspaper			
Better or same	93 (79)	359 (89)	452 (86)
Less	25 (21)	46 (11)	71 (14)
Total	118	405	523
df = 1	Chi-square value = 7.5233		P = .0061 significant
Magazine			
Better or same	93 (78)	361 (89)	454 (86)
Less	26 (22)	49 (11)	75 (14)
Total	119	410	529
df = 1	Chi-square value = 7.4254		P = .0064 significant

Table 6. Chi-Square Analyses of Quality of Care Perception of Advertising Practitioners Between Non College Graduates and College Graduates

Respondent Choice	Non College Graduate n (%)	College Graduate n (%)	Total n (%)
Television Advertising			
Better or same	184 (85)	247 (77)	431 (80)
Less	32 (15)	76 (23)	108 (20)
Total	216	323	539
<i>df</i> = 1	Chi-square value = 6.1353		<i>P</i> = .0133 significant
Billboard Advertising			
Better or same	178 (83)	229 (71)	407 (76)
Less	36 (17)	94 (29)	130 (24)
Total	214	323	537
<i>df</i> = 1	Chi-square value = 10.5787		<i>P</i> = .011 significant

Table 7. Chi-Square Analyses of Quality of Care Perception of Advertising Practitioners Between Individuals With Annual Household Income of Less Than, or Equal to, \$50,000 and Greater Than \$150,000

Respondent Choice	Income ≤ \$50,000 n (%)	Income > \$150,000 n (%)	Total n (%)
Billboard			
Better or same	92 (79)	35 (60)	127 (73)
Less	24 (21)	23 (40)	47 (27)
Total	116	58	174
<i>df</i> = 1	Chi-square value = 7.0544		<i>P</i> = .0079 significant

zine advertising more favorably than those with annual household incomes less than, or equal to, \$50,000. In other words, respondents with incomes of greater than \$50,000 were significantly more likely to report that the treatment quality of orthodontists who advertised in newspapers or magazines was the same as, or better than, orthodontists who did not advertise in these ways. The chi-square analyses for radio, television, direct mail, and billboards did not reveal any significant differences between respondents with different income levels ($P > .05$). When the respondents were split into groups of college graduates vs non college graduates, the college graduates were significantly more likely to report that practitioners who used television and billboard advertisements would deliver a lower quality of care (Table 6A and 6B). The chi-square analyses for radio, newspaper, magazine, and direct mail did not reveal a statistically significant difference between college graduates and nongraduates ($P > .05$).

When the extremes of annual household income were compared, (less than, or equal to, \$50,000 vs greater than \$150,000), the only significant difference in perception was for billboard advertising (Table 7). The proportion of individuals in the high-income category who felt billboard advertising reflected a lower quality of care (40%) was about twice that of the lower income category (21%). Chi-square analyses between the high- and low-income categories for radio, television, newspaper, magazines, and direct mail did not

reveal statistically significant differences between perceptions in these groups ($P > .05$).

DISCUSSION

Orthodontic practitioners who wish to maximize their income potential must be capable to adapt to the shifting nature of modern dentistry as well as to changes in consumer demographics and attitudes. Effective marketing strategies are almost as important as good clinical skills in ensuring a successful practice. This study evaluated the factors consumers considered most important in their selection of an orthodontic practitioner, the attitudes of consumers toward media advertising by orthodontic practices, and the demographics of orthodontic consumers. The data presented in this report provide practitioners with information that may be useful in tailoring marketing strategies for the orthodontic office.

The results of this study suggest that up to 40% of orthodontic consumers do some "shopping" for an orthodontist. This is not surprising since the submissive patient prevalent in past times has given way to the more informed and proactive patient of modern times. These patients are very concerned about receiving optimal care. They are interested in knowing the treatment options and want to play an active role in treatment decisions.

The respondents to this survey were predominantly

married mothers in their early 40s. This is the population subset which makes the most decisions in selection of an orthodontic provider.¹⁵ Based on survey results from over 1000 consumer households, the AAO also determined that the target audience for orthodontic services was mothers with children 5–7 years old.¹⁵ According to the AAO, these consumers are also Internet savvy, have some college education, and annual household incomes over \$50,000.

Respondents most often cited dentist and patient referrals as how they learned of the orthodontic practices they visited (57% and 50%, respectively). This indicates that consumers value the opinion of a trusted party in their consideration of an orthodontic provider, and underscores the strength of word of mouth and dentist referrals. Signage attracted 6% of respondents, and advertising sources (yellow pages, print, and Internet) a maximum of 4% of respondents. This indicates that it may not be prudent to put finances and energy into media advertising. However, according to White,¹⁶ Orthodontic Management Service Organizations have achieved marked success advertising directly to the public via radio and television. In the present study, only one of the eight participating orthodontic offices used media advertising. Therefore, the majority of respondents in this study might not accurately reflect the attitudes of advertisement-susceptible consumers. Also, advertising campaigns must be implemented tactically to maximize their effectiveness. According to Ascher,¹⁷ without continuity, advertisements cannot be expected to be effective. It takes at least six or seven exposures for an impression to form in the average person's memory, so running a series of advertisements is recommended for maximal benefit.¹⁷

The caring attitude of the practitioner was listed as the top reason influencing respondents to select a specific orthodontist, closely followed by the practitioner's good reputation. A study in 1999 by Walley et al¹⁸ on patient and parent preferences also concluded that the reputation of the practitioner, along with the caring attitude the office projected, were among the most influential factors leading to selection of an orthodontist. In the present study, the next most influential factors were a dentist's referral and a convenient office location. The disparity between the proportion of patients visiting a practice due to a dentist referral (57%) and the proportion selecting a practice for treatment due to a dentist referral (38%) reflects that other factors, such as the compassion of the practitioner, can be weighed more heavily in the selection decision than a good referral. Finally, the fee and payment plan seemed equally as influential in the selection decision and were each reported by 27% of respondents. This is different from the results reported by Walley et al¹⁸ who found that the payment plan, but not the cost of

treatment, was a critical element in the decision process.

Respondents to the present survey were asked how they felt different forms of media advertising reflected the "quality of care" an orthodontist was likely to deliver. The interpretation of the term "quality of care" was left up to the respondents. Although some might have interpreted this term to indicate the quality of the orthodontic outcome, and others, the level of customer service, a negative perception of any interpretation of quality of care implied that the consumer viewed the practice unfavorably and would be less likely to seek treatment there. The majority of respondents, (76% to 86% depending on the advertising modality), reported feeling that orthodontists who advertise through radio, television, newspapers, magazines, direct mail, and billboards offer a quality of care which is the same as, or better than, those who do not advertise in these ways. Thus, 14% to 24% of respondents felt that orthodontists who use media advertising offer a lower quality of care than those who do not. The present study did not assess consumer perceptions toward yellow pages or practice Internet sites since these forms of advertising require an active search on the part of the consumer and are thus less intrusive, and assumedly less objectionable, marketing methods.

Overall, newspaper, magazines, and direct mail advertising were viewed more favorably than the other modes of advertising, (radio, television, and billboards). Elliot and Speck¹⁹ suggested that individuals are more likely to develop negative attitudes about advertisements in a medium over which they have less control. With newspaper, magazine, and direct mail advertisements, consumers can simply discard or flip the page to avoid an advertisement. However, broadcast media (radio and television) and billboard advertisements are more difficult to ignore and more likely to be considered intrusive. This might explain why, in the present study, radio, television, and billboard advertising were not perceived as favorably as newspaper, magazine, and direct mail.

The relatively high proportion of respondents with favorable perceptions of advertising orthodontists may be somewhat surprising to practitioners. However, other studies have shown that the general public has a substantially more positive view toward advertising than do health care professionals.^{11,20} A study by Shapiro and Majewski²⁰ revealed that consumers demonstrated significantly higher approval of dental advertising messages than did dentists. The majority of consumers felt that advertising by dentists would allow them to make informed choices. Shapiro and Majewski⁴ also found that lower income respondents were somewhat more receptive to dental advertising. They concluded that, although a dentist may elicit disap-

proval from nonadvertising professional colleagues, he or she will not lose the esteem of the majority of consumers. Even though Shapiro and Majewski's study was conducted over 2 decades ago, results of the present study support their conclusion.

Continued research is needed in the area of marketing in orthodontics to ensure the highest return on marketing efforts. This is of particular importance since practitioner perceptions may be quite disparate from consumer perceptions. The data presented in this report provide orthodontic practitioners with information that may be useful for tailoring marketing strategies for the orthodontic office. By strategically marketing orthodontic services, the number of patients seeking orthodontists' treatment will be maximized, and orthodontists' success and control over their specialty will be maintained.

CONCLUSIONS

- Most patients do not consider advertising to reflect poorly on the quality of orthodontic treatment.
- When advertising is used as a marketing tool, patients view newspaper, magazine, and direct mail advertisements more favorably than radio, television, and billboard advertisements.
- Patients from higher income and education groups view television and billboard advertising less favorably, and newspaper and magazine advertisements more favorably than patients from lower income and education groups.

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