



ORIGINAL ARTICLE

Orthodontic treatment and referral patterns: A survey of pediatric dentists, general practitioners, and orthodontists



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Received 27 June 2014; revised 1 November 2014; accepted 6 November 2014
Available online 8 December 2014

KEYWORDS

Orthodontist;
Pediatric dentist;
General practitioners;
Perception;
Knowledge

Abstract *Objective:* This study aims to assess the orthodontic diagnostic skills, referral patterns, and the perceptions of orthodontic benefits of pediatric and general dentists in comparison with orthodontists.

Materials and methods: Two online surveys were e-mailed to pediatric dentists, general dentistry practitioners, and orthodontists registered as members of the Saudi Dental Society and the Saudi Orthodontic Society. The surveys included questions about the type of orthodontic treatment provided, referral trends, and timing; presumed benefits associated with successful orthodontic treatment; and diagnosis and treatment plans of seven cases representing different malocclusions.

Results: In total, 25 orthodontists, 18 pediatric dentists, and 14 general practitioners completed the survey. Only 38.8% of pediatric dentists and 7.1% of general practitioners reported that they practiced orthodontics clinically. The perceptions of the three groups toward the benefits of orthodontic treatment were comparable in the psychosocial areas. However, the orthodontists perceived significantly lesser effects of orthodontic treatment on the amelioration of temporomandibular disorder (TMD) symptoms. Pediatric dentists tended to rate the need and urgency of treatment higher, while general practitioners tended to rate the need of treatment lower. The selected treatment plans for three early malocclusion cases showed the greatest discrepancies between the orthodontists and the other two groups.

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Peer review under responsibility of King Saud University.



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Conclusions: The orthodontists consistently and significantly downplayed the perceived benefit of orthodontic treatment to reduce TMD symptoms. Also, while there was a similarity in the diagnosis, there were notable differences in the proposed treatment approaches, perceived treatment need, and timing of intervention between the three groups of practitioners.

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1. Introduction

The early diagnosis and referral of orthodontic cases is important for providing the best care to patients. Referrals to orthodontic clinics usually occur from pediatric and general practices. Although these practitioners are advised to be aware of the treatment options available and the most efficient timing of their application (Ngan and Fields, 1995), it is essential that pediatric and general dentists are well informed about the correct diagnosis of early malocclusion problems.

Orthodontic treatment provided by pediatric and general dentists has been reported in the literature, but the results are conflicting. While Hilgers et al. found that pediatric dentists spent less than 10% of their time providing orthodontic treatment (Hilgers et al., 2003) and Galbreath et al. similarly noted that general dentists spent less than 10% of their time providing orthodontic treatment (Galbreath et al., 2006), a study by Koroluk et al. showed that a large percentage of pediatric and general dentistry practitioners provided comprehensive orthodontic treatment (62% and 17.9%, respectively) (Koroluk et al., 1988). In another study, 76.3% of general practitioners were found to provide basic orthodontic treatment and 19.3% provided comprehensive orthodontic treatment (Wolsky and McNamara, 1996). General practitioners who showed a profile of high-volume orthodontic services were found to treat more difficult cases and there was a projected increase in the amount of orthodontic treatment performed in general practice (Jacobs et al., 1991). Thus, the anticipated increase or decrease in orthodontic treatment in pediatric or general practice is debatable and has been discussed in most of the previously mentioned articles.

General dentistry practitioners usually decide whether, when, and where to refer the patient. They are considered to be gatekeepers for specialist dental care (de Bondt et al., 2010). If referrals are made before the patient is ready for treatment, this may result in unnecessary appointments. However, if referrals are made after the 'ideal' time, the treatment may be more complex and lengthy. A study in England revealed that one reason for an excessive length in the waiting list of new orthodontic patient consultation is the unnecessary referral of patients by general practitioners (O'Brien et al., 1996). In a study by Parfitt and Rock who surveyed 30 general practitioners for their treatment plan accuracy and referral pattern, only 14% of general practitioner treatment plans agreed with the gold standard (Parfitt and Rock, 1996). In West Sussex, while 52% of dentists were able to correctly identify which type of orthodontic provider they refer to, only 20% of them were able to determine the appropriate time of orthodontic referral (Jackson et al., 2009). According to Berk et al. when the treatment need assessment scores of orthodontists, general dental practitioners, and pediatric dentists are compared, it was found that all three groups exhibited high levels

of agreement on orthodontic treatment needs (Berk et al., 2002).

Dental students in the USA were surveyed to determine their ability to recognize malocclusions and measure their diagnostic skills. The study concluded that four years of undergraduate education did not improve the students' orthodontic diagnostic skills (Brightman et al., 1999). Among the British dental schools that were studied, 75% did not expect their new graduates to be able to formulate an orthodontic treatment plan. They also believed that undergraduate training should be concentrated more on the diagnosis and recognition of a dental malocclusion, rather than on the formulation of a treatment plan (Rock et al., 2002).

A survey of orthodontists suggested that early orthodontic intervention is the norm among practitioners in the United States, but practice characteristics affected treatment timing (Yang and Kiyak, 1998). Another survey showed that the majority of orthodontists recommended that the first assessment of an occlusion should be carried out before the age of 7 and that cross bites should be preferably applied during primary- and early-mixed dentition stages (Pietila et al., 2008).

This study aims to assess the diagnostic skills, referral patterns, and treatment approach provided by pediatric and general dentists in regard to orthodontic care. Comparison with orthodontists in terms of unity of diagnosis and treatment options, as well as treatment timing, was done to provide a baseline. Varying knowledge of the benefits associated with orthodontic treatment was also evaluated.

2. Materials and methods

This study utilized two self-administered online surveys: the first was directed toward pediatric and general dentists and the second was directed toward orthodontists (Tables 1 and 2). The study was registered and ethical approval was granted by the College of Dentistry Research Center, King Saud University (#IR 0043). The surveys started with biographic data (age, specialty, where and when the dental degree was earned) and then, to assess the respondents' opinions and knowledge, continued with general questions about the types of orthodontic treatment provided, referral amount and timing, and presumed risks and benefits associated with successful orthodontic treatment. This was followed by the presentation of seven cases, each of which included five intraoral photographs, a panoramic radiograph, and cephalometric tracing (Figs. 1 and 2). The participants were asked to diagnose the malocclusion that was being presented and to choose the most effective treatment option, in their opinion, for each case. The appropriate timing of treatment was also asked, as well as the level of treatment need. The second survey (that was directed toward the orthodontists) consisted of the same questions as the previously mentioned survey. The same cases were

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