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ABSTRACT

The principal objective for most patients seeking orthodontic services is a detectable improvement in their dentofacial appearance. Orthodontic treatment, in the mind of the patient, is something that makes you look better, feel better about yourself, and perhaps enhances your social possibilities, ie, to find a companion or make a positive impression during a job interview. Orthodontics, as a speciality, has collectively advanced the idea that enhanced occlusion (bite) improves the health and longevity of the dentition, and as a result many patients seeking orthodontic services affirm that their secondary goal of treatment is an oral health benefit. It would appear that there is some disparity between the end-user of orthodontic services and the orthodontic provider's perception of what constitutes orthodontic need. The aim of this paper is to examine two contrasting models that characterise how dentists 'sell' orthodontic services to patients and to discuss the conflict between professional ethics, practice management and evidence-based decision-making in orthodontic practice.

The principal objective for most patients seeking orthodontic services is a detectable improvement in their dentofacial appearance. Orthodontic treatment, in the mind of the patient, is something that makes you look better, feel better about yourself, and perhaps enhances your social possibilities, that is, to find a companion or make a positive impression during a job interview. Orthodontics, as a speciality, has collectively advanced the idea that enhanced occlusion (bite) improves the health and longevity of the dentition, and as a result many patients seeking orthodontic services affirm that their secondary goal of treatment is an oral health benefit.[1–5] It would appear that there is some disparity between the end-user of orthodontic services and the orthodontic provider's perception of what constitutes orthodontic need. The aim of this paper is to examine two contrasting models that characterise how dentists 'sell' orthodontic services to patients and to discuss the conflict between professional ethics, practice management and evidence-based decision-making in orthodontic practice.

Over the course of 7 years in the exclusive private practice of orthodontics in suburban Philadelphia between the years 2000 and 2007, the author queried approximately 2000 consecutive patients and/or their parents on the reason they were seeking orthodontic treatment. For the most part, patients or their parents could describe some appearance-related dentofacial trait or set of traits that they wished to have modified by means of orthodontics alone or by multidisciplinary dentistry. However, it was astonishing to learn how many patients were either there because their dentist 'said they needed braces' or because they were under the impression that orthodontics was essential to the health and longevity of their oral cavity. Nearly 50% of all patients fell into this category. The provider of orthodontic services is thus faced with the challenge of determining a patient's perceived need as it relates to their chief concern, and then must utilise professional judgement when and if there is no perceived need to determine whether to apply interventions and which specific interventions to apply based on weighing benefits and risks, inconvenience and costs within the context of the elicited patient values. So, it is essential that the orthodontic clinician exercise sound ethical clinical judgement while engaging the patients and the public they serve in a dialogue about orthodontic need.

THE 20TH CENTURY PARADIGM: MEDICALISATION OF ORTHODONTIC NEED

Society has perceived some naturally occurring biological and physiological processes, such as the menopause, as ailments or illnesses. As such, these phenomena are included in medical practice with treatments such as hormone replacement therapy prescribed for large numbers of healthy women. In the case of alcoholism, this movement is enlightened, yet in other examples, such as the treatment of skin wrinkling as a disease state, is highly dubious, particularly as this condition will invariably affect every man and woman in the world at some point in their adult life. Bioethicists are examining this growing trend towards enlarging the scope of medical practice to embrace conditions that in that past have been considered outside the scope of legitimate medical practice.[6] Medicalisation is 'the tendency to conceive an activity, phenomenon, behaviour, condition, etc, as a disease or disorder or as an affliction that should be regarded as a disease or disorder: (1) people suffer it (patienthood); (2) the causes are physical and somatic not psychic; (3) it requires and demands treatment aimed at cure or relief of symptoms; (4) at the hands of persons licensed in the healing arts; and (5) this conception of the condition will be supported by society out of interest in the health of its people.'[7] The idea that any deviation in occlusion from the theoretical ideal is abnormal represents the medicalisation of orthodontic need.

The medicalised model for selling orthodontic need rests on the theory that an 'ideal' bite is the essential requirement for oral health. This assumes that there is a universal standard of dentofacial normality and in particular one 'ideal' bite naturally occurring in the human species, which correlates

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with superior oral health, function and appearance. Orthodontic health has been traditionally measured relative to the position of the teeth in the upper jaw as they relate to the position of the teeth in the lower jaw.[8] Malocclusion refers to any deviation of the teeth from one morphological construct termed 'ideal' occlusion (bite).

Although most orthodontists would agree that the 'ideal' occlusion construct is a good benchmark for the assessment of a patient's bite, it is not a practical and/or feasible treatment goal for all patients.[9] A biologically valid definition of 'ideal occlusion' would have to include a range of variation in the relevant dental traits that are compatible with facial appearance and unimpaired oral function. However, it is currently impossible to determine the point at which a normal variation in one's bite becomes abnormal or induces pathological function. Some have argued that deviations from 'ideal' occlusion have a causal relationship with dental decay, periodontal disease, temporomandibular joint dysfunction (TMD) and a negative facial appearance.[10] Many dentists have claimed that it is easier to clean straight teeth than 'crooked' teeth. However, experimental data suggest that an individual's willingness and motivation for maintaining oral hygiene has a greater impact on dental disease than how well teeth are aligned. In other words, the effect of variation in tooth alignment on dental disease is less important than the patient's oral hygiene status.[11] A recent systematic review reported that there was no evidence of a beneficial effect of orthodontic treatment on future periodontal health. In addition, routine orthodontic treatment appears to cause mild iatrogenic harm to the periodontium.[12] Although case reports illustrating the negative effects of orthodontic treatment on the periodontium exist in the literature, there are no well-controlled prospective studies regarding the predictability of the periodontal tissue response to any given orthodontic treatment. Some clinicians have posited that minor deviations from 'ideal' occlusion will trigger parafunctional habits such as tooth grinding and clenching. Data suggest that because a large portion of the population has moderate deviation from 'ideal' occlusion (approximately 50–75%) and this number far exceeds the amount of the population with TMD (5–30%, depending on the symptoms examined), it is unlikely that variation in one's bite alone is the cause of hyperactivity of the muscles associated with the temporomandibular joint.[13] On balance, a patient's bite,[14] jaw joint position[15] and orthodontic treatment[16] have not been demonstrated to cause TMD.

It has also been postulated that 'ideal' occlusion has a direct relationship with facial appearance. Edward Angle[8] contended that the most functional arrangement of the teeth produces the most attractive faces. In the absence of an underlying skeletal disproportion or tooth-size/arch-size discrepancy, this hypothesis appears to be valid. However, when there is an anteroposterior (overbite or underbite) or vertical skeletal discrepancy (long face or short face) or excessive tooth mass relative to arch perimeter (large teeth and small arch), the orthodontic tooth movement needed to achieve 'ideal' occlusion has to compensate for that disproportion,[17] which results in tooth expansion beyond the limits of the facial soft tissues and, consequently, a compromised facial appearance (buck teeth).[18]

Nearly three-quarters of a century after the introduction of Angle's concept of 'ideal' occlusion as the sine qua non of oral health and the primary driver of a patient's orthodontic need, a series of investigators endeavoured to test the validity of this untested hypothesis. Over a period of time, the National Institute of Dental Research and the National Research Council of the National Academy of Sciences convened three independent panels of orthodontic experts to examine research related to malocclusion,[19] variation in dental occlusion[20] and handicapping orthodontic conditions.[21] In short, the inferences arrived upon by these panels, respectively, were:

1. A precise and clinically meaningful definition of malocclusion does not exist.
2. Progress towards measuring the effects of variation in dental occlusion is hampered by the lack of a clinically useful definition of occlusion and an adequate means to describe it. In order to correlate variation in occlusion with variation in dental health, it would be necessary to describe, and preferably quantify, variation in occlusion.
3. The degree of handicap to function or appearance that might result from imperfect or abnormal occlusion can only be determined in relation to symptoms, not morphological variation or signs, as is the case with all current indices of handicapping malocclusion and orthodontic treatment need. To date, there has been no further effort to sort out this issue and the medicalised model of selling orthodontic need persists.[22]

THE 21ST CENTURY PARADIGM: ORTHODONTIC NEED IS A FUNCTION OF SELF-CONCEPT AND WELLNESS

The primary aim of therapy in contemporary medicine and dentistry is to treat individuals with known diseases, disabilities or impairments, in the hope of restoring them to a normal state of health and fitness. The primary aim of enhancement in contemporary medicine and dentistry is to change the 'normal' state of the individual's body or mind in the hope of increasing their inherent capacities and physical/social functioning beyond physiologically 'normal'. Enhancement by definition implies a quantitative change, an increase in magnitude or degree. It is very subjective in reference to ethical and moral judgements. From an operational sense, therapy and enhancement are overlapping categorisations. All therapies with successful outcomes by definition are enhancing, even though not all enhancements with successful outcomes are by definition therapeutic. The impediment in trying to separate enhancement from therapy is that they are both inextricably linked to the problem in characterising health and the concept of normality.

Orthodontic conditions represent a continuum of normal biological variation and extend to developmental anomalies. The majority of normal morphological variations in form are consistent with adaptation to permit normal oral function (eg, speech, chewing, swallowing, expressive behaviour). For these patients, who make up approximately 80% of the population,[23] orthodontic enhancement is aimed at improving dentofacial appearance. Patients with developmental anomalies such as clefts of lip and palate, gross asymmetries and skeletal extremes that exceed adaptive capability, approximately 20% of the population,[23] require therapy aimed at altering pathological morphology (outside the range of normal variation) and concomitant enhancement of dentofacial appearance.

A definition of orthodontics that moves beyond the Angle paradigm is 'the specialised branch of dentistry concerned with variations in dentofacial traits which may affect an individual's overall wellbeing. In this definition, a dentofacial trait is defined as a hard or soft tissue characteristic or combination of characteristics, which distinguish an individual's facial appearance and determines their level of oral and social function.'[24] Orthodontic need for the vast majority of patients in this model is not determined by their deviation from 'ideal' occlusion or the severity of their malocclusion relative to tooth alignment indices,[25 26] but rather need is determined by the patient's

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self-perceived level of attractiveness related to their own self-concept.[27] The ultimate goal of orthodontic intervention is thus sold as the attainment of those desired dentofacial traits that the patient perceives to be consistent with a state of complete physical, mental and social wellbeing. In this alternative model, successful orthodontic outcomes are established by the qualitative assessment of the patient's state of wellness and oral health-related quality of life.[28–30] Whereas the assessment of orthodontic outcome in the historical paradigm is derived by the quantitative measure of variance between the patient's post-treatment bite and the 'ideal' occlusion construct of Angle.[31 32] Although many practitioners are currently selling orthodontic need to their patients in the context of this self-concept/wellness model, the quality and quantity of evidence to support this paradigm is also sparse.[33]

PROFESSIONAL ETHICS, PRACTICE MANAGEMENT AND EVIDENCE-BASED CLINICAL PRACTICE

Dentistry's monumental achievement of the 20th century was its departure from its roots in the trades, and its establishment as another learned profession alongside law and medicine. A learned profession has been defined as an occupation requiring a long and specialised course of higher education, and one that is governed by a special code of ethics.[34] The goal of a profession is to serve the public good. The American College of Dentists explains that there are four key features of a profession. They are as follows: '(1) a profession must possess an important and exclusive expertise; (2) a profession must possess an internal and external structure, including a community of experts mutually recognising each other's expertise and institutionalisation of this relationship in a formal organisation; (3) a profession's clients routinely grant its members extensive autonomy in practice of the profession; and (4) membership in a profession implies the acceptance by the member of a set of norms of professional practice or professional obligations.'[35]

A prerequisite for membership in the American Dental Association (ADA) is an individual's voluntary willingness to abide by the ADA Principles of Ethics and Code of Professional Conduct (ADA code).[35] Essentially, it is a 'written expression of the obligations arising from the implied contract between the dental profession and society.'[36] Five fundamental ethical principles make up the foundation of the ADA code: (1) patient autonomy; (2) non-maleficence; (3) beneficence; (4) justice and (5) veracity. In particular, the ADA code states: 'The principle of veracity expresses the concept that professionals have a duty to be honest and trustworthy in their dealings with people. Under this principle, the dentist's primary obligations include respecting the position of trust inherent in the dentist–patient relationship, communicating truthfully and without deception, and maintaining intellectual integrity.'[37] Similarly, the American Association of Orthodontists' Principles of Ethics and Code of Professional Conduct states: 'members shall ensure that their public statements, announcements of services and promotional activities for providing information to aid the public, patients and/or other healthcare providers and in making informed decisions, are not false, deceptive, or misleading in any material respect.'[38]

For the vast majority of patients, orthodontic treatment is elective and cosmetic in nature. With an increase in general dentists and paediatric dentists incorporating orthodontic services in their practices, orthodontists have been compelled to mass market the speciality and in particular their particular expertise in rendering orthodontic treatment.[39] The foundation of the orthodontic speciality has been the Angle paradigm, and orthodontic 'need' has been traditionally sold under the guise of oral health improvement. More recently, with the appearance of the self-concept/wellness paradigm, orthodontic need is alternatively being sold to patients as 'life enhancing' along with other interventions such as proper nutrition, increased physical exercise and plastic surgery. Essentially, the lack of busyness within the orthodontic speciality in recent years has recast the way in which orthodontic need is sold to the public. It would seem that our culture's insatiable quest for aesthetic enhancement provided a captive audience for the orthodontic speciality to solicit an expanded patient base.

From an ethical standpoint, neither paradigm described for the selling of orthodontic need fulfills the five fundamental principles of the ADA code of ethics. In particular, the selling of any professional service to a patient without the mutual acknowledgement of need after informed consent, violates patient autonomy, non-maleficence, beneficence, justice and veracity. It is incumbent upon any dental professional engaging in orthodontics to practise with an ethical framework for engaging the patient in a dialogue about orthodontic need.

The other sea change that has simultaneously occurred in orthodontic practice is the adoption of an evidence-based clinical practice (EBCP) model. EBCP has been discussed in several recent dental and orthodontic publications.[40–43] EBCP is defined as decision-making and problem-solving using a hierarchy of scientific evidence derived from clinical research. The EBCP model determines whether to apply interventions and which specific interventions to apply based on weighing benefits and risks, inconvenience and costs within the context of patient values. The clinical orthodontist in this model must integrate the best scientific information available with his/her clinical experience in order to serve the values and needs of the patient better. As the evidence for both of the paradigms used to characterise and sell orthodontic need is lacking, which model the clinician decides to embrace ultimately is more than likely based on practical experience rather than any hard science.

CONCLUSION

The principal objective for most patients seeking orthodontic services is a detectable improvement in their dentofacial appearance. Orthodontic treatment, in the mind of the patient, is something that makes you look better, feel better about yourself, and perhaps enhances your social possibilities; that is, to find a companion or make a positive impression during a job interview. As the orthodontic speciality chose to take a different view of what constitutes orthodontic need for the patient, it was not unreasonable to see their patient base seek alternative providers of orthodontic services (general dentists and paediatric dentists). It was also not a surprise to see organised orthodontics respond by developing a revised paradigm for characterising and selling orthodontic need. However, it is shameful that both models were driven by practice management requirements rather than ethical principles. What seems on the surface to be an innocent business decision is at core a guilty pleasure driven by the need for more lucre.

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