

Why orthodontists should be aware of the quality of life of their patients

Daniela Feu*

Given the elective nature of orthodontic treatment the decision to start treatment hinges on the opinions of patients and their parents, which means that patients' motivation is often derived from the negative impact of their malocclusion, be it aesthetic, functional or social. Therefore, this patient autonomy plays an important role in predicting the final results since theoretically satisfaction is related to a reduction or utter elimination of the factors that led them to seek treatment in the first place. So how can orthodontists perform treatments capable of benefitting patients psychosocially and be successful in this endeavor without gaining insight into the impact caused by malocclusion?

Faced with this new paradigm, Evidence-Based Dentistry has posed a major challenge to orthodontic practice, namely: To be aware of how orthodontic treatment impacts on patients' daily lives. The reason for this lies in the fact that, to be considered viable, any treatment, including orthodontic treatment, should be capable of bringing significant benefits above and beyond the biological and financial costs to each individual patient.^{3,20,26}

Evidence has been produced to the effect that patients with malocclusions have a poorer quality of life in terms of oral health than do patients with balanced occlusions.^{7,13,23,24,26} No scientific evidence has been found, however, to prove that untreated malocclusions can increase

the risk of developing dental caries,¹ gingivitis and periodontal changes,^{24,25} or even that orthodontic treatment can prevent the development of joint disorders^{16,22} or improve patients' masticatory function.^{10,18} Therefore, the main benefits of orthodontic treatment would be related to improved aesthetics and masticatory function, which would, in turn, result in improvements in the patient's social and psychological well-being, reflected in a better "quality of life."^{3,6,7,8,13,24,25}

The beneficial impact of conventional fixed orthodontic treatment on quality of life, particularly in its psychosocial dimensions, was confirmed recently by a case-control³ study and two longitudinal prospective evaluations.^{6,8} "Oral Health-Related Quality of Life" (OHRQoL) is a multidimensional concept that includes the subjective perception of physical, psychological and social well-being, and an overall sense of subjective well-being. Its essence, according to some authors, reflects an individual's experiences, which would influence their satisfaction with life in all different aspects.^{4,12,13}

To assess patients quality of life, questionnaires, known as "sociodental indicators", are administered. These indicators seek to reveal the perceived impact of oral health problems on quality of life. The patient's report will reveal to a greater extent the consequences arising from oral diseases such as functional and aesthetic changes, since these are ultimately individual experiences.^{4,12,14}

* Specialist and MSc in Orthodontics, Rio de Janeiro State University (UERJ). PhD Student, Department of Orthodontics, Rio de Janeiro State University (UERJ).

The need to evaluate orthodontic patients' quality of life reflects the importance of dental and facial aesthetics in people's lives, and the extent to which they evaluate their own aesthetics. Within a social context of the cult of beauty, a significant presence in Brazil, this type of analysis can not be apart of the diagnosis. This evaluation will seek to primarily evaluate the impact and/or disadvantages that malocclusion and consequential aesthetic, functional and social amendments will generate, since, for the same malocclusion, there will be different psychosocial impacts. This means that the same malocclusion may be perceived differently by people, and that individual perception is probably the key to search for orthodontic treatment, relating to whether or not the severity of malocclusion.¹⁹ Similarly, for these different perceptions, expectations of different results emerge which are not always commensurate with the dimension of the malocclusion, but rather with the extent of the impact it has generated for that particular patient. Consequently, these outcome expectations will vary from individual to individual for the same malocclusion.⁴

In general, questionnaires are divided into "dimensions of impact." That is to say, groups of questions that identify whether a specific dimension, e.g., the patient's masticatory function or social life, is being affected by the problem presented by the patient.¹⁴

Locker¹⁴ was one of the first authors to argue that these indicators should be used in dental offices and clinics to assist professionals in their understanding of the individual needs of each patient, which are usually unknown. Besides providing greater knowledge of each individual patient, the use of these questionnaires in the initial consultation will reflect the type of demand that is generated. The dimensions of impact that are most negatively affected by patients may disclose how society and the professional colleagues, who referred these patients in

the first place, view the treatment performed on these patients. The question is: Which dimension of negative impact has led the patient to seek treatment? Aesthetic? Functional? Psychosocial? This knowledge can help professionals to identify their faults and weaknesses, improve marketing and visibility from other areas of impact and break new ground in clinics and offices.

However, scientific research also produces very interesting data that can greatly help professionals in their day-to-day activities. A study that described the OHRQoL in 250 Chinese adolescents undergoing orthodontic treatment in periods of one week, one month, three months, six months, and after treatment showed that fixed orthodontic treatment improved the subjects' quality of life after treatment completion.⁶ This study also concluded that orthodontic treatment exerts a negative effect on the patients' OHRQoL, as has been observed in other studies.^{8,15,19} In these studies, pain due to treatment was the main causative factor in maintaining the negative impact on quality of life experienced by patients while undergoing treatment. In fact, the "physical pain" dimension was predominant and increased significantly during orthodontic treatment.^{6,8} Chen et al⁶ noted an even more negative impact in the first week of treatment.

According to these authors, the negative impact of the first week is significantly worse than what prompted the patient to seek orthodontic treatment in the first place, and it only goes back to normal three months into treatment.⁶ During this period, the patient should be clearly focused on the likely effects of the first treatment phase in order to avert a breach of trust. In fact, Pringle et al²¹ reported that in their sample, 91% of the orthodontic patients experienced episodes of pain. Pain was described as the worst aspect of treatment and as the key reason to want to discontinue orthodontic treatment.^{17,21} In the patients' view, the major relationship problem

was a lack of feedback from the orthodontist during the first phase of treatment and in episodes of acute pain caused directly by the appliance. It should be borne in mind that during periods of pain patients' quality of life is significantly undermined and, therefore, clinicians are expected to provide immediate assistance.

After setting up the orthodontic appliance, some authors recommend that a phone call be scheduled for the following day, and report that thanks to this call significant results were achieved in reducing the patients' pain perception.^{2,17} Bartlett et al² also observed that the contents of the phone call made no difference in the positive impact it generated on these patients. These studies did not address the quality of life of treated individuals, but rather their perception of pain and, considering the negative results observed in the first week of treatment, actions that can improve patients' quality of life should be employed.

As regards patient compliance with the treatment, assessment of quality of life can also help professionals better understand the patient before proposing and initiating any treatment modality. Chew and Aw⁵ observed that, in adolescents, the impact of a poor aesthetic condition is significantly worse for the parents. Often, it is precisely this impact on the parents that leads them to seek treatment for their children. Professionals should try to identify whether or not the children, who are ultimately the patients, are also negatively affected by their malocclusion. To this end, it is recommended that sociodental

questionnaires be administered separately to parents and adolescents so as to correctly identify their complaints. A negative impact on quality of life of adolescents does not necessarily mean that they will be more cooperative during treatment.¹⁵ However, being aware of their perception and whether in fact there are negative impacts can certainly assist professionals to properly individualize and adapt their treatment plan.

Knowledge of the impact of teenagers' oral conditions on their quality of life has several positive implications,^{7,15} as it reveals their perceptions about their own oral health and appearance, thereby providing better communication between patient, parents and orthodontist.^{9,11} As orthodontists gain insight into the consequences and importance of the adolescents' oral conditions in their daily life as well as in the lives of their parents, quality individualized treatment can be rendered to patients and their family alike.¹¹

Therefore, assessing quality of life as it relates to patients' oral health before and after treatment makes it possible to significantly improve the dentist-patient relationship and, especially, to achieve more successful treatment results. Obviously, searching for a patient's "chief complaint" demonstrates concern for the negative impact generated by their malocclusion, and this has been accomplished by orthodontists and other dental specialists for years. But nowadays, in light of the new tools designed specifically to measure these impacts, is that enough?

REFERENCES

1. Alves PV, Alviano WS, Bolognese AM, Nojima LI. Treatment protocol to control *Streptococcus mutans* level in an orthodontic patient with high caries risk. *Am J Orthod Dentofacial Orthop.* 2008 Jan;133(1):91-4.
2. Bartlett BW, Firestone AR, Vig KW, Beck FM, Marucha PT. The influence of a structured telephone call on orthodontic pain and anxiety. *Am J Orthod Dentofacial Orthop.* 2005 Oct;128(4):435-41.
3. Bernabé E, Sheiham A, Tsakos G, Messias de Oliveira C. The impact of orthodontic treatment on the quality of life in adolescents: a case-control study. *Eur J Orthod.* 2008 Oct;30(5):515-20.
4. Bowling A. *Measuring health: a review of quality of life measurement scales.* 3rd ed. Buckingham: Open University Press; 2005.
5. Chew MT, Aw AK. Appropriateness of orthodontic referrals: self-perceived and normative treatment needs of patients referred for orthodontic consultation. *Community Dent Oral Epidemiol.* 2002 Dec;30(6):449-54.
6. Chen M, Wang DW, Wu LP. Fixed orthodontic appliance therapy and its impact on oral health-related quality of life in chinese patients. *Angle Orthod.* 2010 Jan;80(1):49-53.
7. Feu D, Oliveira BH, Oliveira Almeida MA, Kiyak HA, Miguel JA. Oral health-related quality of life and orthodontic treatment seeking. *Am J Orthod Dentofacial Orthop.* 2010 Aug;138(2):152-9.
8. Feu D, Oliveira BH, Miguel JA. Avaliação prospectiva longitudinal da qualidade de vida de adolescentes submetidos a tratamento ortodôntico. *Braz Oral Res.* 2009;23:319.
9. Holt RD. Advances in dental public health. *Prim Dent Care.* 2001; 8(1):99-102.
10. Karakay S. Dynamic MRI evaluation of tongue posture and deglutitive movements in a surgically corrected open bite. *Angle Orthod.* 2006 Nov;76(6):1057-65.
11. Kiyak AH, Bell R. Psychosocial considerations in surgery and orthodontics. In: Proffit WR, White RP, editors. *Surgical-orthodontic treatment.* St. Louis: Mosby; 1991. p. 421-37.
12. Klages U, Bruckner A, Guld Y, Zentner A. Dental esthetics, orthodontic treatment, and oral-health attitudes in young adults. *Am J Orthod Dentofacial Orthop.* 2005 Oct;128(4):442-9.
13. Liu Z, McGrath C, Hägg U. The impact of malocclusion/orthodontic treatment need on the quality of life: a systematic review. *Angle Orthod.* 2009 May;79(3):585-91.
14. Locker D. Concepts of oral health, disease and the quality of life. In: Slade GD, editor. *Measuring oral health and quality of life.* North Carolina: University of North Carolina; 1997.
15. Mandall NA, Matthew S, Fox D, Wright J, Conboy FM, O'Brien KD. Prediction of compliance and completion of orthodontic treatment: are quality of life measures important? *Eur J Orthod.* 2008 Feb;30(1):40-5.
16. McNamara JA Jr, Seligman DA, Okeson JP. Occlusion, orthodontic treatment and temporomandibular disorders: a review. *J Orofac Pain.* 1995 Winter;9(1):73-90.
17. Murray AM. Discontinuation of orthodontic treatment: a study of the contributing factors. *Br J Orthod.* 1989 Feb;16(1):1-7.
18. Nakata Y, Ueda HM, Kato M, Tabe H, Shikata-Wakisaka N, Matsumoto E et al. Changes in stomatognathic function induced by orthognathic surgery in patients with mandibular prognatism. *J Oral Maxillofac Surg.* 2007 Mar;65(3):444-51.
19. Oliveira CM, Sheiham A. Orthodontic treatment and its impact in oral health-related quality of life in Brazilian adolescents. *J Orthod.* 2004 Mar;31(1):20-7.
20. Petersen PE. Global policy for improvement of oral health in the 21st century – implications to oral health research of World Health Assembly 2007, World Health Organization. *Community Dent Oral Epidemiol.* 2009 Feb;37(1):1-8.
21. Pringle AM, Petrie A, Cunningham SJ, McKnight M. Prospective randomized clinical trial to compare pain levels associated with 2 orthodontic fixed bracket systems. *Am J Orthod Dentofacial Orthop.* 2009 Aug;136(2):160-7.
22. Rinchuse DJ, McMinn JT. Summary of evidence-based systematic reviews of temporomandibular disorders. *Am J Orthod Dentofacial Orthop.* 2006 Dec;130(6):715-20.
23. Rivera SM, Hatch JP, Rugh JD. Psychosocial factors associated with orthodontic and orthognathic surgical treatment. *Semin Orthod.* 2000 Dec;6(4):259-69.
24. Sandy J, Roberts-Harry D. *A clinical guideline to orthodontics.* London: British Dental Association; 2003.
25. Shaw WC, Richmond S, O'Brien KD, Brook P, Stephens CD. Quality control in orthodontics: treatment need and treatment standards. *Br Dent J.* 1991 Feb 9;170(3):107-12.
26. Sheiham A, Tsakos G. Oral health needs assessments. In: Pine C, Harris R, editors. *Community Oral Health.* New Malden: Quintessence; 2007. p. 59-79.

Contact address
 Daniela Feu
 E-mail: danifeutz@yahoo.com.br