Compliance and satisfaction in the orthodontic patient

SADJ September 2012, Vol 67 no 8 p452 - p456

WR Nel[1], SM Dawjee[2]

"The Journal recognises the celebration of the Department of Orthodontics, University of Pretoria… a fiftieth birthday this year! Over the years so many developments, so many achievements, so wonderful a service to the profession and, importantly, to the country. This paper is part of those celebrations! Every congratulation!" - Editor

INTRODUCTION

It behoves an orthodontist to regard patients seeking treatment for malocclusion as valued customers who should remain satisfied clients. However, without patient cooperation, few medical or dental therapies, including orthodontics, will achieve optimum results.

It has been shown that a desire for orthodontic treatment, together with a sound understanding by the patient of the nature of the malocclusion, auger well for future compliance.[1] Hence, compliance does not remain the sole responsibility of the patient. Rather, orthodontists need to inform and instruct their patients to such a level as to ensure their full commitment. It is of concern that patients show a very low recall rate with regard to any risks associated with orthodontic treatment. Lack of communication between the orthodontist and the patient and insufficient information about orthodontics can lead to premature termination of the treatment. Orthodontists should therefore look at the way they educate patients, ensuring that full comprehension has been achieved. Measuring treatment satisfaction is a complex task. Patient satisfaction is higher when visible treatment outcome goals are met and when their expectancy with regard to psychosocial benefits is lower.

The key to success is to discover the actions that will produce the most positive response from the patient. Orthodontists should strive to achieve the correct bite and an excellent smile, but they have not been truly successful if their patients have not also benefitted psychosocially. Orthodontists should recognise and respond to these needs, for as caring professionals they may be the patient's only source of positive reinforcement.

1. **WR Nel:** *BChD, Dip.Odont(Perio), PDD(Ortho) MChD(Ortho).* Department of Orthodontics, University of Pretoria, South Africa.
2. **SM Dawjee:** *BChD, BChDHons, MSc(Odont), MDent(Ortho), PGDiplRE, PhD.* Head: Department of Orthodontics, University of Pretoria, South Africa.

Corresponding author

WR Nel:
Department of Orthodontics, University of Pretoria. P O Box 1266, Pretoria, 0001. Tel: 012 319 2510, Cell: 072 820 8656, Fax: 012 328 6697
E-mail: wnel@orthodontist.co.za.

Reasons for children being teased

Shaw *et al* (1980) found that the appearance of a child's teeth is a common stimulus for teasing.[2]

Malocclusions in the anterior region are the most conspicuous and invoke the child's greatest concerns.[3,4,5] Helm and colleagues (1985) reported that overjet, extreme deep bite and crowding are associated with the most unfavourable self-perceptions of teeth.[3] Shaw (1980) found that an overjet of 7mm or more, anterior crowding and deep bite are directly associated with the intensity of teasing of a child.[2] Overjet has also been identified as being the most significant predictor of the decision to seek orthodontic correction, especially in children referred for treatment by their parents.[6]

Informed consent

Researchers have suggested that a document intended to be read and understood by most adults should be written at the level of the sixth-grade or lower. Adults whose reading ability is below the fourth-grade level might not benefit from any written material, no matter how simple it is. They may benefit from a comic-book approach, which uses colour graphics. It has also been shown that supplementing written materials with verbal instructions increases patient understanding and compliance; this approach is also preferred by the patients themselves, over written or verbal information alone.[7] Thomson *et al* (2001), suggest supplementing verbal information with written and visual materials.[8] .

OBJECTIVES AND HYPOTHESIS

Objective

The purpose of this study is to determine whether a well-informed patient who has been actively part of the decision-making process to accept orthodontic treatment is more co-operative and compliant.

The hypothesis

The null-hypothesis of this investigation states that there is no difference in patient compliance or satisfaction between orthodontic patients.

Table 1: `Patient and Parent responses, concordance and most and least common responses (%) (Mean of 256 patients)

Question	Agreement patient/parent (%)	Most common answer (%)	Least common answer (%)
Have you considered a second opinion for your orthodontic treatment?	93.1	98.3 = No	6.2 = Yes
If yes, what was your reason: a. Money b. Time c. Lack of confidence in the orthodontist d. Location e. Other: Please specify	96.5 98.8 96.9		 0.4 = Lack of confidence in orthodontist
Do you feel that the time spent on explaining of treatment was: a. Enough b. Too short c. Too much	87.2	91.1 = Enough	 4.2 = Too much
Why did you come to this practice? a. My friends come here b. Referred by my dentist c. Saw the orthodontist sign from outside d. Newspaper advertisement e. Internet f. Other: Please specify	 88.5 82.03 96.5 99.2 99.6	 63,7 = Referred by their dentist	 2.7 = Orthodontist sign outside
Why did you decide to have orthodontic treatment? a. My friends had braces and I also wanted braces b. My looks bother me c. I couldn't chew properly d. I have joint problems e. Other: Please specify	93.8 77.3 93.4 91.1	 44.9 = His/her looks bothered him/her	 4.3 = His/her friends had braces
Do you understand what the orthodontist is busy doing with your teeth?	93.9	97 = Yes	6.3 = No
Do you know what to expect from your treatment?	92.0	91.7 = Yes	8.3 = No
If yes, how were you informed of the procedures? a. My friends told me b. The oral hygienist told me c. The orthodontist told me d. I received a written letter e. Other: Please specify	 91.5 81.6 73.4 85.1	 71.8 = The orthodontist told me	 8.9 = My friends told me
Do you regret your decision to wear braces?	90.6	91.9 = No	8.1 = Yes
With regard to the discomfort of wearing braces: a. Is it as bad as you expected? b. Less than expected? c. Not as bad as your friends told you? d. More than your friends told you? e. Your friends said nothing f. Other: Please specify	47.6	44 = Less than expected	 4.2 = Friends said nothing
Do you look forward to the braces coming off so that: a. You can eat hard food again b. You don't have to clean so meticulously any more c. You don't have to pay the orthodontist so many visits d. You can't wait to look beautiful	 79.7 86.3 92.2 73.1	 54 = I can't wait to look beautiful	 7.4=Orthodontist appointments
Do you feel that your treatment was a success thus far?	95.5	97 = Yes	3 = No
Were you part of the decision making process with respect to the type of your orthodontic treatment?	73.3	70.1 = Yes	29.9 = No
Did your orthodontist give you options for treatment?	76.2	61.3 = Yes	38.7 = No
Who made the final decision for you to undergo orthodontic treatment? a. Don't know b. Myself c. Parents or Guardian	 67.8	 71.9= Parent or Guardian	 3.7 = Don't know
Were you aware of any penalty system when you did not clean your teeth properly or forgot to wear e.g. your elastics?	72.9	59.6 = Yes	40.4 = No
Do you know how to properly keep your braces clean?	94.7	94.9 = Yes	5.1 = No

MATERIALS AND METHODS

Following ethical approval from the University Ethics Committee, orthodontists and their patients were invited to participate in this study by a formal letter in which the format, purpose and procedures were explained. Only those who volunteered were included in the sample. The study sample included 13 orthodontic practices in Gauteng together with up to 20 patients from each practice

This was a quantitative exploratory study consisting of a questionnaire for completion by orthodontic patients who were attending the practices and by their parents.

Patients included in the study had to have received orthodontic treatment for at least three months. The average length of time that patients had been in treatment was eight months. The age of patients questioned ranged between 13 to 18 years. Patients were handed the questionnaires after an appointment with the orthodontist and answered the questions without the assistance of their parents, who also completed the same questionnaire independently. The estimated time for completion of the questionnaire (Table 1) was five minutes as determined from a pilot of this study. In each practice, four patients a day were surveyed, the sample being collected over five days.

Considerable effort was applied from the outset to ensure that the questionnaire was pertinent and understandable to the target population in order to maximize response rates. Previous studies have shown that subjects are more likely to respond to questionnaires covering issues that are relevant to them.[3,7]

Ethical considerations

Ethical approval for this study was secured from the University Ethics Committee and confidentiality was respected for both the orthodontist and the patient. In order to protect the patient and parent and to obtain accurate and honest information a sealable unmarked envelope was provided with the questionnaire. Practitioner anonymity was maintained by the orthodontists each providing a four digit security code of their choice which was reflected on the questionnaire. This four digit code was supplied by the orthodontist to the patients and parents filling in the questionnaire. On completion, the questionnaires were placed in the envelope.

Only the four digit security code appeared on the outside of the sealed envelopes containing the completed questionnaires which were collected from the respective practices.

Data analysis

A descriptive analysis was used to describe the distribution and range of responses to each variable and to examine the data for skewness. Data was recoded into categories where appropriate, for example, ages into age ranges, to enable statistically meaningful comparison of sub-groups. Whilst these data would yield to an in-depth statistical analysis, this paper reports on the percentage of agreement between parent and patient and investigates the frequency of such responses. Provision was made for the clustering effect of patients within practises by means of In Data Analysis software.

RESULTS

A total of 256 patients and 256 parents/guardians from 13 orthodontic practices completed questionnaires.

Table 1 reflects the extent of agreement between parent and patient, with a range extending from 47.6% (regarding the level of discomfort experienced) to 99.6% (concordance on having gathered information on orthodontics through the internet). On average there was an 87.3% agreement between the responses of parent and patient.

It was evident that there was relatively poor agreement on how the decision to proceed with treatment had been reached, with only 73.3% concord on whether the patient had been part of the decision making process, dropping to 67.8% agreement as to whether the final decision had been by accord between parent and patient.

When the patient responses were isolated and considered apart from parental replies, it was evident that patients did hold their own views quite independent of parental influence. Some of the more pertinent expressions of opinion are listed below:

- 45% (115/256) of patients had an aesthetic reason for seeking orthodontic treatment.
- 24% (59/254) of children felt they had themselves made the final decision to undergo treatment.
- 94% (225/240) of children claimed that they understood their treatment.
- 97% (228/235) of children felt that treatment was a success thus far.
- 8% (20/242) of children see orthodontic treatment as punishment.
- 8% (19/236) of children regret their decision to wear braces.
- Children did not feel part of the decision making process nor of the final decision. 72% of children did not make their own final decision. Patients who had a decision taken for them and who do not understand their orthodontic treatment are more discontented with treatment than those who do understand (Tables 2 and 3).

DISCUSSION

In seeking to secure the best cooperation and commitment, the orthodontist should recognise the importance of bringing patient and parent to commit to the treatment. This study evaluated the extent of agreement between patient and parent on issues central to the success of treatment. Of particular relevance may be the indication that patients in many cases have the impression that they have been excluded from the treatment decision and that this has been taken at the level of the orthodontist and parent. At the same time there is evidence that it is the patient who is more informed

Table 2: Comprehension of treatment vs. discontentment

	Patients who understand orthodontic treatment	Patients not understanding orthodontic treatment
% Patients discontented with treatment	2.3%	15.4%

Table 3: Patient participation vs. discontentment

	Patients participating in decision making process	Non-participating patients with regards to decision making
% Patients discontented with treatment	0.61%	8.45%

about the treatment process and prognosis, and it is the patient who has had some say in accepting or declining treatment who will be the more committed and more content. Therefore the results are more likely to be pleasing to the completely committed patient. Patients who do not understand their orthodontic treatment are more discontented with treatment than those who do understand. When children are participating in the decision-making process with regards to orthodontic treatment they are less dissatisfied than the non-participating group.

On the other end of the scale some eight percent of the patients regretted embarking on orthodontics and indeed saw it as a form of punishment. Cooperation in these instances will be extremely poor, compounding the difficulties of treatment. Both orthodontist and parent should be most alert to these recalcitrant patients and in identified cases should review any decision to treat.

There is disagreement between parents and patients in terms of explanation of treatment, treatment expectation, oral hygiene and success of treatment. This indicates a lack of parent to child communication. Parents should be made aware of these points of miscommunication and be informed of what is important to their children.

It is nevertheless on the orthodontist that the responsibility of ensuring adequate communication lies, and it is the orthodontist who must in the first instance recognise the patient for whom orthodontics will be an unbearable burden. Only 72% of patients considered they had been informed by the orthodontist as to what to expect, although a high 94% reported they understood their treatment. Perhaps orthodontists are fortunate that patients do have access to other sources of information, but there is a note of warning in these data for the specialist who risks poor cooperation when the patient does not have a comprehensive understanding of the process. Enhanced cooperation will be gained simply by involving the patient in the course of treatment.

In order to communicate, to satisfy and to comply with our "customers" needs, a 12 point "Formula for Success" is suggested:

1. Listen to your patient's **main complaint**, pay attention to what the patient says.[9,10]
2. Make the patient want **what he/she needs**.
3. **Compliance** is not always the **sole responsibility** of the patient.[11]
4. Use **effective communication methods**.[1,9]
5. **Different stages of emotional development** warrant different communication techniques.[11]
6. **Inform and educate** your patients using various media, e.g. Booklets, Oral Hygiene demo's, Videos and observational learning. A well-informed patient is a happy patient.[9]
7. Create an **office environment** that fits within your personal comfort zone.[1]
8. It is imperative to take cognisance of **psychology** which is concerned with studying behaviour, predicting behaviour and may help some individuals change their behaviour.[9,12,13,14]
9. Deal with the **teenagers' reality**; the teenager might experience life in a different manner.[9]
10. Measuring orthodontic treatment satisfaction and prediction of stability and reliability of the orthodontic patient can easily be done by incorporating your own **cooperation** scale into your new patient questionnaire.[12,16,17]
11. **Recognise that assessment** of compliance has a large component of subjective evaluation.[18]
12. **"Tame the Pain":** Keep the patient's discomfort as low as possible using for example low forces, pain killers, topical anaesthetics etc.[19]

CONCLUSION

In reality we deal with the emotions of patients and parents. The null hypothesis of this investigation stated that there is no difference in patient compliance and satisfaction between orthodontic patients. The findings confirm that there is indeed a difference in satisfaction between orthodontic patients and therefore the null hypothesis is not supported.

A weakness recognised in this study is that assessment of compliance has a large component of subjective evaluation.

The results indicated that patients who understand their orthodontic treatment and are actively part of the decision-making process in orthodontic treatment are much more satisfied patients.

Declaration: No conflict of interest declared.

References

1. Mayerson M, Wick Alexander RG, Moody Alexander C, *et al*. Management & marketing: Creating the compliant patient. J Clin Orthod 1996;30(9):493-7.
2. Shaw WC, Meek SC, Jones DS. Nicknames, teasing, harassment and the salience of dental features among school children. Br J Orthod 1980;7(2):75-80.
3. Tedesco LA, Albino JE, Cunat JJ, Green LJ, Lewis EA, Slakter MJ. A dento-facial attractiveness scale. Part I. Reliability and validity. Am J Orthod 1983;83(1):38-43.
4. Tung AW, Kiyak HA. Psychological influences on the timing of orthodontic treatment. Am J Orthod Dentofac Orthop 1998;113(1):29-39.
5. Mortensen MG, Kiyak HA, Omnell L. Patient and parent understanding of informed consent in orthodontics. Am J Orthod Dentofac Orthop 2003;124(5):541-50.
6. Thomson AM, Cunningham SJ, Hunt NP. A comparison of information retention at an initial orthodontic consultation. Eur J Orthod 2001;23(2):169-78.
7. Sinha PK, Nanda RS, McNeil DW. Perceived orthodontist behaviors that predict patient satisfaction, orthodontist-patient relationship, and patient adherence in orthodontic treatment. Am J Orthod Dentofac Orthop 1996;110(4):370-7.
8. Klages U, Sergl HG, Burucker I. Relations between verbal behavior of the orthodontist and communicative cooperation of the patient in regular orthodontic visits. Am J Orthod Dentofac Orthop 1992;102:265-369.
9. Donovan JL, Blake DR. Patient non-compliance: deviance or reasoned decision-making? Soc Sci Med 1992;34:507-13.
10. Allan TK, Hodgson EW. The use of personality measurements as a determinant of patient cooperation in an orthodontic practice. Am J Orthod. 1968;54(6):433-40.
11. Baghdadi ZD. Principles and application of learning theory in child patient management. Quintessence Int 2001;32:13541.
12. White LW. Behavior modification of orthodontic patients. J Clin Orthod 1974;8(9):501-5.
13. Cucalon A, Third, Smith RJ. Relationship between compliance by adolescent orthodontic patients and performance on psychological tests. Angle Orthod 1990;60(2):107-14.
14. Cassinelli AG, Firestone AR, Beck FM, *et al*. Factors associated with orthodontists' assessment of difficulty. Am J Orthod Dentofac Orthop 2003;123:497-502.
15. Sinclair PM. The reader's corner. J Clin Orthod 1989;23:795-7.
16. Clemmer EJ, Hayes EW. Patient cooperation in wearing orthodontic headgear. Am J Orthod 1979;75:517-24.
17. Mayerson M, White LW. Management & Marketing: A new paradigm of motivation. J Clin Orthod 1996;30(6):337-41.