Improving Patient Compliance in Orthodontic Practice

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Patient noncompliance is a limiting factor in the conversion of accurate orthodontic treatment plans to excellent treatment results. Patient compliance depends on the duration, frequency, and complexity of the required behaviors. Because orthodontic treatment generally extends over a period of 12 to 36 months, compliance levels have to be sustained over this period of time. Past research has focused on the prediction of patient compliance. The results of these studies have largely been inconclusive and inconsistent. One reason for the inability of practitioners to clinically apply these results is related to the largely demographic nature of the variables assessed. In most instances these demographic factors cannot be modified. The orthodontist’s focus should be on prevention and management rather than prediction of the noncompliance problem. This article presents a proposal for improving and managing patient compliance based on a patient-centered approach. In this model, the practitioner would prescribe treatment plans based on individual patient expectations, priorities, and capabilities. In addition, the significance of the doctor/patient/parent relationship in this model is emphasized. (Semin Orthod 2000;6:237-241.)

Factors Influencing Orthodontic Patient Compliance

During the initial treatment stages, the parent’s positive attitudes toward orthodontic treatment predict patient compliance. In the later stages, the patient’s own cognition regarding treatment directly correlates with compliance levels. Those patients who believe that their actions directly lead to superior treatment results are better compliers compared with those who believe that they do not have control over treatment outcomes.

Many variables have been correlated with orthodontic patient compliance. These variables have ranged from different demographic factors to those related to personality type and desire for treatment. The parent’s previous orthodontic experience can be a positive influence on patient compliance. Also, when financial implications for noncompliance are presented during orthodontic treatment, parental influence on their child’s performance may increase. In addition to patient and parent variables, studies have shown strong associations of the doctor-patient relationship.
relationship with patient satisfaction and compliance.\textsuperscript{6,7}

Despite correlation of variables found in studies that have attempted to predict patient compliance by demographic factors or patient characteristics, studies evaluating the variables that correlate with and predict orthodontic patient compliance have largely been inconclusive or inconsistent. Also, results of these studies vary among each other and have been shown to be contradictory. Therefore, efforts at developing a profile of a compliant patient have not been successful. The thrust has often been on areas and variables that even if known cannot be influenced. For example, it would be difficult to change the gender or socioeconomic status of the patient. Instead of prediction, the emphasis should be on prevention or improvement of the noncompliance. The purpose of this article is to describe different prevention and improvement concepts that can positively affect orthodontic patient compliance.

A shift from a practitioner-centered model of patient care to a patient-centered approach is emphasized. The areas of discussion include (1) patient-centered care versus practitioner-centered care, (2) patient’s causal attributions, (3) patient support at home and at the orthodontic office, (4) rewarding compliant behavior, and (5) doctor-patient rapport and communication.

\textbf{Patient-Centered Care Versus Practitioner Centered Care}

Traditionally, orthodontic treatment has been prescribed by the practitioner based on defined professional standards without considering the priorities and capabilities of the patient. Patients who fail to follow prescribed instruction are labeled as “noncompliant.” This is often done without considering the fact that the treatment prescribed may not have taken into account the capabilities, motivations, and expectations of each individual patient. Hence, patients have had to bear the burden and the outcome of noncompliance rather than considering the inability of the practitioner to understand individual patient needs and to make appropriate treatment plans. A patient-centered approach would place some of the responsibility of successful patient compliance on the practitioner. In this model, the practitioner would prescribe treatment plans based on individual patient expectations, priorities, and capabilities.\textsuperscript{8}

Repeated treatment progress re-evaluations and patient/parent consultations are a key component of success in this proposed model. In the orthodontic treatment realm, key issues that relate to this concept fall within the following: (1) patient education and (2) patient empowerment and contracting procedures.

\textbf{Patient Education}

Patient management may be greatly enhanced when patients understand the nature of their condition and the proposed treatment plan or procedure to be performed.\textsuperscript{9,10}

Educating the patient regarding his or her malocclusion and the means to achieve an acceptable result is very important to success in motivating the patient to succeed. Often treatment is prescribed for patients who have limited or no understanding of their orthodontic problem and why some aspects of treatment mechanics are necessary for successful outcomes. At the same time, parents may not be clear about treatment goals and mechanics. In addition, the parents’ ability to explain details of the condition and the necessity for different appliances to their children may also be limited. The result is a patient who is less likely to achieve a successful treatment outcome.

A strong effort to educate patients regarding their condition will allow them to make informed choices regarding appliance selection and the limitations of their selection. As treatment progresses, the education component needs to be revisited to ensure their complete understanding. This will result in individuals who take greater responsibility for their actions during orthodontic treatment.

Various demonstration tools are available to aid in the education process. Good standard patient records such as study casts and photographs can be used to describe the problem. A presentation customized for the patient by different commercially available computer software programs is an excellent method for explaining mechanics and appliances. The use of demonstration models and appliances are important for the patient to completely understand different appliances. In addition, the practitioner can
prepare a database of examples that can be digitally stored and used for these presentations.

**Patient Empowerment and Contracting Procedures**

Educating patients regarding their condition gives them the tools to make informed decisions. The individual feels involved in the process of selecting what is most suited for the necessary change. Sometimes the patient's decision conflicts with their best interests and also goes against the wishes of the parents regarding possible outcomes. In these situations, flexible treatment strategies need to be devised in order to succeed. A compromise treatment plan may offer the best solution in some instances. In other situations, a suggestion to postpone treatment or the decision to withdraw from seeking treatment may solve the conflict. Most often, alternatives are available and should be offered following an understanding of the limitations of different approaches.

Once a decision has been reached using this process, the patient is empowered and selects a treatment option from choices offered. This process obligates the patient to comply with a previously reached agreement. A contract made with each individual patient has been shown to be successful in improving compliance in different areas of orthodontic care.11,12

**Patient's Causal Attributions**

Patients attribute events in their lives to external and internal causes. External causes are outside of their control (external locus of control), versus internal, which are within their control (internal locus of control). The relationship of the locus of control to orthodontic patient compliance has been reported in the literature.3,4 El-Mangoury found that orthodontic patients who attributed outcomes to internal causes were significantly more cooperative.4 Albino et al also found that those patients who attributed responsibility for their orthodontic condition and treatment externally to either chance or their orthodontists showed lower levels of compliance scores compared with others.5 Therefore, patients who attribute internally are better compliers compared with those who attribute externally. Those patients who make fewer external attributions possess a sense of responsibility and consequences consequently believe that their participation and cooperation facilitates treatment progress. These findings can be used clinically to improve patient compliance by initially developing strong relationships and a high level of communication with patients. Good rapport along with patient education can empower patients to make informed decisions regarding their role in determining the success of treatment.

**Patient Support at Home and at the Orthodontic Office**

Family support for the patient to follow prescribed instructions is necessary for successful implementation of this program. Also, continuous encouragement and feedback from the orthodontic office is significant in creating a supportive environment which is important for the patient. Patients are often required to wear cumbersome appliances that are difficult to use. If a difficult task is suddenly introduced requiring substantial effort from the patient, a noncompliance problem is created. An example is of patients who have to use the reverse face mask headgear used for Class III skeletal growth modification. The headgear appears as a complicated device to the patient. This appliance has to be worn for a long period of time for successful correction. Often a rapid palatal expander is used in combination with this appliance. The patients should be started with the expansion device for 2 weeks followed by introducing the headgear gradually. The initial wear may be for 1 or 2 hours and progress to 4 hours in 3 to 4 weeks. The wear should progress to 12 to 14 hours of wear as dictated by the treatment plan. This method of gradually introducing tasks to patients may help them in their adaptation to newer difficult tasks.

Methods of feedback to the patients can range from completing report cards, rewarding them for compliant behavior, verbal praise, to regular patient/parent consultations. In addition, charted notations, which are highly visible to patients, can also affect compliance.13 A survey conducted to evaluate various factors that influence orthodontic patient compliance showed the practicing orthodontists felt that verbal praise and patient education were the most
important methods of improving patient compliance. Doctor/patient rapport and communication are key ingredients in the development of this support.

**Rewarding Compliant Behavior**

Improving patient compliance in day-to-day practice is very challenging and often a complex problem. Behavior modification by way of a reward program can be effective in improving patient compliance to prescribed instructions. In the orthodontic literature, recommendations of establishing a reward program to motivate patients and improve patient compliance have been cited. A study carried out at the University of Oklahoma revealed the following findings regarding the use of awards as a motivating tool:

1. The award/reward program resulted in improvement in patient compliance scores in below average compliers as reflected in the improvement of oral hygiene scores.
2. Above average compliers remained above average throughout the length of the study. Below average compliers improved with rewards, however, they never reached the compliance levels achieved by the above average compliers.

It was concluded that rewards can be a means of positive feedback for patients in the orthodontic treatment of malocclusions.

**Doctor/Patient Rapport and Communication**

The successful practice of orthodontics is significantly dependent on the interaction between the orthodontist and patient. Therefore, it is important to improve this relationship for superior treatment outcomes, patient satisfaction, and doctor satisfaction. In the busy orthodontic practice, it is often difficult to establish a close rapport with the patient. Better doctor/patient communication can result in increased and more accurate transfer of information, thus improving the quality of care.

Doctor/patient relationships in orthodontics can positively influence treatment outcomes by encouraging the patient to cooperate in following prescribed procedures as has been shown by different studies (Fig 1). The patient’s perception that the orthodontist paid attention and took seriously what the patient had to say is significantly related to superior doctor/patient relationships. Making the patient feel welcome is also a significant factor in establishing this rapport.

Attention to the behavioral issues can greatly enhance the rapport and can result in superior patient experiences and treatment results (Fig 1). Improving doctor/patient/parent communication is an important factor in improving patient compliance as reported by practicing orthodontists.

**Clinical Management and Summary**

Patient compliance depends on the duration, frequency, and complexity of the required be-

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**Figure 1.** The interrelationship between rapport, satisfaction, compliance, and superior treatment outcomes in orthodontic treatment.
haviors. Because orthodontic treatment generally extends over a period of 12 to 36 months, compliance levels have to be sustained over this period of time. This factor increases further demand on patient compliance. Also, more complex required behaviors (ie, those involving wearing appliances) may be difficult to maintain over a long period of time. Therefore, it may be necessary to separate different compliance areas and address these individually with patients for success in dealing with noncompliance issues.

Past research has focused on the prediction of patient compliance. The results of these studies have largely been inconclusive or have not been consistent. One reason for the inability of practitioners to clinically apply these results is related to the largely demographic nature of the variables assessed. In most instances these demographic factors cannot be modified. The orthodontist’s focus should be on prevention and management rather than prediction of the noncompliance problem. The optimal solution is preventing the problem altogether. The first step toward prevention would be patient empowerment with the necessary education of their orthodontic problem, treatment options, required behaviors for the different options, and the limitations of each approach. The next step would involve an agreement between the orthodontist, patient, and parent regarding the treatment plan to be used. A clear understanding regarding the potential for success and the limitations of the selected approach is necessary. In situations in which the orthodontist and the patient do not agree regarding desired treatment goals and required behaviors, a clear understanding of the limitations should be presented and documented before initiating treatment. The doctor/patient/parent rapport is critical in establishing a win-win situation which will lead to a favorable environment (Fig 1). In this way, patients feel that they have participated in the treatment decisions and would be responsible for the achievement of commonly accepted goals.

A supportive environment at home as well as in the clinic would help patients with compliance on required behaviors. Further, it is important to provide feedback and reinforce success in performing required tasks. An award program or a report card system could be very effective in providing feedback and reinforcement. In addition, repeated reevaluations and consultations may further clarify goals, roles, and responsibilities for success.

References
5. Sinha PK. Unpublished data.