

Psychological Evaluation of Patients Scheduled For Orthognathic Surgery

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Abstract

Using a questionnaire, 41 patients scheduled for orthognathic surgery were evaluated pre- and postoperatively to determine some of their psychological characteristics and treatment outcome from the patient's standpoint. Among other conclusions, the results showed that some patients may not fully understand the details of their deformity, despite a full explanation by the orthodontist and surgeon. Expectations regarding treatment outcome may be unrealistic even in patients with valid self-motivation for surgery. Social adjustment usually improves after treatment. Functional changes were noticed by over 80% of the patients and esthetic changes in over 90%.

Introduction

It is generally agreed that planning for orthognathic surgery should include a social and psychological evaluation of each patient. EPKER^[1] pointed out that some patients will not be satisfied even after a favorable treatment outcome. This lack of patient satisfaction is probably closely related to failure of the clinician to realistically inform the patient about the probable treatment results, or to unrealistic expectations on the part of the patient. The latter situation has a high probability of occurring with patients who have external motivations for surgery or acquired deformities.

EPKER^[1] as well as PETERSON AND TOPAZIAN^[2] proposed questionnaires for evaluating patients who are candidates for orthognathic surgery, with the aim of defining clearly their psychological status. These interviews should be carefully structured to define how the patient feels about his/her deformity, how the patient's personality is affected by the problem, why a decision has been made to correct the deformity and what is expected from surgery.

Several studies have shown that the individual's perception of his own esthetics may not be compatible with objective representations. Also, patients may perceive their profiles in a different manner from orthodontists, surgeons and lay persons (STRICKER,^[3] EPKER,^[1] BURCAL^[4] and HERSHON AND GIDDON,^[5]).

The severity of the deformity is not always related to the psychological characteristics of the individual. Deformities that cause different social responses in different environments will probably produce more severe emotional stress (MACGREGOR^[6]).

TOMIZAWA et al.^[7] submitted patients who had undergone orthognathic surgery to a questionnaire, and observed that the patients' evaluation of the treatment was influenced by

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other people's views. Women seemed to be more critical than men. Also, patients with less severe deformities had a tendency to show higher levels of dissatisfaction. The effects of surgery on personality parameters are usually described as beneficial (CROWELL et al.^[8] and TOMIZAWA et al.^[7]).

However, in all instances, the surgeon should try to be familiar with the patient's individual expectations in relation to treatment outcome in its functional and esthetic components, if treatments technically well executed are not to fail due to undetected psychological reasons. The present study attempted to evaluate the psychological profile of patients scheduled for orthognathic surgery using pre- and postsurgical interviews.

Materials and Methods

The present study included 41 selected Caucasian adult males and females, with an age range of 17 to 42 years. No syndromic patients or individuals with cleft palate were included. All were chosen among patients attending at the Division of Oral and Maxillofacial Surgery of the Dental School at Araraquara, S. P., Brazil, who were scheduled for orthognathic surgery. All patients had pre- and postsurgical orthodontics and careful treatment planning.

The selected individuals underwent the following surgical procedures:

- I - Mandibular advancement (7 cases)
- II- Mandibular retrusion (12 cases)
- III- Maxillary surgery (6 cases)
- IV- Maxillary and mandibular surgery (16 cases).

All surgical techniques were executed via the intraoral route, and the patients were informed about the postoperative maxillomandibular fixation period of 30 to 40 days.

The patients studied had a minimum postoperative follow-up of 8 months and up to a maximum of 5 years. All answered spontaneously to the psychosocial evaluation questionnaire proposed by PETERSON AND TOPAZIAN^[2] and EPKER^[1].

The interviews were conducted one week before surgery, at 30 to 40 days after surgery, at the time of fixation release and after the longest follow-up period possible (8 months to 5 years). All interviews were conducted by the same examiner.

Results

Among the 41 patients examined, 23 (56.1%) described their facial deformity as severe, 16 (39.02%) described it as moderate and 2 (4.8%) judged the deformity as mild. The majority (90.24%) defined the existing deformity easily. Only 3 (7.32%) needed help to describe the deformity, and 1 (2.44%) could not point out the problem. Thirty-seven patients had been aware of their problems for years, and only 4 had become aware only in the last few months. Only 3 of the patients had acquired deformities.

Twenty-six patients (63.4%) were found not to have social adjustment problems, 10 (24.4%) indicated questionable adjustment and only 5 (12.2%) revealed serious adjustment problems (Table 1). The influence of the deformity on personality was considered to be minimal by 21 patients (51.21%), moderate by 13 (31.7%) and severe by 7 (17.08%), as shown in Table 2.

The origin of motivation was considered valid for all studied individuals. In some patients, however, the expectations of treatment results were not very clear; 3 patients (7.32%) presented poorly defined expectations, and 1 (2.44%) had totally unrealistic expectations.

Table 3 shows that 33 patients (80.48%) found the treatment results satisfactory at the moment of fixation release, while 8 (19.52%) considered them only reasonable.

However, after long-term evaluation, 38 patients (92.68%) considered the treatment satisfactory, while 1 (2.44%) considered it reasonable and 2 (4.88%) thought the treatment was not satisfactory, as shown in Table 4. Functional changes were noted by 36 (87.8%) of the patients, while esthetic changes were observed by 38 individuals (92.7%). Only 1 (2.44%) did not see any

functional or esthetic changes. Thus, 38 (92.7%) considered the treatment to be totally effective and 3 (7.3%) judged that only some of their objectives were attained.

Social adjustment was improved in the long-term follow-up for 27 patients (65.85%) or had remained the same for 14 (34.15%), as shown in Table 5, with a strong influence on personality in 21 cases (51.22%), moderate in 11 (26.83%) and minimal for 9 individuals (21.95%) (Table 6). Thirty-eight patients (92.7%) said they would recommend the treatment for other people, whereas 3 (7.3%) were doubtful about it.

The patients who underwent surgical procedures in both jaws (62.5%) and mandibular advancement (71.4%) tended to consider their deformities severe. All groups were able to define well their deformities, and in most cases had been aware of the problem for over one year. The preoperative evaluation revealed low indices of social adjustment problems. The lowest percentages occurred for mandibular setback (8.33%) and the highest for maxillary repositioning (16.7%). These results are shown in Table 8.

Interestingly, none of the patients who underwent surgical treatment only of the maxilla described a strong influence of the deformity on their personality. However, 25% of the mandibular setback patients revealed strong influences (Table 8).

All groups presented realistic expectations in relation to surgery in over 80% of the cases. One patient in the mandibular setback group had unrealistic views about the treatment, although in all cases, motivation was considered valid. With the exception of the maxillary repositioning group, all the other groups included patients with not so clear views about the treatment results (Table 9).

Upon release of fixation, all groups evaluated the results as satisfactory in over 80% of cases, with the exception of the mandibular advancement group, where 57.14% thought the results were reasonable. None considered the treatment unsatisfactory at that time (Table 10).

However, in the long-term evaluation, 100% of the patients who had undergone mandibular setback or two-jaw surgery considered the treatment satisfactory. In the mandibular advancement group, one patient (14.29%) considered the treatment outcome reasonable and another thought it was poor. In the maxillary surgery group, one patient described the results as poor.

Functional alterations were observed in more than 80% of the cases in all groups, except for mandibular advancement (71.43%). Esthetic alterations were noted in over 90% of the cases in all groups, except for patients who underwent maxillary surgery alone (66.7%), as shown in Table 11.

All patients who received two-jaw surgery or mandibular setback considered the treatment effective. Two patients with mandibular advancement (28.57%) and one with maxillary surgery (16.7%) considered the treatment only partially effective.

None of the patients revealed worsening of social adjustment. For the combined surgery group, 75% of patients described improvement. In the other groups, social adjustment was considered better by over 57% of the patients (Table 12). The influence of treatment over personality in the long-term follow-up was more consistently considered to be intense for the two-jaw surgery group (68.75% of cases) (Table 13). Only 3 patients expressed doubts about recommending the treatment to other people. None of them was strongly against recommendation.

Table 1 Preoperative social adjustment

	STABLE	QUESTIONABLE	UNSTABLE
Maxillary and mandibular surgery	10	4	2
Mandibular advancement	9	2	1
Mandibular setback	3	3	1
Maxillary surgery	4	1	1

Table 2 Preoperative influence of the deformity upon personality

	MILD	MODERATE	SEVERE
Maxillary and mandibular surgery	5	8	3
Mandibular setback	7	2	3
Mandibular advancement	4	2	1
Maxillary surgery	5	1	0

Table 3 Evaluation of results by the patient at removal of intermaxillary fixation

	SATISFACTORY	REASONABLE	POOR
Maxillary and mandibular surgery	14	2	1
Mandibular setback	11	1	0
Mandibular advancement	3	4	0
Maxillary surgery	5	1	0

Table 4 How do you define treatment outcome ? (Long-term follow-up)

	SATISFACTORY	REASONABLE	POOR
Maxillary and mandibular surgery	16	0	0
Mandibular setback	12	0	0
Mandibular advancement	5	1	1
Maxillary surgery	5	0	1

Table 5 Social adjustment after treatment in the long-term follow-up

	BETTER	SAME	WORSE
Maxillary and mandibular surgery	12	4	0
Mandibular setback	7	5	0
Mandibular advancement	4	3	0
Maxillary surgery	4	2	0

Table 6 Influence of treatment upon personality in the long-term follow-up

	MILD	MODERATE	SEVERE
Maxillary and mandibular surgery	1	4	11
Mandibular setback	3	4	5
Mandibular advancement	2	2	3
Maxillary surgery	3	1	2

Table 7 Preoperative social adjustment according to type of surgery

	STABLE	QUESTIONABLE	UNSTABLE
Maxillary and mandibular surgery	62.5 %	25 %	12.5 %
Mandibular setback	75 %	16.7 %	8.33 %
Mandibular advancement	42.86 %	42.86 %	14.29 %
Maxillary surgery	66.7 %	16.7 %	16.7 %

Table 8 Influence of deformity upon personality according to type of surgery

	MILD	MODERATE	SEVERE
Maxillary and mandibular surgery	31.25 %	50 %	18.75 %
Mandibular setback	58.33 %	16.7 %	25 %
Mandibular advancement	57.14 %	28.57 %	14.18 %
Maxillary surgery	83.33 %	16.7 %	0 %

Table 9 Expectations in relation to surgery

	REALISTIC	NOT CLEAR	UNREALISTIC
Maxillary and mandibular surgery	93.75 %	6.25 %	0 %
Mandibular setback	83.33 %	8.33 %	8.33 %
Mandibular advancement	85.72 %	14.29 %	0 %
Maxillary surgery	100 %	0 %	0 %

Table 10 Evaluation of treatment results at release of fixation according to type of surgery

	SATISFACTORY	REASONABLE	POOR
Maxillary and mandibular surgery	87.5 %	12.5 %	0 %
Mandibular setback	91.7 %	8.33 %	0 %
Mandibular advancement	42.86 %	57.14 %	0 %
Maxillary surgery	83.3 %	16.7 %	0 %

Table 11 Changes noticed by the patient in relation to type of surgery

	FUNCTIONAL	ESTHETIC	NO APPARENT CHANGE
Maxillary and mandibular surgery	100 %	93.75 %	0 %
Mandibular setback	83.33 %	100 %	0 %
Mandibular advancement	71.43 %	100 %	0 %
Maxillary surgery	83.33 %	66.7 %	16.7 %

Table 12 Social adjustment according to type of surgery in the long-term follow-up

	BETTER	SAME	WORSE
Maxillary and mandibular surgery	75 %	25 %	0 %
Mandibular setback	58.3 %	41.7 %	0 %
Mandibular advancement	57.14 %	42.86 %	0 %
Maxillary surgery	66.7 %	33.3 %	0 %

Table 13 Influence of treatment upon personality in the long-term follow-up

	MILD	MODERATE	SEVERE
Maxillary and mandibular surgery	6.25 %	25 %	68.75 %
Mandibular setback	25 %	33.3 %	41.7 %
Mandibular advancement	28.6 %	28.6 %	42.86 %
Maxillary surgery	50 %	16.7 %	33.3 %

Discussion

It is well known that perception of the esthetic components of malocclusion varies among individuals. Also, the perception of one's own appearance is seldom identical to the objective representation of the body. Thus, the emotional response to a given deformity is not always proportional to the severity of the problem (STRICKER^[3]).

When a series of facial profiles is evaluated by professionals and lay persons, the choice of ideal profile for men varies from what is considered ideal for women. Usually the chosen profile for women shows more pronounced lip protrusion and more pronounced chin retrusion in comparison with men, with a smaller nose and less pronounced nasolabial fold (LINES et al.^[9]). On the other hand, profile changes are seen differently by professionals and patients, and some skeletal changes amenable to the surgeon may remain unnoticed by patients (PRAHL-ANDERSEN et al.^[10], HERSHON AND GIDDON^[5], BELL et al.^[11] and BURCAL et al.^[4]).

In the present study it is significant that only little more than half of the patients (56.1%) described their deformity as severe. The examiner's own opinion would probably indicated considerably more severe deformity. The patients who underwent two-jaw procedures and mandibular advancement tended to classify their deformities as severe. This kind of classification of one's own deformity varies with age, which influences not only the perception of the patient, but also that of the parent (LEFEBVRE AND BARCLAY^[12]).

The majority of patients included in this study defined easily the general characteristics of their deformity. Only 3 needed help and one could not define the problem. These latter four patients had problems even though they had been in previous contact with both an orthodontist and surgeon. Although these numbers are low, due especially to the integrated work of the professionals involved, the results showed that some patients may remain doubtful about the nature of their deformity, and thus may show confusion regarding their chief complaint, no matter how often they receive an explanation about it. This difficulty may be due to lack of attention from professionals to a given patient. It may also be secondary to the social or economic level of the patient, or occur in patients with external motivation, whose evaluation of their own profile may be more benign than that expressed by the people with whom they live or have social contact. Individuals with external motivation, or who are not sufficiently motivated to undergo treatment, may, during several phases of orthodontic and preoperative evaluation, simply not care or pay attention to the offered explanations.

With regard to profile simulation, HERSHON AND GIDDON^[5] observed that patients tended to simulate their profiles a lot closer to socially accepted patterns than was the situation in reality. Whatever the reason for the difficulties presented by the latter 4 patients, it is important for the surgeon to realize in advance that such patients can be potentially problematic, with a greater possibility of dissatisfaction in relation to treatment results.

Most studied patients (63.4%) were found not to have social adjustment problems. Only 12.2% were revealed to have problems, while 24.4% described "questionable" social adjustment. However, 65.85% of the studied patients revealed better social adjustment after treatment. These results are similar to those of JACOBSON^[13], but different from those of KIYAK et al.^[14] who observed worsening of the psychosocial results of treatment between 4 and 9 months postoperatively. Our results were also different from OLSON AND LASKIN^[15], who did not observe pre- and postoperative differences in social adjustment.

The high percentage of patients who revealed an improvement of social adjustment suggests that several of them were not conscious of their adjustment problems or did not wish to admit that they existed, either to themselves or to the surgeon. An interview with parents or individuals intimately related to the patient may be useful as part of preoperative evaluation in relation to suspected social adjustment problems. The same trend was encountered in relation to the influence of the deformity upon the patient's personality. The inversion of opinions obtained for this item pre- and postoperatively also suggests that many patients do not perceive or accept the influence of the deformity on their personality. In some instances, they may simply not wish to discuss the matter. These results differ from those of KIYAK et al.^[14], who observed a drop in personality benefits between 4 and 9 months after treatment. They also differ from results described by OLSON AND LASKIN^[15], who observed no improvement.

However, another study by KIYAK et al.^[17] showed that the lowering of the above-mentioned items observed after 9 months had recovered by 24 months, and in fact were significantly improved in relation to preoperative responses. These observations stress the need for long-term follow-up by the surgeon and orthodontist.

Grouping the studied patients according to the type of procedure performed, the mandibular setback patients revealed the highest level of severe influence of the deformity upon personality (25%). The patients who underwent two-jaw surgery tended to classify the influence as moderate, even though the deformity was more severe. This may have been a way of minimizing the deformity present and the resulting feelings of the patient. It may also be that the prognathic profile is the most easily noticeable and definable defect for the patient, who would be able to pinpoint it without doubt. After treatment, the values were reversed, possibly because the combined surgery patients underwent the most dramatic esthetic changes, or were finally able to grasp the real nature of their previous problem.

Although all patients in the present study revealed well defined and valid motivations for

treatment, it is important to point out that external motivation is not always easily identified. Moreover, most patients with this kind of motivation do not readily admit the fact. The literature is generally in agreement that most patients will reveal self-motivation for undergoing orthognathic surgery, although the prevalence of esthetical or functional motives varies in different articles (TOMIZAWA et al.^[7] and JACOBSON^[13]).

According to KIYAK et al.^[16], there are some differences in motivation between men and women. However, the similarities seem to be greater than for other kinds of cosmetic surgery. In general, women are more demanding about their profiles. Esthetics is an important decision factor for both sexes, second only to professional counseling. Both sexes were equally introspective about their expectations regarding the influence of surgery on their lives. The personality trend more closely related to postoperative dissatisfaction was a tendency for neurotic behavior in some women and introspection in some of the men. In our patients, an esthetic preoccupation was not always easily identifiable in men. It is also advisable to be careful when evaluating women, specially those who show only mild deformity and those who manifest concern about the possible worsening of a particular esthetic characteristic as a result of surgery. In the present group of patients, three had unclear expectations and in one case these were totally unrealistic.

The satisfaction with treatment expressed immediately after the release of fixation increased with time, as the long-term interviews showed. This is the same type of behavior as that observed previously (KIYAK et al.^[16] and KIYAK et al.^[17]).

In the long-term evaluation, only 3 patients considered the treatment to have been effective. The remaining 38 considered it totally effective. It should be noted that the 3 former patients had relapse problems. Two were mandibular advancement cases and one was an inferior maxillary repositioning. The three patients already had complaints at the time of fixation release. The functional and esthetic problems resulting from relapse were responsible for these evaluations. Other less extensive physiological problems, such as disesthesia of the lower lip for longer periods, do not seem to render the patients more psychosocially dissatisfied (KIYAK et al.^[14]).

The same three patients were the only ones doubtful about recommending the treatment to other people. They did not consider their treatment to have been a total failure, nor were they categorical about not recommending the same treatment to others. This finding stresses the importance of a good patient/professional relationship. Furthermore, in most self-motivated patients, the desire for improvement is such that, when the problems involved are explained, they will probably agree to a reoperation. These results are similar to those of JACOBSON^[13], CROWELL^[8], TOMIZAWA^[7] and KIYAK et al.^[17]. The values for perception of functional and esthetic changes are similar to those described previously (TOMIZAWA et al.^[7] and JACOBSON^[13]).

Conclusions

1. Although fully informed by surgeon and orthodontist, some patients may not fully understand the details of the deformity present.
2. The patients do not always perceive or reveal problems of social adjustment or personality in the preoperative evaluation.
3. The expectations in relation to treatment outcome may not be realistic (9.76%), even if the patient shows well defined and valid self-motivation.
4. The evaluation of treatment results by the patient tends to improve from the moment of release of intermaxillary fixation.
5. Social adjustment improved in 65.85% of the studied cases and remained the same in 34.15%. However, it never worsened.
6. Thirty-eight patients (92.68%) considered the treatment satisfactory, one (2.44%) stated the results were reasonable and 2 (4.88%) considered the treatment unsatisfactory. The problems in the latter 3 patients were related to relapse.

7. Functional changes were observed in over 80% of the cases for all groups studied, with the exception of mandibular advancement (71.43%).
8. Esthetic changes were observed in more than 90% of the cases for all groups, with the exception of isolated maxillary procedures (66.7%).

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