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Psychosocial and functional outcomes of orthognathic surgery: Comparison with untreated controls

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ABSTRACT

Objectives: Orthognathic surgery is a procedure for patients with dentofacial deformities and provides dramatical dentofacial and psychological alterations. The aim of this controlled study was to evaluate how orthognathic surgery affects patients' psychosocial well-being and compare them with patients having dentofacial discrepancies and with individuals who do not have any skeletal discrepancies.

Methods: Hundred and sixty-three adult individuals were included in this study as three groups: patients who underwent orthognathic surgery, patients having skeletal discrepancies and individuals who do not have any skeletal discrepancies. Patients in all groups were asked to fill out two questionnaires concerning the psychological and physical status of the patients at that moment and additional questions were asked to patients in post-surgical phase regarding post-surgical satisfaction. Categorical variables were statistically evaluated by Fisher Exact and chi-square tests.

Results: Patients who were going to seek orthognathic surgery were significantly concerned about their dentofacial appearance, body image and psychosocial status when compared with patients in the post-surgical phase and the individuals who did not have skeletal discrepancies. The results of the patients who underwent orthognathic surgery were approximated to the results of non-patient control group and had high degrees of satisfaction with improvement in appearance brought about by surgery at 6-month post-operatively.

Conclusion: Following orthognathic surgery, patients had better psychosocial status when compared to patients without skeletal deformities. Patients in the pre-surgical phase were not only functionally but also psychosocially the least satisfied group of individuals.

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1. Introduction

As adult orthodontic treatment becomes more widely available, there has been an increase in the demand for orthognathic surgery for cases that cannot be treated by orthodontics alone. In adults, orthognathic surgery procedures lead to rapid alterations not only in functions, such as chewing, swallowing, speech and respiration, but also in the appearance of the face. Although the focus is generally on correcting the morphological deformity, assessment and

treatment planning should also involve psychosocial aspects of the patient.

Studies have shown that orthognathic surgery yields positive changes in psychological well-being and self-concept [1–4]. It has been reported that patients who undergo orthognathic surgery display better social functioning, social adjustment, self-confidence, self-concept, body image, emotional stability, positive life changes, and reduced anxiety [5,6]. Furthermore, studies have revealed that dissatisfaction in the post-operative phase is not necessarily related to the outcome of surgery, but also upon results primarily from a lack of communication between the orthodontist, surgical team and the patient.

In summary, the literature reveals that high satisfaction following orthognathic surgery has been related to effective preoperative preparation of the patient, realistic expectations of post-operative discomfort and recovery, and the outcome of surgery [5]. However, the reasons for dissatisfaction in a minority of the patients are still unclear. Understanding the patients' expectations from the

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treatment should be carefully considered preoperatively in order to avoid possible unrealistic expectations [7].

Generally, past studies have compared patients who underwent orthognathic surgery with individuals who have skeletal deformities [8–15]. However, the present study aimed to evaluate how orthognathic surgery affects psychosocial well-being and functional improvement of patients with skeletal deformity, and compared same patients to their pre-surgical phase and a healthy control group.

2. Materials and methods

This study was approved by the Başkent University Institutional Review Board and Ethical Committee with project no. D-KA08/02.

Three groups of adult individuals were included in this study. The exclusion criteria were: trauma or previous orthognathic surgery, patients under 18 years of age, syndromic patients, cleft lip and palate patients, distraction osteogenesis cases, and patients who had undergone isolated genioplasty procedures.

Ninety-two consecutive patients who applied to the Başkent University Faculty of Dentistry Department of Orthodontics with dentofacial skeletal discrepancies between the years 2008 and 2011 were included in the study. Out of 92 patients, 10 patients were not included in the study due to one or more exclusion criteria, and the total number of 82 patients constituted Group 1 (Class 2 (n = 15), Class 3 (n = 67), mean age: 23.8 yrs). Twenty-five of these patients were treated with single-jaw surgery, whereas 57 patients were treated with double-jaw surgery by the same surgical team. Gender distribution among groups is shown in Table 1. Patients were asked to complete three questionnaires 6 months after the surgery. Pre-surgical phase of these 82 patients comprised Group 2 (n = 82, Class 2 (n = 15), Class 3 (n = 67), mean age: 23 yrs). The control group (Group 3, n = 81, mean age: 24.2 yrs) consisted of 81 individuals who did not have any skeletal discrepancies. Additionally, these individuals were not orthodontic patients, but were recruited mostly from university students and an attempt was made to match for age and gender.

The first questionnaire (Table 2) aimed to evaluate patients' perceptions of their problems in oral function, general health, pain, appearance, social and inter-personal relationships, body image, and satisfaction with surgical outcome, with 34 questions that were modified and adapted from the study of Lazaridou-Terzoudi et al.'s [1]. The second questionnaire (Table 3) was the modified version of Secord and Jourard's "body cathexis scale" [16] and composed of 26 questions. Patients were questioned regarding their perceptions of facial and general appearance.

The original questionnaires were translated into Turkish by three orthodontists who had an advanced level of English, and a professional translator assessed the translations. This was followed by minor and necessary modifications for the Turkish population. A professional translator, who had an equal command of English and Turkish, translated the final version of the Turkish questionnaire into English. Finally, when the original and the translated questionnaires were compared, a high level similarity was found and the questionnaires were approved for use.

All groups completed two questionnaires. In addition, patients in Group 1 received another questionnaire, which contained

Table 1
Gender distribution between three groups.

	Females		Males	
	n	%	n	%
Group 1 (n = 82)	33	40	49	60
Group 2 (n = 82)	33	40	49	60
Group 3 (n = 81)	34	42	47	58

Table 2

Questionnaire 1.

Consider each item listed below and mark in the column that best represents your feelings about yourself at the present time

- (1) very uncomfortable / very much a problem
- (2) uncomfortable / somewhat a problem
- (3) uncomfortable/so-so
- (4) relatively comfortable
- (5) very comfortable / don't have any problems

1- Chewing	(1)(2)(3)(4)(5)
2- Biting into foods	(1)(2)(3)(4)(5)
3- Fitting your front teeth together	(1)(2)(3)(4)(5)
4- Fitting your back teeth together	(1)(2)(3)(4)(5)
5- Speech	(1)(2)(3)(4)(5)
6- Popping and clicking of jaw joint	(1)(2)(3)(4)(5)
7- Pain on biting food	(1)(2)(3)(4)(5)
8- Numbness on your face	(1)(2)(3)(4)(5)
9- Pain in front of ear	(1)(2)(3)(4)(5)
10- Pain on your face	(1)(2)(3)(4)(5)
11- Headache	(1)(2)(3)(4)(5)
12- Pain while going down the stairs	(1)(2)(3)(4)(5)
13- Difficulty in your daywork	(1)(2)(3)(4)(5)
14- Appearance of your teeth	(1)(2)(3)(4)(5)
15- Facial profile	(1)(2)(3)(4)(5)
16- General appearance	(1)(2)(3)(4)(5)
17- Feeling nervous	(1)(2)(3)(4)(5)
18- Feeling depression	(1)(2)(3)(4)(5)
19- Feeling ashamed	(1)(2)(3)(4)(5)
20- General health	(1)(2)(3)(4)(5)
21- Feelings about self	(1)(2)(3)(4)(5)
22- Socializing with friends/family	(1)(2)(3)(4)(5)
23- Performance in work or school	(1)(2)(3)(4)(5)
24- Having your photo taken	(1)(2)(3)(4)(5)
25- Seeing yourself on the mirror	(1)(2)(3)(4)(5)
26- Your position in the society	(1)(2)(3)(4)(5)
27- Satisfaction from your life	(1)(2)(3)(4)(5)
28- Sleep	(1)(2)(3)(4)(5)
29- Your eating habit	(1)(2)(3)(4)(5)
30- Palatal taste	(1)(2)(3)(4)(5)
31- Smiling	(1)(2)(3)(4)(5)
32- Gummy smile	(1)(2)(3)(4)(5)
33- Problem in breathing	(1)(2)(3)(4)(5)
34- Pain inside your mouth	(1)(2)(3)(4)(5)

12 questions designed by the authors to assess their post-surgical perceptions as follows:

Q1: What was your main intention to undergo orthognathic surgery? Please mark one of the given answers: My wish-my family's wish-pressure from society-my doctor's advice.

Q2: In how many days were you able to return back to your daily life? Please mark one of the given answers: Less than 7 days-7 to 15 days-15 to 30 days-more than 1 month.

Q3: Was your stay in the hospital as you expected it to be? (Yes or No)

Q4: Would you undergo surgery if you knew the difficulties of the post-operative phase? (Yes or No)

Q5: Would you recommend the operation to other patients? (Yes or No)

Q6: Would you undergo the operation again if it is indicated? (Yes or No)

Q7: Are you satisfied with your healing period? (Yes or No)

Q8: In how many days could you go back to your school/work? Please mark one of the given answers: Less than 7 days-7 to 15 days-15 to 30 days-more than 1 month.

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