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Survey of patient experiences of orthognathic surgery: health-related quality of life and satisfaction

A. Al-Asfour[1], M. Waheedi[2], S. Koshy[2]
[1]Department of Surgical Sciences, Faculty of Dentistry, Health Science Centre, Kuwait University, Safat, Kuwait; [2]Faculty of Pharmacy, Health Science Centre, Kuwait University, Safat, Kuwait

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Abstract. The objective of this study was to assess changes in patient quality of life (QoL) after orthognathic surgery at the Kuwait University Dental Clinic. A self-administered Arabic version of the Orthognathic Quality of Life Questionnaire (OQLQ) and two different visual analogue scales (VAS) were used. Sixty-six patients participated (63.6% female). The deformities were corrected by bimaxillary jaw surgery (83.3%), Le Fort I (9.1%), and bilateral sagittal split osteotomy (7.6%). The most important reasons given for undertaking the surgery were facial aesthetics (80.3%) and bite correction (75.8%). Of the patients who had reported moderate to high levels of problems pre-surgery, the majority reported improvements in facial appearance (91.3%), appearance of the teeth (97.0%), biting (96.3%), chewing (92.3%), and eating function (76.5%). Overall, 93.9% of patients reported better conditions after surgery, and the satisfaction level was very high (VAS 91.6%). The VAS score for QoL increased significantly from pre-surgery (73.0%) to post-surgery (93.6%) ($P = 0.0001$). The OQLQ score was also significantly decreased after surgery, reflecting improvements in the 'social aspects of dentofacial deformity', 'facial aesthetics', 'oral function', and 'awareness of dentofacial aesthetics' domains ($P = 0.0001$). Overall, the patients who underwent orthognathic surgery were satisfied and had improved QoL. The satisfaction rate in the present study reflects successful treatment with orthognathic surgery.

Key words: orthognathic surgery; quality of life; facial aesthetics; social aspects; oral function.

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Orthognathic surgery is performed to correct skeletal deformities and associated dental irregularities, such as misalignment of the jaws and teeth. It is generally indicated when there are severe dentofacial deformities that cannot be managed by orthodontic treatment alone, especially in adulthood when natural growth forces have ceased[1]. Dentofacial deformities or anomalies primarily affect the jaw bones and dentition of one jaw or both jaws, but may extend to affect multiple craniofacial structures[2].

The primary goal of orthognathic surgery is to improve function through the

correction of the underlying skeletal deformity. Several studies have shown that patients with skeletal malocclusions often suffer from a variety of functional impairments, including diminished bite force, restricted mandibular excursions, abnormal chewing patterns, and temporomandibular disorders[3,4].

As a direct result of skeletal improvements through orthognathic surgery, changes in the soft tissue overlying the facial skeleton may be realized. This will lead to an enhancement of the patient's facial appearance post-surgically, due to restoration of the harmony among the facial skeletal bones. People with good dentofacial harmony are reported to be considered more attractive, outgoing, and interesting, and usually to belong to a high social class[5]. Also, improvements in facial appearance can help lift a person's self-esteem and improve their confidence and social skills[6].

There is growing research interest in how orthognathic surgery affects patient lives. Several studies have suggested a significant improvement in quality of life (QoL) and psychological dimensions after orthognathic surgery[6,7]. The psychological impacts include improved self-confidence, enhanced body and facial image, and better social adjustment[8,9]. Review articles have also concluded that patients experience an improvement in QoL after orthognathic surgery for jaw deformities, which positively impacts their psychosocial status[9,10].

QoL is a multidimensional concept that includes subjectively perceived physical, psychological, and social functions, as well as a sense of well-being[11]. A local study conducted at the Specialist Dental Centre, Ministry of Health, Kuwait, reported orthognathic surgery patients as being, in general, well-informed before the treatment and satisfied with the outcome of the surgery, although it was suggested that there was room for some improvements[12]. However, it appears that no study has evaluated the QoL of orthognathic surgery patients in Kuwait.

The aim of this study was to evaluate the health-related QoL and satisfaction level of patients undergoing orthognathic surgery at the Kuwait University Dental Clinic (KUDC). The null hypothesis was that orthognathic surgery would produce no improvement in patient perceptions of health in general, or enhance their confidence level in social aspects, facial aesthetics, oral function, and self-awareness and/or self-consciousness.

Materials and methods

Ethical approval was obtained from the Health Science Centre Ethics Committee at Kuwait University. Patients who had been seen and treated to correct their dentofacial deformities at the Oral and Maxillofacial Surgery Clinic of KUDC and at a private oral and maxillofacial surgery practice within the period 2007–2012 were contacted to voluntarily participate in this cross-sectional study.

All of the patients included were treated and seen at regular postoperative visits by the same surgeon until removal of the orthodontic appliances or at least 6 months after the surgery. They were subsequently recalled for regular annual check-up visits. Data were collected at least 6 months after the surgery, with the postoperative period ranging from 6 months to 7 years. The patients used their subjective recollection to answer the questionnaire regarding both their preoperative and postoperative status. At the time of data collection, the patients had recovered fully from surgery and had resumed their daily, professional, and social activities. An Orthognathic Quality of Life Questionnaire (OQLQ) was used in the data collection. This questionnaire covers patient self-perception of various domains both pre- and post-surgery.

Data collection methods

An anonymous, self-administered questionnaire was used to collect the data. The questionnaire included three parts: demographic information about the participants, an OQLQ instrument, and two visual analogue scales (VAS) corresponding to the OQLQ[13,14]. The validated OQLQ instrument developed by Cunningham et al. was used[13]. This questionnaire was initially forward- and back-translated into Arabic. A pre-test was completed, following which some changes were made to the questionnaire to gain a better understanding of the local context. The Arabic version of the OQLQ scale demonstrated high reliability in the present study. The participation of the patients was entirely voluntary and those who agreed to participate signed a consent form for confidentiality and ethical purposes.

Instruments

The OQLQ scale has been reported to be of high reliability and differentiates patient self-perception with respect to any perceived changes[15,16]. The OQLQ uses a 4-point Likert-type scale with the following response options: 1 = 'does not bother me at all', 2 = 'bothers me a little', 3 = 'moderately bothers me', and 4 = 'bothers me a lot'. The OQLQ includes 22 items grouped into four domains: social aspects of dentofacial deformity (eight questions), facial aesthetics (four questions), oral function (five questions), and awareness of dentofacial aesthetics (four questions). The total OQLQ score may range from 0 to 88, with lower scores indicating better QoL and higher scores poorer QoL[13].

Two different VAS, corresponding to the OQLQ, were used. These were marked on a 0–100 scale. One VAS asked respondents to rate how they felt about their health before and after orthognathic surgery. The scale ranged from 0 (worst health perception) to 100 (best health perception). The second VAS asked respondents to indicate how satisfied they were with the outcome of the orthognathic surgery. The scale score ranged from 0 (not satisfied) to 100 (fully satisfied).

Data analysis

Data were recorded as the mean ± standard deviation, or the number and percentage. The data analysis was performed using IBM SPSS Statistics version 22.0 software (IBM Corp., Armonk, NY, USA). The internal consistency of the OQLQ instrument was measured using Cronbach's alpha reliability test. A paired *t*-test was performed to compare the mean OQLQ scores obtained before and after surgery. The χ^2 test was used to compare the participants' clinical problems before and after surgery. A *P*-value of less than 0.05 was considered statistically significant.

Results

Table 1 shows the demographic characteristics of the 66 participants who underwent orthognathic surgery. They presented with dentofacial deformities, but none had any symptoms associated with a syndrome or cleft lip and/or palate. The mean age of the participants was 25.1 ± 3.9 years (range 18–33 years). Forty-two of the participants (63.6%) were female. With regard to employment, 37.9% of the participants had a full-time job. The majority (62.1%) were single; six participants did not disclose their marital status. The majority of patients were well-educated, with 74.2% holding a diploma/bachelor degree, 4.5% a postgraduate degree, and only 13.6% having completed their