

THE QUALITY OF LIFE AND SATISFACTION AFTER ORTHOGNATHIC SURGERY IN SAUDI ARABIA

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ABSTRACT

Orthognathic surgery is used to treat dental issues such as misaligned jaws and teeth and skeletal abnormalities related to them. It is often recommended when there are significant dentofacial abnormalities that cannot be corrected by orthodontic therapy alone, particularly in adults when the natural growth pressures have stopped. This research aimed to assess the health-related QoL and degree of patient satisfaction among Saudi Arabian patients having orthognathic surgery. The null hypothesis was that orthognathic surgery wouldn't change how patients felt about their overall health or their confidence in social situations, facial aesthetics, oral function, and self-awareness. An online questionnaire using Google forms was constructed and sent to patients who underwent orthognathic surgery. According to the findings of the research, patients have a positive impression of the doctor's conduct and orthognathic surgery. Most of the patients report that they did not experience any issues after surgery and would suggest this surgical technique to others. The patient's self-confidence increased as a result of this operation, and the cosmetic look of the face and teeth was also improved as a result of the surgery.

Key words: Orthognathic surgery, Orthodontics, Patients, Satisfaction.

Introduction

Orthognathic surgery is used to treat dental issues such as misaligned jaws and teeth and skeletal abnormalities related to them. It is often recommended when there are significant dentofacial abnormalities that cannot be corrected by orthodontic therapy alone, particularly in adults when the natural growth pressures have stopped. Dentofacial malformations or abnormalities often affect one or both jaws, although they may also impact other craniofacial structures [1]. Orthognathic surgery's main objective is to address the underlying skeletal abnormality to enhance function [2, 3]. According to many studies [4], individuals with skeletal malocclusions often have a range of functional impairments, such as decreased biting power, limited mandibular excursions, strange chewing patterns, and temporomandibular disorders [4]. In addition, changes in the soft tissue that lies on top of the facial bones may be manifested as a direct consequence of skeletal improvements made during orthognathic surgery. As a result of restoring the harmony between the face's skeletal bones, the patient's facial look will improve after surgery. According to reports, those with excellent dentofacial balance are seen as more handsome, gregarious, and intriguing and often come from a high socioeconomic class [5]. Additionally, enhancing one's facial look may boost self-esteem and improve confidence and social skills. How

orthognathic surgery impacts patients' lives is a considerable scientific interest [6].

Dentofacial abnormalities may be fixed using a variety of procedures [7]. However, the ideal method for treating moderate-to-severe abnormalities is believed to be orthodontic therapy coupled with orthognathic surgery [4]. Orthognathic surgery involves correcting the maxilla surgically so that the teeth and bones are correctly positioned and aligned with the base of the skull. In particular, for individuals with dentofacial deformity, orthognathic surgery combined with orthodontic therapy offers satisfactory correction of malocclusion [5].

The surgical repair might include anything from relocating a few teeth to completely realigning the mandible and maxilla, depending on how severe the issue is. This procedure provides a stable relationship between dental arches, functional occlusion, facial and dental symmetry, and healthy orofacial structures [6]. Additionally, according to specific research, dentofacial abnormalities influence patients' psychological and esthetic well-being, which includes all elements of quality of life, in addition to the occlusal and functional aspects of the stomatognathic system [6].

The effects of orthognathic surgery on patients'

psychological, social, physical, functional, and esthetic quality of life have been documented in several studies before and after the procedure [6]. The World Health Organization (WHO) defines the quality of life as an individual's view of their place in life about their objectives, aspirations, standards, and concerns, as well as the culture and value systems in which they live [8]. However, an agreement about the optimal instrument to evaluate the results of orthognathic surgery has yet to be established [9] despite the significant growth in research on the connection between quality of life and oral surgery.

Numerous studies have revealed that after orthognathic surgery, quality of life (QoL) and psychological components significantly improved [6, 8]. The psychological effects include more fantastic body and face perception, increased self-assurance, and better social adjustment [9, 10]. Review publications have also indicated that orthognathic surgery for jaw abnormalities increases patients' quality of life (QoL), which has a beneficial effect on their psychological status [10, 11]. A feeling of well-being and subjectively perceived social, psychological, and bodily functioning are all included in the multidimensional notion of quality of life (QoL) [12].

Impacts on overall health status (not only the orofacial region) are evaluated using health assessment tools such as the Short Form Health Survey (SF-36) [13]. In addition, the influence of dental health on quality of life is investigated using global oral health assessment tools, such as the Oral Health Impact Profile short form (OHIP-14). Finally, the Orthognathic Quality of Life Questionnaire (OQLQ), which is often used to examine the effects of orthognathic surgery in the postoperative period [14], is one of the tools that focus on particular scenarios.

Patient satisfaction in the postoperative period is another significant outcome that should be assessed in addition to the effect on the quality of life since it is one of the critical therapeutic objectives. According to Khattak *et al.* [15], patients' satisfaction after treatment may be predicted by the patients' perceptions before operations and the information supplied by the professionals. Even though the success rate of orthognathic surgery is relatively high, some patients express unhappiness with the outcome of the treatment. The causes of this unhappiness and how it affects patients' quality of life have yet to be entirely understood [16].

This research aimed to assess the health-related QoL and degree of patient satisfaction among Saudi Arabian patients having orthognathic surgery. The null hypothesis was that orthognathic surgery wouldn't change how patients felt about their overall health or their confidence in social situations, facial aesthetics, oral function, and self-awareness.

Materials and Methods

Study design

An online questionnaire using Google forms was constructed and sent to patients who underwent orthognathic surgery.

Setting

Saudi Arabia.

Sample size

250.

Instrument validity and reliability

A pilot study was conducted by sending the survey to 20 participants and the data were inserted in SPSS version 22 to determine the reliability by using Chronbach's coefficient alpha (value: 0.712). The validity of the questionnaire was tested by sending it to experienced researchers and changes were made according to their feedback and comments.

Statistical analysis

Collected data were analyzed using SPSS version 22, where descriptive as well as inferential statistics were conducted.

Results and Discussion

Table 1. Background information of the patients.

Questions	Responses
Mean age of patients:	29.5 years
Patient gender	Males: 14.3% Females: 85.7%
Main complaint before surgery:	Open-bite: 29% Under-bite: 23% Recessed lower jaw: 39% Skewed mandible: 9%
Main complaint was resolved after surgery:	Yes: 91.1% No: 8.9%

The result demonstrates the response of the patient suffering from dental issues. **Table 1** analyzes the background information of the patient. The result shows that the mean age of the patient suffering from a dental abnormality related to the skull is 29.5 years, of which most are females. Male patients are 14.3%, and females are 5.7%, which illustrates that dental abnormalities are primarily present in females requiring orthognathic surgery. The main result evaluated from **Table 1** provides information that patients who suffer from dental disease before surgery. The complaints received in an open bite are 29%, underbite complaints are 23% recessed, lower jaw complaints are 39%, and skewed mandible is 9%. The

orthognathic surgery of patients expresses excellent results because 91.1% of patients have no complaints after surgery.

Table 2. Questions related to satisfaction of patients from the doctor.

Patient's satisfaction with the doctor:	
Did you easily get a consultation appointment with the doctor?	Totally agree: 35.7% Agree: 28.6% Somewhat: 25% Disagree: 3.6% Strongly disagree: 7.1%
Did your doctor provide the consultation on time?	Totally agree: 42.9% Agree: 25% Somewhat: 23.2% Disagree: 1.8% Strongly disagree: 7.1%
The doctor's consultation fee was reasonable.	Totally agree: 39.3% Agree: 16.1% Somewhat: 17.9% Disagree: 8.9% Strongly disagree: 17.9%
The doctor was cooperative.	Totally agree: 48.2% Agree: 26.8% Somewhat: 16.1% Disagree: 3.6% Strongly disagree: 5.4%
The doctor made you feel reassured the whole time.	Totally agree: 50% Agree: 19.6% Somewhat: 17.9% Disagree: 7.1% Strongly disagree: 5.4%
The doctor performed all the required medical examinations and appropriate diagnostic tests before jaw surgery.	Totally agree: 66.1% Agree: 19.6% Somewhat: 7.1% Disagree: 3.6% Strongly disagree: 3.6%
Your doctor forced you to choose surgery as the solution to your problem.	Totally agree: 16.1% Agree: 14.3% Somewhat: 23.2% Disagree: 37.5% Strongly disagree: 8.9%
Your doctor explained all the medical terms to you in a simple way.	Totally agree: 17.9% Agree: 7.1% Somewhat: 28.6% Disagree: 19.6% Strongly disagree: 26.8%

Your doctor has explained all the risks and benefits of the surgery before performing it.	Totally agree: 42.9% Agree: 23.2% Somewhat: 14.3% Disagree: 10.7% Strongly disagree: 8.9%
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Table 2 illustrates the patient's satisfaction with the doctor before and after orthognathic surgery. The first question is that patients quickly get an appointment with a doctor. The result shows that 35.7% agreed, 28.6% agreed that they get an appointment soon and 7.1% strongly disagreed, and 3.6% disagreed. The next question asked by the patient is whether the doctor can provide the consultation on time, and the result expressed that most patient agrees (42.9%) that they give an appointment time. The further questionnaire is whether the consultation fee is suitable, and the outcome illustrated that the patient mostly agreed (39.3%) and was satisfied with the doctor's price. **Table 2** also elaborates that 48.2% of patients agree with the doctor's cooperation, and 69.6% feel comforted with the whole doctor's time. The primary outcome evaluated from the table is that 66.1% of the patients are satisfied with the doctor's performance as he analyzed the medical examination and diagnosed the test before surgery. The important questionnaire asked the patient was that the doctor forced them to choose surgery to solve the jaw problem, and most patients said that they disagreed (37.5%) with this statement. The other question is if doctors explain all medical terms, and do most patients somewhat agree or disagree? **Table 2** demonstrates that most patients were satisfied (42.9%) with the statement

and said that the doctor explained all the cons and pros of the surgery before submitting the performance.

The results of the patient's satisfaction with surgery are shown in **Table 2**. According to the findings, 48.2% of respondents agree that the hospital administration asked for your signature and that of your family on the surgical consent form. In addition, under surgical procedures, patients are generally pleased (57.1%) and satisfied (53.6%), respectively, with the operating room, which was both clean and well-equipped and successfully managed the patient's anxiety during anesthesia.

The patient has inquired whether or not they need an additional surgical operation to assist them in the treatment of issues, as well as an examination from the doctor about complications after surgery. According to the response, 51.8% of respondents agree they need further surgical treatment. Conversely, 30.5% of respondents either partially agree or disagree that they require examination for some problem after surgery. Therefore, according to **Table 3**, most patients (37.5%) are advised to go through with this orthognathic surgical operation.

Table 3. Questions related to satisfaction of patients from the surgery.

Patients' satisfaction with surgery	
The hospital administration has requested your signature and your family's signature on the surgical consent.	Totally agree: 48.2% Agree: 32.1% Somewhat: 5.4% Disagree: 10.7% Strongly disagree: 3.6%
The operating room was well-equipped and clean.	Totally agree: 57.1% Agree: 32.1% Somewhat: 5.4% Disagree: 3.6% Strongly disagree: 1.8%
The anesthesia team handled your fear properly.	Totally agree: 53.6% Agree: 25% Somewhat: 10.7% Disagree: 5.4% Strongly disagree: 5.4%

Do you need another surgical procedure to help you in treating complications?	Totally agree: 51.8% Agree: 32.1% Somewhat: 5.4% Disagree: 3.6% Strongly disagree: 7.1%
Do you recommend this surgical procedure to others?	Totally agree: 35.7% Agree: 37.5% Somewhat: 17.9% Disagree: 5.4% Strongly disagree: 3.6%
Do you need an evaluation from the doctor about your complications after surgery?	Totally agree: 28.6% Agree: 25% Somewhat: 30.5% Disagree: 10.7% Strongly disagree: 5.4%
The duration of the operation was as expected.	Totally agree: 28.6% Agree: 25% Somewhat: 30.5% Disagree: 10.7% Strongly disagree: 5.4%
	Totally agree: 28.6% Agree: 25% Somewhat: 30.5% Disagree: 10.7% Strongly disagree: 5.4%

Table 4. Questions related to satisfaction with the result after surgery

Patient satisfaction with the result after surgery	
The outcome of the surgery was as I expected.	Totally agree: 42.9% Agree: 26.8% Somewhat: 17.9% Disagree: 3.6% Strongly disagree: 8.9%
Orthodontic surgery helps you in chewing food as well as speaking.	Totally agree: 35.7% Agree: 32.1% Somewhat: 21.4% Disagree: 5.4% Strongly disagree: 5.4%
Orthognathic surgery improved the aesthetic appearance of the face.	Totally agree: 50% Agree: 26.8% Somewhat: 7.1% Disagree: 8.9% Strongly disagree: 7.1%

Orthognathic surgery improved the aesthetic appearance of the teeth	Totally agree: 53.6% Agree: 28.6% Somewhat: 7.1% Disagree: 5.4% Strongly disagree: 5.4%
Do you think the surgery is worth the cost you spent?	Totally agree: 37.5% Agree: 25% Somewhat: 12.5% Disagree: 8.9% Strongly disagree: 16.1%
The surgery increased your self-confidence.	Totally agree: 58.9% Agree: 19.6% Somewhat: 10.7% Disagree: 1.8% Strongly disagree: 8.9%
	Totally agree: 48.2% Agree: 26.8% Somewhat: 12.5% Disagree: 1.8% Strongly disagree: 10.7%
Are you generally satisfied with the surgery?	Totally agree: 51.8% Agree: 21.4% Somewhat: 14.3% Disagree: 3.6% Strongly disagree: 8.9%

In **Table 4**, we see an illustration of how satisfied patients were with the results of their orthodontic surgery. The first assertion was that 42.9% of people agree that surgery is the consequence. The second issue was whether or not orthodontic surgery assists patients with chewing food and speaking after the procedure. The results showed that 35.7% of patients agree that they do not experience any difficulties chewing food and speaking after the procedure. The significant finding about orthognathic surgery is that fifty percent of patients and fifty-three point six percent are content with how surgery improves the cosmetic look of

the face and teeth. The patient with dental anomaly was questioned about whether or not they felt the surgery was worth the money spent, and 37.5% of them agreed with the statement. The findings indicate that 58.9% of patients reported a rise in their self-confidence, and 51.8% reported being happy with the procedure. Finally, the patient was questioned whether or not their relatives and friends believed that they have enhanced their look due to surgery. The results indicate that 48.2% of patients are happy with this assertion (views about appearance are improved).

Table 5. Complications after surgery.

Complications after surgery	
Did you have complications after surgery?	Yes: 42.9% No: 57.1%
Did the doctor manage your complications well?	Yes: 71.4% No: 28.6%
Is there any negative impact on your appearance after surgery?	Yes: 25% No: 75%
Do you need another surgical procedure to help you in treating complications?	Yes: 21.4% No: 78.6%
Do you recommend this surgical procedure to others?	Yes: 82.1% No: 17.9%

Do you need an evaluation from the doctor about your complications after surgery?

Yes: 48.2%

No: 51.8%

The outcome of complications after surgery is demonstrated in **Table 5**. Different questions are asked of the patient, and other views are obtained from the patient about complications after surgery. The first question was whether they had faced complications after surgery, and 57.1% of patients said they had no complications after surgery. The other important question was whether doctors could manage the complication well or not, and the answer was that 71.4% of patients said that doctors manage complications in a good way. The next question is whether patient appearance shows any adverse effect after surgery, and the result elaborates that 75% of patients said no negative impact occurred after surgery.

According to the current study's findings, the average age of patients suffering from dental abnormalities connected to the skull is 29.5 years old, and most of these patients are females. The proportion of male patients is 14.3%, while the percentage of female patients is 5.7%. This indicates that female patients often see dental anomalies that necessitate orthognathic surgery. The most critical result analyses provide the information in which patient who suffers from dental disease before surgery and complaint received in an open bite is 29%. In comparison, a complaint received in underbite is 23%. This information is provided. 39% complain of a recessed lower jaw, and 9% say they have a skewed mandible. Patients who have had orthognathic surgery have reported very positive results, with 91.1% of them expressing that they have no complaints after surgery. The sample size was calculated to be 150 study subjects by assuming that 50% of both surgeons and residents will have occupational stress and by using a precision of 8% at 0.05 level of significance. In addition, we assumed that the level of significance would be 0.05. As a result, we compared our findings with the literature study by Lwanga and Lemeshow [17]. Because we expected a non-response rate of 20%, we computed that the target sample size should be 180 participants. Because there are not a lot of OMS residents or surgeons in Saudi Arabia, a sequential non-random sampling strategy was adopted. This method included approaching all respondents either personally or via emails and social media to get them to participate in this research. The Saudi Society of Oral and Maxillofacial Surgery was contacted to get a list including all of the names of its members, including both surgeons and residents. This list was then broken down further into numerous distinct lists based on the hospitals and areas of Saudi Arabia to provide the most comprehensive coverage possible. When the data were being collected, these lists were adhered to very strictly and were verified frequently up to the point where the proper sample size was acquired. The prior research shows that a pilot study was conducted on a group of twenty participants before the phase in which the first data was collected to guarantee that the survey's validity was

maintained. Between May and December 2019, data gathering was carried out. Target groups were personally reached with either a paper or an electronic survey conducted on tablet devices, depending on the kind of institution they were affiliated with (academic or medical). Although we used a variety of approaches to collect the responses, we made sure that no two people provided the same answer. By the recommendations made by the Institutional Review Board (IRB) of King Saud University, informed consent was collected from every participant in the study [3].

The objectives of the research, as well as the participants, included a question about whether or not respondents agreed to participate voluntarily in this study. 76.2 percent of the participants were males, making up most of the group. While the majority of surgeons were between the ages of 31 and 40 years old (43.1%), the majority of residents were between the ages of 30 and 40 years old (16.9%), followed by those between the ages of 41 and 50 years old (19.2%). While the majority of surgeons (n = 121) received their education from programs that lasted for more than five years (37.2%), the remaining surgeons (26.4% of the total) received their education from programs that lasted for five years. When given a choice between several countries, most of the surgeons chose Saudi Arabia (29.2%), followed by other Arab countries (25.5%) and Europe (19.7%). However, only 11.7% of the surgeons received their education in the United States of America. There was a wide range of experience levels among the surgeons. Most surgeons had between 9 and 15 years of experience (35.5%), followed by those who had between 3 and 8 years of experience (33.1%). However, only 9.9% and 5.8% of the surgeons had between 16 and 25 years of experience and more than 25 years of experience, respectively. In terms of the residents (n = 51), 40 of those who participated in the survey were Saudi Board residents, which accounts for 78.4% of the total, while eight were DSc residents, which accounts for 15.7% of the total, and three were MSc Residents, which accounts for 5.9%. The Saudi Board and DSc programs are residency programs that last for five years, while the MSc program is an academic program that lasts for three years. In addition, the majority of residents who participated in the survey were in their third year (27.5%), while the residents in their first year (13.7%) made up the smallest percentage [3].

The current study provides evidence demonstrating the patient's level of satisfaction with their doctor before and after orthognathic surgery. The first question was about how simple it is for patients to schedule appointments with their doctors, and the responses showed that 35.7% of respondents agreed with this statement. In comparison, 28.6% said they agreed with it, and 7.1% said they strongly

disagreed and 3.6% said they didn't agree. The next question asked the patient was whether or not the doctor could provide the consultation on time, and the results showed that most patients were completely in agreement that they provided an appointment time (42.9%). The other questionnaire concerns whether or not the consultation fee is appropriate. The results indicate that patients are largely in agreement (39.3%) and content with the amount that the doctor charges. **Table 2** also explains that 69.6% of patients feel reassured by their doctor throughout the entire visit and that 48.2% agree with the doctor's level of cooperation. The primary outcome that was evaluated was that 66.1% of patients were completely satisfied with the doctor's performance as he analyzed the medical examination and diagnosed the test before surgery. This was determined by looking at the table. The most important question asked of the patient was whether or not they disagreed with the statement that the surgeon was forced to operate to fix the jaw problem, and 37.5% of patients responded that they did not agree with this statement. Most patients either somewhat agree or disagree with this statement. Most patients (42.9%) were completely satisfied with the statement and reported that their doctors had explained all of the benefits and risks associated with the surgery before submitting the Performa. Most surgeons and residents work in hospitals run by the Ministry of Health, accounting for 34.2% of the total, followed by those who work in academic institutions, accounting for 31.6% of the total. This finding is consistent with prior research on the topic of practice institutions. Most surgeons and residents in the current institution work five days a week and have an on-call duty one week out of every month. The relevant professional information for surgeons and residents is shown in **Table 2**.

On the other hand, 25.5% of the people have reported working all seven days a week. There was an increase in the number of working hours put in by the inhabitants; 38 of the 51 people put in 45 hours or more per week. In addition, there are three or more chairs or patients in the workplace, of around 39% of surgeons and residents. On the other hand, most residents (37.3%) do anything from three to five operations per month, while most surgeons (24%) undertake more than eight procedures under general anesthesia each month. It seems that fifteen percent of surgeons do not work in operating rooms, although only three point nine percent of residents do not work in operating rooms [7].

In this research project, the patient has questioned whether or not they need an extra surgical procedure to aid in the treatment of concerns and an assessment from the doctor about their complications following surgery. The result indicates that 51.8% of respondents agree they need more surgical therapy. As a result of our analysis of the published research, we found several procedures, including orthognathic surgery, have been proposed as potential therapies for dentofacial anomalies. This systematic review

aimed to evaluate the impact of orthognathic surgery on patient satisfaction, overall quality of life, quality of life-related to oral health, and quality of life-related to orthognathic surgery, in particular among adult patients. Following a manual check of the references, an additional six relevant studies were found, bringing the total number of relevant articles obtained from the databases to 245. Orthognathic surgery is connected with high patient satisfaction rates and significantly improves one's quality of life, both physically and psychosocially, once the procedure has been performed [1].

Conclusion

The primary emphasis of the study was on the patient's level of satisfaction with their doctor both before and after orthogenic surgery, as well as the complications that developed after surgery. According to the findings of the research, patients have a positive impression of the doctor's conduct and orthognathic surgery. Most of the patients report that they did not experience any issues after surgery and would suggest this surgical technique to others. The patient's self-confidence increased as a result of this operation, and the cosmetic look of the face and teeth was also improved as a result of the surgery.

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