

Original Article

Assessment of Patient Satisfaction and Important Variables after an Orthognathic Surgery: A Long Term Study

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ABSTRACT:

Introduction: Orthognathic surgery involves correction of a wide range of minor and major irregularities of the jaw and teeth to improve their work and function apart from improving the aesthetics. The Dentofacial anomalies may range from defective mastication due to abnormal tooth positioning to temporomandibular dysfunction. The psychological assessment of the patient is of foremost importance and is directly related to the surgical outcome in terms of patient satisfaction. **Aim :** the aim of the study is to evaluate patient expectations and their opinions about the result of treatment and side-effects before and after orthognathic surgeries. **Material and methods:** This was a longitudinal study which comprised of questionnaire with total of 12 questions. The questions framed were made concise and easy to understand, so that they were self explanatory to the patient. The Questionnaires were filled both pre treatment and post treatment after a 1 year follow up. **Results:** Overall a high level of satisfaction was observed among the patients after the surgery as our results show that majority of the patients were satisfied by both their aesthetic appearance and functional ability. Though negative responses were also reported, still the frequency of positive results were so high and the differences were statistically significant as well. **Conclusion:** The psychological assessment of the patient is of foremost importance and is directly related to the surgical outcome in terms of patient satisfaction. Patient expectations and their opinions about the result of treatment and side-effects should always taken into consideration apart from the best surgical treatments provided. **Clinical Significance:** The values of individual patients have an important role in evaluating the postoperative results of the treatment, whereas objective parameters of outcome and patient satisfaction may be variable. No matter how a surgery is performed patient satisfaction is foremost thing for the surgeon. Our study lays stress on analysing the complaints and expectations of patients very carefully so that best results can be rendered to the patient.

Key words: Orthognathic surgery, Psychology, preoperative, postoperative

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INTRODUCTION:

Orthognathic surgery involves correction of a wide range of minor and major irregularities of the jaw and teeth to improve their work and function apart from improving the aesthetics. The Dentofacial anomalies may range from defective mastication due to abnormal tooth positioning to temporomandibular dysfunction. These problems are accompanied by aesthetic problems which have a profound psychological influence on the person. The first most evident change after the surgery is change in the soft tissue envelope of the face overlying the skeletal framework due to realignment of the skeletal portion of face which directly influences the positioning

if attached mules.^{1,2} The surgical change in maxillofacial anatomy and the change in occlusion through orthodontics are powerful agents with potentially beneficial effects.

The psychological assessment of the patient is of foremost importance and is directly related to the surgical outcome in terms of patient satisfaction. No matter how a surgery is performed patient satisfaction is foremost thing for the surgeon.³ He should be able to evaluate the patient expectations and should analyse the complaints very carefully. A patient-centered approach to examining the outcome of the therapy is an important supplement to the study.⁴

Thus the aim of this study was to evaluated different factors both subjective and objective with regard to patient satisfaction both pre and post operatively. Patient expectations and their opinions about the result of treatment and side-effects were taken into consideration.

MATERIAL AND METHODS:

This was a longitudinal study which was conducted in the Department of Oral and Maxillofacial Surgery, and included a total sample size of 60 patients. Required Ethical clearance was taken from the institutional ethical Committee before the commencement of the study. An informed consent was taken from the patients as well.

We selected those patients who underwent bimaxillary osteotomy for class-III correction in the department, during the time period from June 2012- August 2017 i.e approximately last 5 yrs and underwent at least 1 year

postoperative follow up period. Exclusion criteria included cleft lip and/or palate patients, patients with congenital syndromes and those who had undergone orthognathic surgery with distractor devices.

A questionnaire was prepared to assess patient perceptions of the treatment and their outcomes before and after surgery.(TABLE 1) It comprised of a total of 12 questions. The questions framed were made concise and easy to understand, so that they were self explanatory to the patient. the Questionnaires were filled both pre treatment and post treatment after a 1 year follow up and included all aspects like patient satisfaction, aesthetic improvement, psychological effects after treatment, masticatory efficiency and TMJ functioning.

TABLE 1: QUESTIONNAIRE USED FOR INTERVIEWING THE PATIENTS

	QUESTIONS	CHOICES
1.	What is your primary requirement for which you want to undergo orthodontic Surgery?	<ul style="list-style-type: none"> • Improve your Aesthetic appearance only • Improve mastication only • Both • None/ don't know
2.	How will you evaluate your postoperative results after the treatment.	<ul style="list-style-type: none"> • Aesthetic improvement only • Improvement in mastication only • Both of the above are improved • No improvement/ don't know
3.	If you have to grade the results of the surgery, how will you grade it from 1-10?	<ul style="list-style-type: none"> • 1-4: Not satisfied/ did not meet the expectations • 5: Average results • 6-10 :Completely satisfied
4.	HOW WILL YOU GRADE your ASTHETICS (facial appearance) before the surgery grading from 1 to 10	1-Bad 5-Moderate 10-Very good
5.	HOW WILL YOU GRADE your ASTHETICS (facial appearance) after surgery grading from 1 to 10	1-Bad 5-Moderate 10-Very good
6.	Is there an increase in your self confidence after surgery?	Yes/ no
7.	How will you grade your chewing function before surgery grading from 1 to 10?	1-Bad 5-Moderate 10-Very good
8.	How will you grade your chewing function presently after surgery grading from 1 to 10?	1-Bad 5-Moderate 10-Very good
9.	Was there any pain felt while opening and closing mouth before surgery?	Yes/ no
10.	Is there any pain felt while opening and closing mouth after surgery?	Yes/ no
11.	Do you feel any numbness or tingling sensation around your face, upper/lower lip or gum?	Yes/ no
12.	Will you recommend this operation to anyone who would needs an orthognathic surgery?	Yes/ no

STATISTICAL ANALYSIS:

The data was collected by personally interviewing each patient. All the data obtained was tabulated and analysed using T test, ANOVA, Mann Whitney U and Kruscal Wallis test. p value <0.05 was considered to be Statistical significant.

RESULTS:

The study comprised of a total of 60 sample and the mean age group of the patients came out to be 21.8 ± 1.8. Gender difference was not much in our study as the male

population came to be 53.3% and female population was 46.6% (table 2)

TABLE 2: SHOWING DISTRIBUTION OF VARIABLES

VARIABLE	MEAN ± SD
Age	21.8 ± 1.8
Female population %	46.6%
Male population %	53.3%

The filled questionnaires after personal interviews with the patients were documented and evaluated . The results were tabulated and are given in table 3.

The results for the first question showed that 75% of the patients opted for the option “both” which was the maximum, followed by 13.3% for “aesthetic improvement only”, 8.3% for “improvement of chewing function only” and least opted choice was “don’t know” i.e 3.3%. Answers to the second question showed that majority i.e 80% of the patients opted for the option “both”, followed by 11.6% for “aesthetic improvement only”, 6.6% for “improvement of chewing function only” and least opted choice was “don’t know” i.e 1.6%. Further the results of the 3rd question showed a minimum score of 3 and a maximum of 10 score with a mean of 7.28±2.3. It was observed that score 8 was found to be maximum graded by the patients and this difference was statistically significant as well. The highest score 10 was given by 13.3% of the study population. The results for the 4th and 5th question which evaluated the aesthetics of the patient before and after the surgery were 4.56±2.8 and 8.21±1.6 respectively. The difference in the results when compared with each other came out to be statistically significant (p<0.005) The 6th question dealt with increase in self confidence of the patients after surgery and the results showed that

76.6% of the patients reported to have increase in self confidence while 23.3% refused an increase in self confidence.

The results for the 7th and 8th question which evaluated the chewing function of the patient before and after the surgery were 6.1±1.8 and 8.98±2.1 respectively. The difference in the results when compared with each other came out to be statistically significant (p<0.001)

Further the results for the 9th and 10th question showed that 63.3% of the patients reported pain while opening and closing of mouth before surgery while 33.6% reported pain while opening and closing of mouth after surgery. The difference in the results when compared with each other came out to be statistically highly significant (p<0.001).

Also for the 11th question it was observe d that 62.4% of the patients experienced tingling sensation while 37.6% did not experience any such sensation. Lastly the outcome of the 12th question showed that 80% of the patients said that they will recommend this surgery to others also who require it while 20% of them refused to do so. But the difference in results were statistically highly significant (p<0.001).

TABLE 3: EVALUATED RESULTS OF THE QUESTIONARRE ANSWERED BY THE PATIENTS

	QUESTIONS	CHOICES	RESULTS
1.	What is your primary requirement for which you want to undergo orthodontic surgery?	<ul style="list-style-type: none"> • improve your aesthetic appearance only • improve mastication only • both • none/ don't know 	13.3% 8.3% 75% 3.3%
2.	How will you evaluate your postoperative results after the treatment?	<ul style="list-style-type: none"> • aesthetic improvement only • improvement in mastication only • both • no improvement/ don't know 	11.6% 6.6% 80% 1.6%
3.	If you have to grade the results of the surgery, how will you grade it from 1 to 10?	<ul style="list-style-type: none"> • 1-4: not satisfied/ did not meet the expectations • 5: average results • 6-10 :completely satisfied 	Mean:7.28±2.3
4.	How will you grade your asthetics (facial appereance) before the surgery grading from 1 to 10?	<ul style="list-style-type: none"> • 1-bad • 5-moderate • 10-very good 	Mean:4.56±2.8
5.	How will you grade your asthetics (facial appereance) after surgery grading from 1 to 10?	<ul style="list-style-type: none"> • 1-bad • 5-moderate • 10-very good 	Mean:8.21±1.6
6.	Is there an increase in your self confidence after surgery?	<ul style="list-style-type: none"> • Yes • No 	76.6% 23.3%
7.	How will you grade your chewing function before surgery grading from 1 to 10?	<ul style="list-style-type: none"> • 1-bad • 5-moderate • 10-very good 	Mean:6.1±1.8
8.	How will you grade your chewing function presently after surgery grading from 1 to 10?	<ul style="list-style-type: none"> • 1-bad • 5-moderate • 10-very good 	Mean:8.98±2.1
9.	Was there any pain felt while opening and closing mouth before surgery?	<ul style="list-style-type: none"> • Yes • No 	63.3% 36.3%
10.	Is there any pain felt while opening and closing mouth after surgery?	<ul style="list-style-type: none"> • Yes • No 	33.3% 66.6%
11.	Do you feel any numbness or tingling sensation around your face, upper/lower lip or gum?	<ul style="list-style-type: none"> • Yes • No 	62.4% 37.6%
12.	Will you recommend this operation to anyone who would needs an orthognathic surgery?	<ul style="list-style-type: none"> • Yes • No 	80% 20%

DISCUSSION:

Dentofacial anomalies may range from defective mastication due to abnormal tooth positioning to more severe problems like temporomandibular dysfunction. The unaesthetic appearances of soft tissue due to skeletal deformities are of major concern specially the dentoskeletal class-III malocclusion, as they are most likely to cause psychological problems in both children and adults than any other problem.^{1,2} Therefore psychological assessment of the patient is of foremost importance and is directly related to the surgical outcome in terms of patient satisfaction. No matter how a surgery is performed patient satisfaction is foremost thing for the surgeon. He should be able to evaluate the patient expectations and should analyse the complaints very carefully. The chief determinant of satisfaction after surgery seems to be aesthetic improvement of the patient.⁶ The values of individual patients have an important role in evaluating the postoperative results of the treatment, whereas objective parameters of outcome and patient satisfaction may be variable.⁷

This longitudinal study was done with a prime intention to do psychological assessment of the patients who undergo such surgeries keeping in mind a patient centered treatment. A total sample size of 60 patients with a mean age of 21.8 ± 1.8 were included in the study.

To evaluate the patient response, questionnaires were prepared which are an effective, easily understandable and economic. But definitely this method of evaluation is totally subjective and patient mood dependent and can be affected easily. A total of 12 questions were included in this study. We tried to keep the questions simple and self explanatory for the patients. All the aspects were kept in mind to inquire about both preoperative and post operative conditions or satisfaction of the patients. Our questionnaire were comparable with studies of other authors as well, using fewer or more questions in their survey depending on a smaller^{8,9} or larger population covered.^{10,11}

In this study males and females were almost equally distributed with not much difference in their percentages. The results of our study showed that variables like age and gender difference did not show any correlation with answering of the questionnaire regarding their expectations and surgical outcomes. Where as Siow KK et al¹² in their study reported that younger males wanted functional improvement while younger females wanted increase in self confidence. Nicodema et al.¹³ in his study reported an increase in self confidence following surgery in elderly female with class 3 malocclusion while male patients did not report so.

Overall a high level of satisfaction was observed among the patients after the surgery as our results show that majority of the patients were satisfied by both their aesthetic appearance and functional ability. Though negative responses were also reported, still the frequency of positive results were so high and the differences were statistically significant as well.

In this study we reported that no patient reported poor results. The minimum evaluation and rating reported in

our study was grade 2 with a maximum of range 10. The lowest grade given by the patients for the surgical outcome, can be justified by their anxiety towards treatment. During surgical procedure excessive bleeding is the most common complication of maxillary orthognathic surgery due to its dual blood supply.¹⁴ Blood transfusions are usually required in such cases. A septic necrosis is also one of the important and rare finding.¹⁵ Our results are comparable with that of Türker et al.⁶ who showed showing 3% of unsatisfied patients, and rated with grade 0 (poor) for the overall surgical outcome.

Though in our study no major complication was observed apart from the few minimal complications. In spite of the usage of rigid fixation, we experienced 2 cases of relapse which was considered mainly due to inappropriate movement of the maxilla due to the muscle movements.

To deliver a high level of satisfaction to the patient its been reported that this may be achieved with simultaneous procedures, including orthognathic surgery, removal of third molars, and even liposuction. Written information about regarding the post operative results and complications and the recovery period, and patient consent to the surgical procedure may be helpful and may reduce postoperative dissatisfaction.

Our study reported that due to satisfactory outcomes 80% of the subjects were ready to suggest such surgeries to other people as well who need them. Its seen that a positive feedback from such patients do affect the psychology of other patients who are yet to undergo such treatments as it helps to decrease their anxiety levels. In the results of Türker et al.⁶ and Williams et al.⁸ subjects admitted to undergo orthognathic surgery after they talked to patients who had previously undergone surgery and, as a result, they felt more ready for surgery and expressed great satisfaction with the outcome.

The major drawback of this study according to us was less sample size with a broader classification of the orthognathic surgeries include in the study and emphasizing more on the post operative complications. More such studies are required in future on different populations so that the patient psychology can be better understood by the surgeon and help in better and a positive post operative outcome.

CONCLUSION:

The psychological assessment of the patient is of foremost importance and is directly related to the surgical outcome in terms of patient satisfaction. Patient expectations and their opinions about the result of treatment and side-effects should always taken into consideration apart from the best surgical treatments provided.

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