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## **Assessment of impact of orthognathic surgery on quality of life in patients with dentofacial defects**

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**Abstract**--Background: Dentofacial deformities have a major negative social impact because of its association with esthetic and functional limitations. The present study was conducted to assess the impact of orthognathic surgery on quality of life in patients with dentofacial defects. Materials & Methods: 52 patients undergoing dental surgery to correct dentofacial deformities of both genders were included. Group I comprised of cases and group II control subjects. Deformities were grouped for analysis into DEF. 0, DEF. 1, DEF. 2, DEF. 3 and DEF. 4 (Other Deformities). OHIP-14 was completed in three stages: 1 week before surgery (T0), 1 month following surgery (T1), and 3 months following surgery (T2). The response recorded was never (0), rarely (1), sometimes (2), often (3), and always (4). Results: Out of 52 patients, males were 32 and females were 20. OHIP- 14 score 19 at T0, 22 at T1, 7 at T2, 3 at T1-T0, -12 at T2-T0 and -15 at T2-T1. The difference was significant ( $P < 0.05$ ). The mean T0 at DEF 0, DEF 1, DEF 2, DEF 3 and DEF 4 was 18, 19, 25, 25 and 18 and at T1 was 22, 21, 28, 28 and 12 and at T2 was 13, 6, 9, 9 and 4 respectively. The difference was non- significant ( $P > 0.05$ ). Conclusion: There was

negative impact on quality of life in individuals who present with dentofacial deformity which gradually improved over 3 months following orthognathic surgery.

**Keywords**---dentofacial deformity, orthognathic surgery, quality life.

## **Introduction**

Dentofacial deformities have a major negative social impact because of its association with esthetic and functional limitations.<sup>1</sup> These can be drastically modified using orthognathic surgery. A combination of orthodontic therapy and orthognathic surgery is a well-established treatment method to correct moderate as well as serious dentofacial deformities.<sup>2</sup> The prime objective of this surgery is to correct the facial skeleton so as to facilitate malocclusion orthodontic therapy. This justifies the increasing number of studies focusing on the quality of life as an important indicator of how the patient will react to treatment.<sup>3</sup>

Over the years, the patients with dentofacial deformities have lower mean quality of life values in comparison with those who have not.<sup>4</sup> At present, the combination of the two treatment modalities, maxillofacial surgery and orthodontics, is one of the most important parts in the corrective treatment of malocclusion and facial deformities. Current advances in diagnostic and planning methods and surgical techniques have made orthognathic surgery safe and common for treating these deformities.<sup>5,6</sup>

The Oral Health Impact Profile (OHIP) has been tested, developed, and accepted as being valid, precise, and reliable. This tool helps us to examine the expectations of individuals in relation to their health.<sup>7</sup> The present study was conducted to assess the impact of orthognathic surgery on quality of life in patients with dentofacial defects.

## **Materials and Methods**

The present study comprised of 52 patients undergoing dental surgery to correct dentofacial deformities of both genders. The consent was obtained from all enrolled patients. Data such as name, age, gender etc. was recorded. Group I comprised of cases and group II control subjects. Deformities were grouped for analysis into DEF. 0 (Transversal Deficiency of the Jaw), DEF. 1 (AP Deficiency of the Mandible), DEF. 2 (Vertical Deformities), DEF. 3 (AP Deficiency of the Jaw/AP Excess of the Jaw), and DEF. 4 (Other Deformities). A simplified, self-applicable Brazilian version of the OHIP-14 was completed in three stages: 1 week before surgery (T0), 1 month following surgery (T1), and 3 months following surgery (T2). The response recorded was never (0), rarely (1), sometimes (2), often (3), and always (4). Scores range from 0 to 56 points. Higher scores indicate a greater negative impact while lower scores represent greater positive impact in all treatment phases. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

## Results

Table I Distribution of patients

Total- 52		
Gender	Males	Females
Number	32	20

Table I shows that out of 52 patients, males were 32 and females were 20.

Table II The complete scores for each evaluation time in group II

OHIP- 14	Median	P value
T0	19	-
T1	22	-
T2	7	-
T1-T0	3	0.05
T2-T0	-12	0.02
T2-T1	-15	0.01

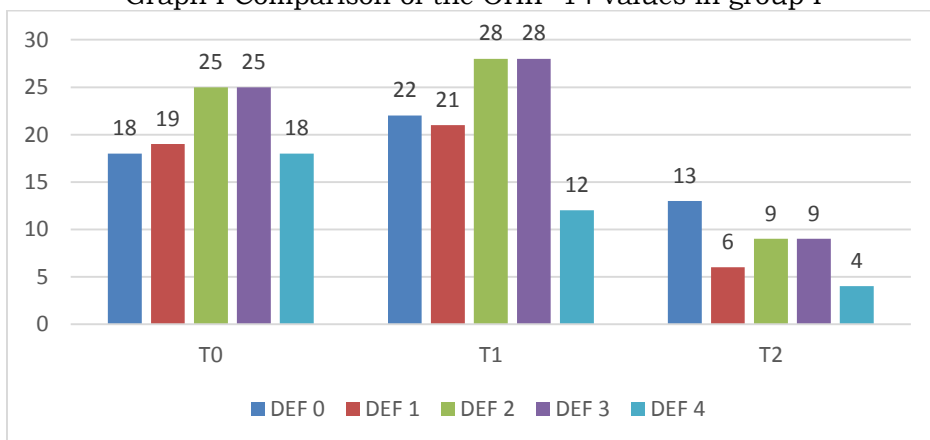
Table II shows that OHIP- 14 score 19 at T0, 22 at T1, 7 at T2, 3 at T1-T0, -12 at T2-T0 and -15 at T2-T1. The difference was significant ( $P < 0.05$ ).

Table III Comparison of the OHIP-14 values in group I

Duration	DEF 0	DEF 1	DEF 2	DEF 3	DEF 4	P value
T0	18	19	25	25	18	0.11
T1	22	21	28	28	12	0.18
T2	13	6	9	9	4	0.25

Table III, graph I shows that mean T0 at DEF 0, DEF 1, DEF 2, DEF 3 and DEF 4 was 18, 19, 25, 25 and 18 and at T1 was 22, 21, 28, 28 and 12 and at T2 was 13, 6, 9, 9 and 4 respectively. The difference was non- significant ( $P > 0.05$ ).

Graph I Comparison of the OHIP-14 values in group I



## Discussion

Dentofacial deformities have been described as changes that primarily affect the jaws and teeth, although the multiple craniofacial structures may also be affected.<sup>8,9</sup> In most cases, they are the result of moderate or severe genetic distortions of the normal development process (such as mandibular prognathism, bimaxillary prognathism or retrognathism, maxillary vertical excess) and should be corrected using an integrated treatment of orthodontics and orthognathic surgery in adult orthodontic.<sup>10</sup> Borzabadi-Farahani et al<sup>11</sup> reported that 36% of Iranian young population need orthodontic treatment and nearly 12% of them had severe malocclusion which needs compound orthodontics and orthognathic surgery treatments. The present study was conducted to assess the impact of orthognathic surgery on quality of life in patients with dentofacial defects.

We found that out of 52 patients, males were 32 and females were 20. Al-Bitar et al<sup>12</sup> in a study revealed that Jordanian patients with dentofacial deformities as an Arab population had generally lower score and therefore a poorer QOL than reported in British, Japanese, and Chinese populations. They concluded that these differences may be cultural or may be due to differences in healthcare system's criteria for funding. The differences may refer to socially and culturally unique definitions and concepts of health and quality of life and awareness of higher level needs.

We observed that OHIP- 14 score was 19 at T0, 22 at T1, 7 at T2, 3 at T1-T0, -12 at T2-T0 and -15 at T2-T1. Eslamipour et al<sup>13</sup> determined the impact of orthognathic surgery on quality of life in patients with dentofacial deformities at immediate pre-surgery and at 3-week, 3-month, and 6-month intervals following the surgery in 43 subjects 18–40-year-old orthognathic patients. The results showed significant reduction returned to baseline in OQLQ mean scores and aesthetic, awareness, and social subdomains in all 3 intervals after surgery. However oral function domain showed an increase at T2 and then a decrease at next intervals. Maximum and minimum effect size were observed in aesthetic (ES = 0.7) and oral function (ES = 0.3) domain, respectively. Based on the finding of this study, in 6-month interval after surgery, orthognathic surgery causes significant improvements in quality of life in patients with dentofacial deformities as assessed in emotional, psychological, oral function, and social domains and maximum changes occurred in emotional domain.

We found that mean T0 at DEF 0, DEF 1, DEF 2, DEF 3 and DEF 4 was 18, 19, 25, 25 and 18 and at T1 was 22, 21, 28, 28 and 12 and at T2 was 13, 6, 9, 9 and 4 respectively. Corso et al<sup>14</sup> evaluated the effect of orthognathic surgery on the quality of life of patients receiving treatment at the Universidade Federal do Paraná – UFPR. Clinical data were evaluated for the control group, and a quality-of-life evaluation questionnaire was completed [Oral Health Impact Profile (OHIP-14)]. For the case group, the same data were gathered along with information regarding their dentofacial deformity. The OHIP-14 questionnaire was also completed at three distinct stages of the experiment. The median age in the control group was 23.5 years. In the case group, the predominant gender was female, and the mean age of patients was 29.4 years. There was a statistically significant association between gender and OHIP-14 ( $p < 0.001$ ). No such

association was observed between age and OHIP-14 scores ( $p = 0.616$ ). In the control group the OHIP-14 median score was 11.5. In the case group, the average OHIP-14 score at was 18 at T0, 21 at T1, and 8 at T2. The results demonstrated a statistically significant association between the three time stages at which OHIP-14 was analyzed ( $p < 0.001$ ). There was a smaller reduction in the negative impact for transversal deformities of the jaw when compared with other deformities. Orthognathic surgery led to a reduction in the negative effects on the quality of life of patients.

## Conclusion

Authors found that there was negative impact on quality of life in individuals who present with dentofacial deformity which gradually improved over 3 months following orthognathic surgery.

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