

# Impact of trauma and surgical treatment on the quality of life of patients with facial fractures

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**Abstract.** This study assessed the impact of oral and maxillofacial trauma and surgical treatment on the quality of life of patients. The study included 66 patients (age range 18–65 years) with facial fractures; 33 required surgical treatment and 33 required conservative (non-surgical) treatment. Quality of life was evaluated by applying the Oral Health Impact Profile questionnaire (OHIP-14) immediately after diagnosis of the trauma (T1), 30 days after surgery or trauma (T2), and 90 days after surgery or trauma (T3). For the control group (conservative treatment), there was a change in quality of life at T1 and T2. A change in quality of life was found for all of the surgical patients, regardless of the type of fracture and the observation period analyzed. There was no statistical difference when T1, T2, and T3 were compared in cases of zygomatic, Le Fort I, and nasal fractures, however there was an improvement in the quality of life of patients with mandibular fractures ( $P = 0.0102$ ) and multiple facial fractures ( $P = 0.0097$ ) at T3. Facial trauma caused the greatest impact on the quality of life of surgical patients at T1. The surgical treatment significantly improved quality of life for patients with mandibular and multiple facial fractures.

**Key words:** facial injuries; quality of life; facial bones; maxillary fractures; face.

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Facial trauma is considered one of the most devastating events in a patient's life as it usually results in physiognomic deformities and possible emotional consequences.<sup>1–5</sup> Due to the increase in occurrence of facial trauma during the last four decades, important discussions on this topic have taken place. Currently, it is thought that the main aetiological factors are alcohol and drug use, car accidents, and increasing urban violence. However, the

occurrence of these factors varies greatly according to the region studied.<sup>6–13</sup>

Oral and maxillofacial injuries can occur in isolation or be part of a larger trauma. For this reason, multidisciplinary examination involving specialties such as ophthalmology, plastic surgery, maxillofacial surgery, and neurosurgery is extremely important when making a neurological assessment.

Several studies on the impact of oral health problems on quality of life have

been reported.<sup>5,14–16</sup> However, few studies have investigated this issue in patients with facial trauma. Quality of life is currently considered an important marker for assessment in oral health studies.<sup>15,16</sup> This has led to the development of new instruments to assess quality of life.<sup>17</sup>

The Oral Health Impact Profile (OHIP) questionnaire is one of the most commonly used instruments; it has been used in various studies across different cultures

and socio-demographic profiles. The OHIP was developed in order to provide a comprehensive measurement of the dysfunction, discomfort, and disability associated with oral conditions as reported by the individual.<sup>18,19</sup> OHIP analyzes the different dimensions of functional patterns. These dimensions are functional limitation (e.g., difficulty chewing), pain (e.g., sensitivity of teeth), psychological discomfort (e.g., personal embarrassment), physical disability (e.g., changes in diet), psychological disability (e.g., reduced concentration), social disability (e.g., avoiding social contact), and incapacitation (e.g., being unable to work productively).<sup>19,20</sup>

In 1997, Slade described an abridged version of the OHIP, called OHIP-14, which was derived from the original version, OHIP-49.<sup>18</sup> In this version, the author maintained the dimensional concepts of health of the original questionnaire. The author suggested that this new instrument might be useful to quantify the level of impact on the quality of life of patients. Among the 14 questions of OHIP-14, 10 relate to the psychological and behavioural impact and four address each of the remaining general dimensions. Therefore, OHIP-14 can be considered one of the best detectors of the psychosocial impact in a population.

The objective of this study was to assess the impact of oral and maxillofacial trauma and surgical treatment on the quality of life of patients attending a centre for surgery and oral and maxillofacial traumatology in Araçatuba, Brazil.

## Methods

The participants were patients with facial trauma undergoing treatment at a centre for surgery and oral and maxillofacial traumatology in Araçatuba, Brazil, from August 2013 to July 2014. The project was approved by the ethics committee of the dental school.

The patients included in this study were adults suffering from facial bone fractures. Some of these patients required surgical treatment, while others were indicated for conservative treatment. All were followed-up for 90 days. Patients were excluded if they had mental disabilities, had neurological sequelae, were unable to respond appropriately to the examination questions and the questionnaire, or missed one of the follow-up consultations within the 90 days.

A validated version of the OHIP-14 questionnaire (Oral Health Impact Profile–short form) was applied to participants in order to evaluate their quality

Table 1. Brazilian version of the OHIP-14 questionnaire.

Question	Reply
After suffering from trauma to the face?	0 = never
After surgery?	1 = rarely
	2 = sometimes
	3 = repeatedly
	4 = always
1. You have had problems saying some words...	0 1 2 3 4
2. The taste of foods has worsened...	0 1 2 3 4
3. You have felt strong pain in your mouth...	0 1 2 3 4
4. You have felt uncomfortable eating any food...	0 1 2 3 4
5. You have felt uncomfortable...	0 1 2 3 4
6. You have felt stressed...	0 1 2 3 4
7. Your diet has been hampered...	0 1 2 3 4
8. You had to stop taking your meals...	0 1 2 3 4
9. You have found it hard to relax...	0 1 2 3 4
10. You have already felt a bit embarrassed...	0 1 2 3 4
11. You have felt irritated by other people...	0 1 2 3 4
12. You have found it difficult to carry out your daily activities...	0 1 2 3 4
13. You have felt that life in general has worsened...	0 1 2 3 4
14. You have not been able to carry out your daily activities...	0 1 2 3 4

OHIP, Oral Health Impact Profile.

of life.<sup>21</sup> Interviews were carried out by a single interviewer, previously trained in the application of the questionnaire.<sup>21</sup> The original OHIP-14 questions underwent minor adaptation: the words “their teeth and dentures” were replaced with the words “after suffering facial trauma” and “after surgical treatment”.

The OHIP-14 was applied three times during the 90-day follow-up: immediately after diagnosis of the trauma (T1), 30 days after the day of surgery or indication for conservative treatment (T2), and 90 days after surgery or the indication for conservative treatment (T3). During follow-up interviews, the patients reported their problems as perceived by themselves, and the problems were classified according to their frequency.

Table 1 lists the OHIP-14 questions used in this study. The possible response to each question was ‘never’, ‘rarely’, ‘sometimes’, ‘repeatedly’, or ‘always’; these were scored as 0, 1, 2, 3, and 4, respectively. The total score for the OHIP-14 ranges from 0 to 56.

The questions assessed the following problems: pronunciation (question 1), taste (question 2), pain (question 3), discomfort when eating (question 4), oral discomfort (question 5), nervous tension (question 6), hampered eating (question 7), interruption of meals (question 8), difficulty relaxing (question 9), embarrassment (question 10), irritation with other people (question 11), difficulty in carrying out daily activities (question 12), unsatisfactory life (question 13), and functional incapacity (question 14). These questions were grouped into seven domains (two questions per domain), as shown in Table 2.

The score for each item for each individual was added up and the final score obtained (score range 0–56). The mean OHIP-14 score was calculated for each type of fracture at each observation point. The Shapiro–Wilk normality test was performed. The scores for the three observation periods were then compared statistically using the Kruskal–Wallis non-parametric test. In the case of a significant difference, the Dunn test was applied. The significance level was set at 5%. The control group (conservative treatment) was compared to the treated group (surgical treatment).

## Results

From August 2013 to July 2014, 398 patients with facial trauma were treated at the centre for oral and maxillofacial surgery and traumatology. Of these 398 patients, 125 were diagnosed with facial fractures, 53 of whom required surgical treatment and 72 of whom were treated conservatively. The study included 66 patients (47 male and 19 female), aged between 18 and 65 years, who met the established criteria.

Table 2. Domains of the OHIP questionnaire according to the problems presented.

Domain	Questions
Functional limitation	1–2
Physical pain	3–4
Psychological discomfort	5–6
Physical incapacity	7–8
Psychological incapacity	9–10
Social incapacity	11–12
Social disadvantage	13–14

OHIP, Oral Health Impact Profile.

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