

QUALITY OF LIFE OF SURGICALLY TREATED PATIENTS WITH FRACTURES OF FACIAL BONES

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Patients with fractures of facial bones often have a poorer quality of life after a fracture, as well as some form of psychological morbidity.

The aim of this paper is to assess the quality of life of patients with surgically treated fractures of facial bones.

Thirty patients with fractures of the facial bones and jaw were included in this prospective clinical study, treated at the Department of Maxillofacial Surgery in Nis and the Department of Otorhinolaryngology and Maxillofacial Surgery in Podgorica, of both sexes, aged 18 to 65. The standardized questionnaire of the quality of life in relation to health, (UW QoL v.4), was used.

Women, as compared to men, had higher level of anxiety. Patients were mostly male (> 90%), while patients younger than 50 years old had a higher level of anxiety than the older ones. During the one month monitoring period, 60% of the operated patients had a good quality of life. Mood swings and feelings of depression were present in approximately half of the patients. A third of them stated those factors as the most annoying ones, which was cited as the most common cause of the poor quality of life in other studies, too.

Facial fractures have a major impact on the quality of life of patients soon after the injury in terms of altered appearance, inability to perform activities and recreation and mood swings, as well as presence of pain. It is important to understand the impact of maxillofacial trauma for each patient individually, physically and mentally.

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Introduction

One of the constantly present public-health problem in developed countries, as well as in developing countries are the fractures of facial bones and jaw (1). Patients with fractures of some of the facial bones often have a lower quality of life after the fracture, as well as some form of psychological morbidity. In studies related to this topic, the presence of specific psychosocial factors such as: depression, anxiety, changes in the perception of one's own body looks after the surgery on the bones of the face and

jaw, low self-esteem and poor social relationships is mentioned (2-6). Violence is mentioned as a major factor in studies of the dominant causes of maxillofacial injuries (3, 6, 7).

Some authors state that injuries of the fractures of facial bones have a huge impact on the quality of life of patients, as measured by various tests on the quality of life. Furthermore, the surgeon must pay attention to a variety of psychological and physical needs of patients (8-11).

Surgical treatments of the face area are associated with a specific and strong fear (12-14). According to some studies, there is a clearly expressed psychological morbidity (such as anxiety and depression) in 30% of the patients immediately after fractures of the face and after the surgical procedure (9, 15). Depressive symptoms (which may also be associated with pain) may increase immediately after the surgical procedures on facial bones and jaw, as well as be present throughout the entire period of postoperative monitoring of the patient (3, 1, 16). Recent studies show that in maxillofacial injuries, the rate of post-traumatic stress disorder (PTSD) reaches the value of 27% (while some studies find even 47%), with the possibility of becoming a chronic condition if it is not recognized and treated

in due time (5, 17, 18, 9). So, it is very important to pay attention to the long-term consequences of maxillofacial injuries at the very beginning of their treatment (19).

Attention must be paid to the psychological symptoms that are caused by an injury of the patients with fractures of facial bones and jaw apart from the restitution of anatomical integrity and function (2, 20).

The studies on the quality of life have relatively recently begun to gain momentum in our country, while the studies that deal with the issues of the quality of life (with a special emphasis on psychosocial factors) after maxillofacial injuries are extremely rare. In our literature there is almost no study that has examined the quality of life of patients with fractures of facial bones, while this is a particularly current issue worldwide, which highlights the importance of such an issue (2).

The literature states that the poor quality of life measured in the initial (baseline) period of treatment anticipates the occurrence of depression during the control periods (1). This indicates the potential value of a life quality questionnaire and a screening test of the possible occurrence of any psychological morbidity (e.g. depression, post-traumatic stress disorder) in the subsequent periods of treatment, which can often be unnoticed and which can develop into a chronic condition (16).

A specific questionnaire on the quality of life of patients with fractured facial bones and jaw has not been made so far, although there is a need for such a questionnaire (20-22).

We believe that the insights obtained from this study will help us in the development of a specific life quality questionnaire of the patients with fractures of facial bones, since as far as we know, such a questionnaire has not been made although such a need exists (20-22).

Aim

The aim of this study is to assess the quality of life of the patients with surgically treated fractures of facial bones, to determine whether there is psychological morbidity before and after surgical intervention, as well as to analyse the information collected by the instruments of the quality of life.

Material and methods

This prospective clinical study was devoted to examining the quality of life of patients with fractures of the facial bones and jaw, after being treated. Patients were diagnosed by: fracture of the mandible (symphysis, body, ramus, condylar process, coronoid process, angulus), fracture alveolar process of the mandible, fracture alveolar process of the maxilla, fracture of the maxilla (Le Fort I, II, III), fracture walls orbit (superior, inferior, lateral, medial), fracture complexus nasofrotoorbitalis, fracture tabulae externae sinus frontalis, fracture of the zygomatic bones.

The study involved the patients from the Department of Maxillofacial Surgery of Nis. A survey was conducted in Podgorica and at the Department of Otorhinolaryngology and Maxillofacial Surgery, for one of the above mentioned diagnoses, of both sexes, aged 18 to 65. Ethical evaluation and organizational licenses to perform the study was obtained from the Ethics Committee of the Dental Clinic in Niš.

The study included 30 patients with fractures of the face, who were followed for one month after surgery. The following data were recorded: name, sex, age, occupation of the patient, the cause and type of fracture.

The criteria for the participation in the study were:

- Clinically confirmed fracture of some of the facial bones, of any etiology;
- Minimum age 18;
- The patients had to sign informed consent for the participation in the study, after reading the information on the study.

The criteria for the exclusion from the participation in the study were:

- The existence of any diagnosed malignant disease;
- Clinically confirmed presence of dementia;
- The presence of any other clinically significant diseases which in the opinion of the surgeon-researchers of the study may influence the ultimate goals of the study.

Patients were divided on the basis of injury by groups:

Group 1: patients with a fracture of the mandible and mandibular alveolar processes;

Group 2: patients with a fracture of the maxilla (including Le Fort fractures) and alveolar process of the maxilla, zygomatic bones, or medial, lateral wall and floor of the orbit;

Group 3: patients with a fracture of the anterior wall of the frontal sinus, complexus nasofrotoorbitalis or the roof of the orbit.

The standardized questionnaire on the quality of life in relation to health, (U QoL v.4), was used in our study and modified and translated into Serbian. This questionnaire was originally designed for patients with malignant tumors of the head and neck, but according to the published literature it was also used for the patients with fractured facial bones (19).

The patients completed the questionnaire themselves, and on average it took about 5 to 10 minutes to fill it in (24). To show the existence of anxiety and depressive symptoms in our patient population (which literature overview suggests), those parts of UW v.4 QoL questionnaires related to psychological factors were used.

All measuring instruments were translated into Serbian.

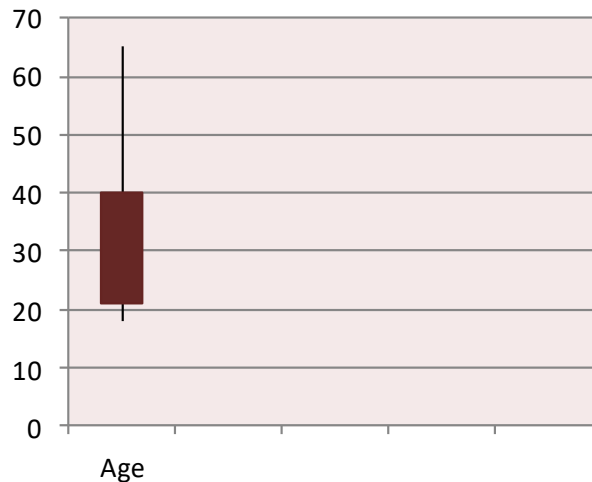
The patients filled out the questionnaires themselves, but if they needed any help or were not capable of completing it themselves, the assistance of researchers or health personnel was possible.

Statistical analyses

MS Access, SPSS v11 programs were used in this study and the processing of the obtained data was performed using standard statistical methods, parametric and nonparametric methods. The statistical significance of $p < 0.05$ was used.

Results

Graph 1 shows the distribution of patients by age, from 18 to 65 years, with the highest incidence in the third and fourth decade, average age 32 years.



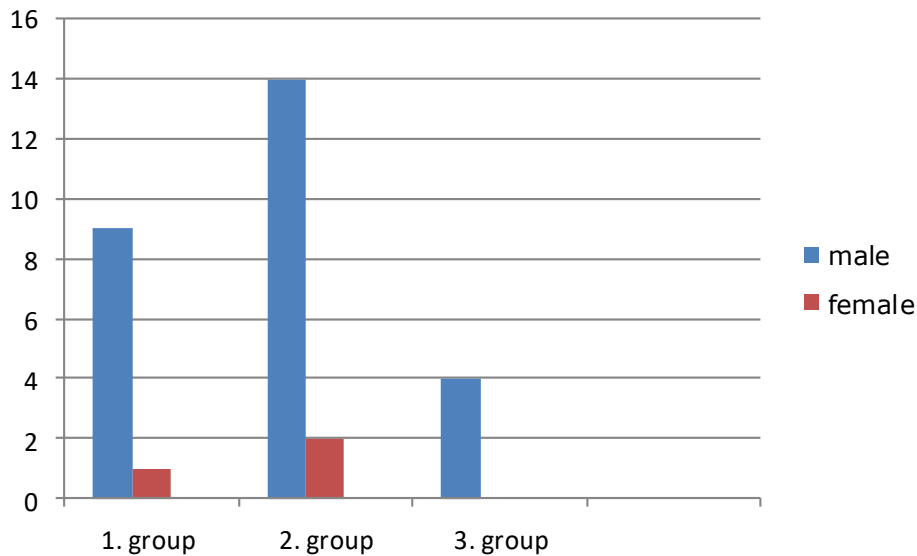
Graph 1. The distribution of patients by age

The patients were in the 90% male, presented in Table 1 and Graph 2, such that the ratio of male to female was 9:1. The violence is the most

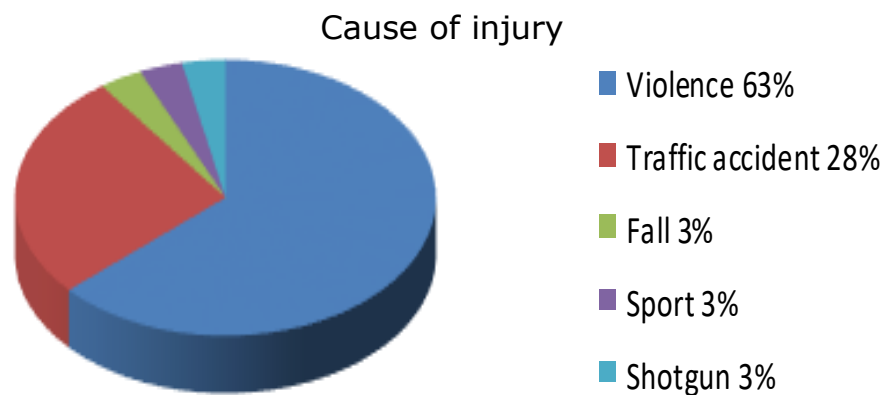
common cause of injury (63%), followed by traffic accidents (28%), rarely fall, sport and shotgun (3%), shown in Graph 3.

Table 1. Representation of fractures of facial bones

Fracture	Male	Female	In total
1. Group			10
Mandible	8	1	9
Alveolar processus of the mandible	1	0	1
2. Group			16
Zygomatic bone	1	1	2
Maxilla	2	0	2
Alveolar processus of the maxilla	1	0	1
Zygomatic bone+ maxilla	6	1	7
Le Fort	3	0	2
The medial, lateral wall or floor orbit	2	0	2
3. Group			4
Fractura tabulae externae sinus frontalis	2	0	2
Fractura complexus nasofrotoorbitalis	1	0	1
Fractura parietis superior orbit	1	0	1
In total	27	3	30



Graph 2. The frequency of patients by sex, depending of injury by groups



Graph 3. Distribution of etiological factors in injuries

Based on the results obtained in Table 2, it can be seen that of 30 patients with a fracture of some of the facial bones, most of them claimed that they felt pain, change in appearance, reduced activity and recreation, changes in chewing, swallowing and speech, problems with shoulders, altered taste, a change in the secretion of saliva, mood swings and depression.

When it comes to pain, only 3 patients (10%) did not highlight the feeling of pain, while the others in this group stated to have a variety of strong pain, and 10 patients (33.33%) stated to have strong pain that cannot be controlled by medication.

In the mentioned group, 29 patients (96.67%) were not satisfied with their appearance, of whom 5 (16.67%) claimed that due to their appearance they could not be with people.

Reduced activity was stated by 26 patients (86.67%), while 9 of them (30%) stated that the

activity was so reduced that they mainly sat or lay down and did not go out of the house.

A total of 25 patients (83.33%) mentioned to have reduced recreation, while 7 of them (23.33%) did not do anything with pleasure.

Ingestion and taste were altered in 26 patients (86.67%), of whom 10 (33.33%) emphasized that they could not swallow, and 16 patients (53.33%) said they could not try any food. Chewing was modified in 22 patients (73.33%), and 8 patients (26.67%) stated they could not chew solid food.

The speech was changed in 27 patients (90%), and 15 (50%) stated that their speech was not understandable.

Twenty-four patients (80%) stated to have problems with the shoulders, while 10 patients (33.33%) stated to have restrictions while working.

Table 2. Quality of life scores

Quality of life scores									
Domains	0	25	33	50	67	75	100	AS	% Best score (of 100)
Pain	3	8		4		6	10	61,67	33.3
Appearance	1	4		11		9	5	60,83	36.6
Activity	4	2		9		6	9	61,67	30.0
Recreation	5	4		6		8	7	56,67	26.6
Ingestion	4		6		10		10	62,27	36.6
Chew	8			14			8	50,00	46.6
Speech	3		4		8		15	72,27	50.0
Shoulders	6		5		9		10	58,93	53.33
Taste	4		3		7		16	52,27	53.33
Saliva	5		4		7		14	66,70	46.67
Mood	2	3		9		9	7	63,33	30.0
Despondency	6		5		9		10	58,93	36.6

Modified salivation was found in 25 patients (83.33%), and 14 of them (46.67%) stated not to have any saliva.

The mood was reduced in different ways in 28 patients (93.33%), and 7 of them (23.33%) stated to have experienced an extreme depression.

Twenty-four patients (80%) were anxious,

and 10 of them (33.33%) were very concerned.

Patients mostly bothered about altered speech, taste with reduced secretion of saliva, chewing and swallowing, while some patients complained of the most prominent altered appearance, pain, depression, moodiness, a reduced activity and recreation.

Table 3. Tabulation of responses to general questions about the quality of health the past month (A), health-quality of life during the past 7 days (B) and overall quality of life during the past 7 days (C)

ANSWERS TO THE QUESTIONS											
	0	20	25	40	50	60	75	80	100	AS	% Best scores
A	5		5		6		5		9	56.67	52,94
B	4	3		6		6		8	3	53.33	56,25
C	4	2		6		7		8	3	54.67	54,87

Best scores:

A: % scoring 50, 75 or 100;

B & C: % scoring 60, 80 or 100

Table 3. shows that a month after the surgery 10 patients (33,33%) stated they felt better, the same applied to 6 other patients (20 %), while 14 patients (46,67%) felt worse.

The patients declared differently regarding the quality of life, 11 patients (36.67%) had a good, 6 (20%) low, 8 (26.67%) bad, and 3 (10%) very bad quality of life. The overall quality of life during

the previous 7 days was not good in 18 patients (60%).

Based on Table 4, it can be seen on the basis of the rank, that patients primarily pointed out the pain and the change of appearance, followed by a change of mood, change in activity and recreation, difficulty in swallowing, chewing, depression, problems with shoulders.

Table 4. Only the corresponding selected domains

Domains	N patients who have chosen domains	Valid% of patients who have chosen domains	Rank
Pain	13	43.3	1=
Appearance	13	43.3	1=
Mood	10	33.3	3
Activity	8	26.7	4
Recreation	6	20.0	5=
Ingestion	6	20.0	5=
Chew	3	10.0	7=
Despondency	3	10.0	7=
Shoulders	1	3.3	9
Speech	0	0	10=
Taste	0	0	10=
Saliva	0	0	10=

None of the patients particularly singled out the problem with speech, taste and saliva. Approximately one third of patients suggested that pain and bad mood mainly bothered them.

Discussion

In our study, patients were predominantly male (90%), similar to the research in other countries (Canada, Poland, Nigeria, England, India) in different percentages (23-27). The most common etiological factor was the violence, followed by road traffic injuries, the most common age of 21-40 years, similar to other studies (23-26, 28, 29, 30). The large percentage of maxillofacial trauma is the result of the fact that patients are in the third and fourth decades of active period of life when they act vigorously and move at high speed in traffic. The finding of a lower percentage of women is probably the result of the fact that they do not report violence, and are more moderate as participants in traffic.

A third of the studied patients had a fracture of the mandible, and since it is the only mobile bone of the face and the only one in the lower third of the face it is often exposed to trauma, immediately after the nasal bones. The bones of the middle third of the face (about 50%) were more often broken in the second group of patients in our study. These results are described with other researchers, and this is due to exposure of the bone injuries, especially in violence and traffic accidents (26, 31, 32). A small representation of the fracture of the upper third of the face in our patients (about 13%), and the like is described in the literature (1, 11, 19, 33).

In fractures of facial bones, the pain or discomfort or injury to the olfactory nerve and the appearance of taste and nutrition may occur (4).

Some studies have shown that the degree of anxiety is directly proportional to the size of the injury and the scar on his cheek (2, 25).

In a study of surgical anxiety, which included 600 patients on maxillofacial surgery and 800 control patients, according to their subjective assessment, the patients with maxillofacial surgery had higher levels of anxiety in comparison to the control group (12).

Women had significantly higher levels of anxiety compared to men, but younger and middle-aged patients (< 50 years) were more anxious than older patients (4, 6, 12).

In our study women also had higher levels of anxiety, but our patients were mostly male (> 90%), whereas younger patients also had a higher level of anxiety as compared to the older ones (> 50 years).

The effect was found in relation to the years of formal education, which showed that more educated patients had higher levels of anxiety and that the patients who once had an injury of facial bones treated surgically, had the same level of anxiety as the patients who underwent this type of surgery intervention for the first time (12). In our case, the patients generally underwent this surgery for the first time, and the level of education was not high.

The patients with facial injuries often experienced problems later as a result of face injuries, and had difficulty with activities, as in our study, too, where more than half of the patients stated reduced activity and recreation, which contributed to the poor quality of life (8, 26).

Younger patients had a higher level of stress than it was the case with older patients, and similarly in the work of the author Avinash De Sousa of psychological problems in oral and maxillofacial reconstructive surgery (2). The same study compared the patients who underwent a surgery due to face

cancer with the patients with facial trauma, so the patients with the trauma had higher levels of anxiety, depression and worry about appearance than the patients with the cancer. In our study, younger patients had higher levels of stress and they were the most numerous (3 or 4 decades most often). Since these are people who were generally healthy before the injury, full of life and labor, even small changes in their every day routine and activities led to high levels of stress.

Anxiety, stress, and even worse quality of life were more pronounced in patients who were injured in the violence, in relation to the injuries sustained in traffic or otherwise, but there is no statistical significance ($p > 0.05$). When the fractures in the bones of the person are concerned (divided into 3 groups), poorer quality of life was noted in patients with mandibular fractures (comminuted fractures and multiple fractures), and even those of the middle third of the face (especially Le Fort fractures), but there is no statistical significance ($p > 0,05$). Patients with fracture of some of the bones more complained to the appearance and pains, while patients with a fracture of the mandible complained about the changed appearance, salivation, anxiety and low mood. A small number of patients studied limits the actual evaluation of the quality of life in fractures in the bones of the face.

The assessment of the emotional state of the patient before and after surgery was essential, as it is stated in other studies on the quality of life (2).

During the one month monitoring period of our patients, more than a half of the operated persons who underwent surgery due to the fractures of the facial bones stressed that they did not have a good quality of life.

This was expected, because the injuries in the facial area are accompanied by a certain degree of ugliness, and since the patients were mostly younger, the quality of life is associated largely with the appearance. There has been an improvement in the cited study only in the domain of physical health, but not mental. The overall quality of life includes not only physical and mental health, but also many other factors such as family, friends, spirituality, or personal leisure activities that are important for the enjoyment of life and all that contributes to personal well-being, which in the majority of these patients was not the case.

After the rehabilitation of injuries and during rehabilitation, there may be a fear of the outcome of treatment or change in appearance, especially with extensive facial injuries but with less complicated fractures. This fear, especially if it is for a longer period of time, can cause serious psychological and organic disease. This state of the patient is usually associated with poor quality of life (36, 37).

Mood swings and depression were strongly present in case of these patients, approximately in half of the patients in this group, and a third of them stated those factors as the most annoying ones (37, 38). The above factors were cited as the most common causes of poor quality of life in other studies, too (2, 7).

These results are not surprising and in some way they are expected and mentioned in other studies, as well as in the survey on African American studies regarding the fracture of the jaw, which is associated with the quality of life (3).

The intensity and degree of mental pain due to disfigurement, depends not only on real damage, altered appearance, size and type of scarring, facial deformities, but also on the structure of personality, profession, education, intelligence, social, and marital status, general health, physical appearance, sex and age of the injured (38). Changes in appearance, pain, disfigurement, lead to less activity and communication with other people, and all these factors affect the quality of life of the patient.

Limited sample of patients in this study does not allow valid statistical evaluation, so it is difficult to assess their quality of life in different fractures of facial bones. In order to accurately determine the quality of life of patients with the trauma, there must be a larger sample of patients.

Conclusion

It can be said that injuries with fractures of facial bones have a major impact on the quality of life of patients soon after the injury in terms of altered appearance, inability to do activities and recreation and mood swings, as well as presence of pain.

Adequate communication between the patient and the surgeon is very important for the psychological preparation of the patient. It is necessary to provide patients with detailed information and brochures on the type of the injury, type of the surgery and the very surgical technique, as well as about possible complications and possible outcomes and consequences.

The inclusion of psychologists in this team would contribute to improving the quality of life of patients with facial trauma, and fractures of facial bones.

It is therefore important to understand the impact of maxillofacial trauma for each patient individually, physically and mentally.

The surgeon should not only operate the patient, but he/she needs to provide psychological support as well, because physical and mental components are inseparable for the high quality life of patients.

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KVALITET ŽIVOTA KOD HIRURŠKI TRETIRANIH PACIJENATA SA PRELOMOM KOSTIJU LICA

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Kod bolesnika sa prelomom kostiju lica često postoji slabiji kvalitet života posle preloma, kao i neki od oblika psihološkog morbiditeta.

Cilj ovog rada bio je da se proceni kvalitet života kod hirurški tretiranih bolesnika sa prelomom kostiju lica.

U ovom prospektivnom kliničkom istraživanju uključeno je 30 bolesnika sa prelomom kostiju lica i vilica, lečenih na odeljenju za maksilofacijalnu hirurgiju u Nišu i Klinici za otorinolaringologiju i maksilofacijalnu hirurgiju u Podgorici, oba pola, starosti od 18 do 65 godina. Korišćen je (UW QoL v.4) standardizovani upitnik kvaliteta života u odnosu na zdravlje.

Veći nivo anksioznosti imale su žene u odnosu na muškarce; bolesnici su uglavnom bili muškog pola (> 90%), dok su mlađi od 50 godina imali veću anksioznost u odnosu na starije. Tokom mesec dana praćenja, 60% operisanih nisu imali dobar kvalitet života. Promena raspoloženja i depresivna stanja bili su zastupljeni kod približno polovine pacijenata, a trećina je navodila da im to najviše smeta. Navode se kao najčešći uzroci lošeg kvaliteta života i u drugim studijama.

Prelomi kostiju lica imaju veliki uticaj na kvalitet života bolesnika ubrzo posle povrede, u smislu izmenjenog izgleda, nesposobnosti za aktivnosti i rekreaciju i promena raspoloženja, kao i prisustvo bola. Važno je razumeti uticaj maksilofacijalne traume za svakog bolesnika pojedinačno, fizički i psihički.

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Ključne reči: *kvalitet života, prelom, kosti lica*