

## PSYCHOGENIC AND BEHAVIOR RISKS IN POSTOPERATIVE PERIOD IN MAXILLOFACIAL SURGERY

D. M. Semenov

Zaporizhzhya State Medical University, Ukraine

### Abstract

**Introduction.** Maxillofacial trauma is one of the most relevant surgical issues in modern urban society. The issues of correction of post-traumatic pain and functional disorders, as well as prevention of psychological and behavioral violations in maxillofacial surgery patients creates specific interdisciplinary surgical and psychological problem. **Aim** – to systematize psychological and behavioral violations caused by stress associated with maxillofacial trauma and to evaluate its impact on postoperative treatment. **Materials and methods.** The study conducted in a prospective design during 2016-2018. 120 patients with maxillofacial area fractures, undergoing reconstructive surgery at City Clinical Hospital of Emergency and Rapid Care (Zaporizhzhya, Ukraine) were examined. **Results.** Predictors, psychological manifestations and influence on the in- and outpatient stages of the postoperative period of mixed negative emotional reactions on TAS; psychomotor reactions on TAS; somato-functional reactions on TAS; dental response on TAS; behavioral reactions on TAS; psychosensory reactions on TAS, personality reactions to changes in self-perception; personality reactions to social dysfunction; personality reactions to the violation of family status; personality reactions to communicative disorders; personality reactions to quality of life decrease; personality reactions to general condition violations; personality reactions to existential distress are described. **Conclusions.** Psychological and behavioral violations

caused by stress associated with maxillofacial trauma are systematized, 6 main components of trauma-associated psychosocial maladaptation and 7 main components of defect-associated psychosocial maladaptation are described.

**Key words: maxilla-facial trauma; postoperative period; behavior; trauma-associated stress; defect-associated stress.**

**Introduction.** Maxillofacial trauma is one of the most relevant surgical issues in modern urban society. Today due to high attention to such kind of injuries and dramatic progress in biotechnologies there are effective treatment methods that allow to reconstruct structure and regain impaired functions of facial organs. Nevertheless, there are a lot of non-surgical aspects of maxillofacial trauma treatment and rehabilitation. Among them a significant place is taken by psychological and behavioral violations that associated with trauma itself and following surgical interventions, that could have deep negative impact on postoperative treatment [1].

There are several aims to focus for negative psychological reactions prevention in patients who underwent maxillofacial trauma, its traumatic experience, stress associated with circumstances of trauma and its consequences, reactions to pain, functional and aesthetic violations etc. All this categories of stress-inducing factors and specific conditions that caused are not systematized yet in key of their influence on postoperative period [2, 3, 4, 5].

The issues of correction of post-traumatic pain and functional disorders, as well as prevention of psychological and behavioral violations in maxillofacial surgery patients creates specific interdisciplinary surgical and psychological problem [6, 7].

**Aim** – to systematize psychological and behavioral violations caused by stress associated with maxillofacial trauma and to evaluate its impact on postoperative treatment.

**Materials and methods.** The study conducted in a prospective design during 2016-2018. 120 patients with maxillofacial area fractures, undergoing reconstructive surgery at City Clinical Hospital of Emergency and Rapid Care (Zaporizhzhya, Ukraine) were examined.

The structure of trauma types in contingent of a study presented in table 1.

Clinical and psychological method was used as its instruments “Hamilton Anxiety Rating Scale (HARS)”, “Dissociative experience scale (DES)”, Questionnaire “Disease relation type”, “The coping strategies” (Lazarus, Folkman)”, and non-structured psychodiagnostic interview were applied.

Table 1

## The structure of trauma types in contingent of a study

Trauma type	n	%
Mandibular fracture	29	24,2
Alveolar fracture	23	19,2
Maxillar fracture	18	15
Zygomatic fracture	27	22,5
Nasal fracture	31	25,8
Naso-orbit-etmoidal complex fracture	34	28,3
Multiple fractures	75	62,5

**Results.** Analysis of trauma-associated psychosocial maladaptation conditions of persons with the posttraumatic defects of maxillofacial area in early postoperative period, was based on evaluation of anxiety (by HARS), dissociation (by DES) and unspecified subjective complains (by non-structured psychodiagnostic interview), 6 main components were systematized as reactions on trauma-associated stress (TAS)

1. Mixed negative emotional reactions on TAS – anxiety, fear episodes related to injury circumstances (fear of darkness, strangers, loneliness, animals, crowds, transport, etc.); concerns on operative intervention results and complications, anhedonia with loss of common interests.

2. Psychomotor reactions on TAS (involving the effects of neurological disorders associated with the physical consequences of head trauma and the factors that are the consequences of operative intervention and anesthesiological assistance) – muscular stiffness, neurogenic/psychogenic parakinesia (ticks, tremor etc.).

3. Somato-functional reactions on TAS (involving the effects of surgery and anesthesia) – tachycardia, local chest pain, abdominal distress, heartburn, nausea, vomiting, appetite disorders, rapid urination, dysuria, nocturia, skin redness, mydriasis, sweating etc.

4. Dental response on TAS – local pain in teeth and jaws, oral paresthesias, oral discomfort and dryness, chewing and swallowing problems due fear of postoperative areas traumatization (imagining of possible ligature fracture, fracture fractures, damage to fixing agents, etc.), fear of pain (algophobia);

5. Behavioral reactions on TAS – impulsiveness, pathetic demonstrative gesture, mimic and speech, gesture patterns; aggression, simulation/dissimulation,;

6. Psychosensory reactions on TAS – derealization and depersonalization, a violation of the body's sensation, sense of time, pain perception; the feeling that the environment is unrealistic, feeling of "time stretching" or its "acceleration", anesthesia of intact body areas.

Psychogenic and behavior risks for trauma-associated psychosocial maladaptation conditions are presented in table 2.

Table 2

Psychogenic and behavior risks  
for trauma-associated psychosocial maladaptation conditions

Predictors	Psychological manifestations	Impact on the stationary stage of the postoperative period
1	2	3
Abnormal negative physical sensations (pain, discomfort)	Somatofunctional reactions (polymorphic somatic and autonomic symptoms)	Assignment of additional examinations and consultations (to exclude concomitant consequences of trauma)
		Prescribing of additional pharmacological agents, their exclusion and replacement to exclude the possibility of side effects
		Extending the time of in-patient status
Injury circumstances (violent acts, accident, etc.)	Negative emotional responses (depressive mood, acute anxiety, fear, phobic reactions)	Appointment of psychiatric consultation, sedative pharmacological agents prescription
		Excessive involvement of medical staff as a result of the person's behavior violations due to anxiety
		Failure to perceive subjective clinical data due to depressive mood impact (intrusive thoughts, lack of motivation, etc.)
Feeling of helplessness and reaction to the unusual environment and role of the patient	Psychosensory reactions (derealization, depersonalization)	The need for active monitoring of patients condition due to disorientation and confusion, which may be realized in attempts to escape the hospital or interfere with the work of medical personnel
	Behavioral reactions (aggression, violation of communication)	The need for active control on person's behavior

1	2	3
Functional disorders resulting from central nervous system injury and the effects of reconstructive surgery	Motor and sensory responses (impaired muscle tone, parakinesia, paresthesia)	The need for neurological examination in order to avoid dangerous conditions due to injury of central nervous system
		Appointment of additional examinations to exclude concomitant non-traumatic pathology (poisoning, infectious pathology, etc.)
	Dental reactions (local pain in the teeth and jaw, paresthesia of the mouth, feeling of discomfort and dryness in the mouth, dysautomation of chewing and swallowing)	The need for additional in-patient due to risk of postoperative and post-traumatic complications, which is associated with nervous pathways, soft tissues or oral cavity organs injury
		Inclusion of therapeutic consultations in a person's examination

Analysis of the defect-associated conditions of psychosocial maladaptation was based on evaluation of trauma-associated defects inner relation (by Questionnaire “Disease relation type”) coping mechanisms (by ‘Lasarus coping test”) and unspecified subjective complains (by non-structured psychodiagnostic interview), 7 main components were systematized.

1. Personality reactions to changes in self-perception, which arose due to presence of posttraumatic defect of maxillofacial area – the formation of the feeling of own inferiority and incapacity, the desire to prove to others and themselves that they are not different from others.

2. Personality reactions to social dysfunction due to posttraumatic defect – the hyperbolized perception of social reactions, such as sympathy, relief attempts, causing the person severe internal feelings that are centered on the feelings of their own inferiority, control-free outbreaks of anger, especially with respect to healthy people, fear that attention will not focus on professional qualities, but especially on the features of appearance, that the evaluation of work will not be objective, a feeling of embarrassment and shame when working with clients, the fear of loss of influence on the team, the fear of public speaking through aesthetic flaws and physiological defects.

3. Personality reactions to the violation of family status due to posttraumatic defect – the confidence that family members are ashamed of them because of facial defects, anxiety about children's attitude, their reaction to changing the appearance of the father/mother, fear

to become a burden for the family, loss of the position of the head of the family, material losses on treatment that reduce the quality of life of the whole family, fears that sexual attraction from the partner will change in the direction of another person, which will lead to family treason, and in the future to divorce;

4. Personality reactions to communicative disorders due to posttraumatic defect – occurrence of conflict situations and be perceived patients as deterioration of attitude to oneself through illness and presence of physical disabilities, fear of meeting with new people, fear of relations with the opposite sex, feelings about the perception of the new appearance by others, mockery, ridicule, the desire to "hide" from everyone;

5. Personality reactions to quality of life decrease due to posttraumatic defect – fear that the disease will significantly change the habitual stereotype of life, failure to perform ordinary actions on their own, this is due to functional post-traumatic defects

6. Personality reactions to general condition violations to posttraumatic defect – abnormal focus on unpleasant feelings and exaggeration of the available complaints, thoughts on adverse course of illness, unreasonable uncertainty in the competence of the physician;

7. Personality reactions to existential distress due to posttraumatic defect – the belief that the subsequent life does not make sense, that causes indifference, passivity, lack of initiative, unpromising vision of the future in connection with the formation of physiological.

Psychogenic and behavior risks for defect-associated conditions of psychosocial maladaptation conditions are presented in table 3.

Table 3

Psychogenic and behavior risks  
for defect-associated psychosocial maladaptation conditions

Predictors	Psychological manifestations	Influence on the outpatient stage of the postoperative period
1	2	3
Aesthetic violations (facial distortion)	Impaired self-perception, decreased self-esteem	Evasion of social contacts (including from visits to the doctor), which leads to loss of communication with the person during the rehabilitation process
	Dysmorphophobic and dysmorphic states	Looking for alternatives to correcting appearance with disregard of official physician recommendations

1	2	3
Functional disorders (impossibility of normal implementation of facial functions)	Evasion of communication due to negative self-perception	Decrease of informativeness of gathering information on the course of a person's rehabilitation during visits to the doctor due to the person's unwillingness to discuss the manifestations of post-traumatic defect of the maxillofacial area
	Helplessness in connection with the necessary third-party receive assistance in familiar actions	Evasion of visits to the doctor or their formal passage with concentration on receiving medical and social care
Dental disorders (defects in the dentition)	Long-term decline of mood and psychasthenization due to violation of functions of chewing, constant discomfort	Declaration of psycho-vegetative complaints that call for additional examinations at the outpatient rehabilitation stage
		Refusal of visits to the doctor due to conflict situations caused by irritability and emotional lability (as components of psychosthenization)
Reaction of the social environment of a person to post traumatic defect	Violations of the family functioning	Excessive frequency of visits to the doctor due to the need for psychological help and communication
	Disruption of working relationships	Violation of the financial condition of the person, which leads to the impossibility of material support of additional rehabilitation means (recommended commercial medical procedures, pharmacological means, examination)
The need to regulate lifestyle with regard to the presence of post-traumatic defect	Autoisolation, a feeling of life-threatening	Evasion of visits to the doctor due to psychological stress, fear of social contacts
		Violation of compliance, evasion of medical recommendations as a form of autoaggression

**Conclusions.** Psychological and behavioral violations caused by stress associated with maxillofacial trauma are systematized.

Analysis of trauma-associated psychosocial maladaptation conditions of persons with the posttraumatic defects of maxillofacial area in early postoperative period, was based on evaluation of anxiety (by HARS), dissociation (by DES) and unspecified subjective complains (by non-structured psychodiagnostic interview), 6 main components were systematized: mixed negative emotional reactions on TAS; psychomotor reactions on TAS;

somato-functional reactions on TAS; dental response on TAS; behavioral reactions on TAS; psychosensory reactions on TAS.

Analysis of the defect-associated conditions of psychosocial maladaptation was based on evaluation of trauma-associated defects inner relation (by Questionnaire “Disease relation type”) coping mechanisms (by ‘Lasarus coping test”) and unspecified subjective complains (by non-structured psychodiagnostic interview), 7 main components were systematized: personality reactions to changes in self-perception; personality reactions to social dysfunction; personality reactions to the violation of family status; personality reactions to communicative disorders; personality reactions to quality of life decrease; personality reactions to general condition violations; personality reactions to existential distress.

### Reference

1. Afzelius L. E., Rosén C. *Facial fractures. A review of 368 cases* // Int. J. Oral Surg. 1980. № 9 (1). P. 25–32.
2. Islam S., Ahmed M., Walton G. M. et al. *The prevalence of psychological distress in a sample of facial trauma victims. A comparative cross-sectional study between UK and Australia* // J Craniomaxillofac Surg. 2012. №40. 82–85.
3. Motamedi M. H. *An assessment of maxillofacial fractures: a 5-year study of 237 patients* // J. Oral. Maxillofac. Surg. 2003. № 61 (1). P. 61–64.
4. Glynn S., Shetty V., Elliot-Brown K. Et al. *Chronic posttraumatic stress disorder after facial injury: A 1-year prospective cohort study* // J Trauma. 2007. №62(2). 410-418.
5. Slade G. D., Diatchenko L., Bhalang K. et al. *Influence of psychological factors on risk of temporomandibular disorders* // J. Dent. Res. 2007. № 86. P. 1120–1125.
6. Levine E., Degutis L., Pruzinsky T. et al. *Quality of life and facial trauma: psychological and body image effects* // Ann Plast Surg. 2005. № 54(5). 502–510.
7. Tebble N. J., Adams R., Thomas D. W. et al. *Anxiety and self-consciousness in patients with facial lacerations one week and six months later.* // Br J Oral Maxillofac Surg. 2006 №44 (60). 520–525.