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Analysis of Manifestations of Aggression in the Intervention of the Emergency Medical Service

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Abstract

The paper deals with the problems of the occurrence of aggression and aggressive behavior as a provoking cause of various injuries and the need to provide pre-hospital emergency care. Based on the analysis of professional literature, as well as on the basis of experience from practice, it can be stated that members of Emergency Rescue Service exit groups often encounter manifestations of aggression and aggressiveness when providing pre-hospital emergency care. The results of a retrospective observational study of the medical records of the Plzeň and Ústí regions in the Czech Republic are presented. We focused on the analysis and in-depth examination of the calls of ambulance groups to patients whose injuries were caused by aggression and aggressive behavior. This was in terms of the number of call-outs, the frequency of individual diagnoses, NASA score and urgency level, as well as the characteristics of the deployment of individual call-out groups, etc. Options for managing aggression and aggressive behavior are also presented, including an assessment of the potential risk of aggression and escalation. Attention is also paid to the issue of preparing the members of call groups to cope with this negative phenomenon, which has an increasing tendency in the conditions of providing pre-hospital emergency care. The paper deals with this issue comprehensively.

KEY WORDS: *Emergency medical services, care, aggression, exit group, psychological trauma, Czech Republic*

1. Introduction

The central topic of this paper is the issue of manifestations of various forms of violence (aggression and verbal and physical aggression) during the provision of pre-hospital emergency care to members of the exit groups of the Emergency Medical Service (EMS) in the Czech Republic (CR) and its secondary influence on the process of providing professional care. The practice of the profession within the Emergency Medical Service in the scope of paramedics is a highly exposed profession because these professionals are often confronted with negative emotions such as fear, anxiety, a sense of threat, sadness, anger, aggression, and many others. They also provide pre-hospital emergency care in physically and emotionally draining moments of acute emergencies and crisis situations.

As mentioned above, health care professionals are faced with a number of situations in which they encounter variable displays of problem behavior (e.g. displays of aggression or aggressiveness) from patients or those close to them. This issue is particularly relevant for those patients who have a psychiatric diagnosis or are under the influence of addictive substances. A certain amount of aggression associated with psychomotor agitation can also be expected in patients who are under the negative influence of the impact of a currently experienced or unprocessed traumatic event .In the conditions of medical practice, aggression can also occur in patients in relation to other various triggering causes: e.g. pain, acute stress reaction, subjective feelings of threat to one's own person, feelings of helplessness, feelings of injustice and unfairness, in chronically ill patients it can be in metabolic decompensation, manifestation of organic brain disease, etc. The causes of aggression can also stem from feelings of fear and anxiety. These feelings may be related to the arrival of members of the EMS emergency teams, which represents a certain level of fear and uncertainty for the patient about something unknown. Patient anxiety as one of the defence reactions and adaptation mechanisms is very common. If it occurs in an acceptable range, it helps the body to cope with a challenging situation In the case of an EMS intervention, both patient anxiety and fear (a specific fear, e.g. of pain, of medical interventions

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and their extent, of losing a family member, of hospitalization, etc.) occur.

Thus, while performing their profession, members of the emergency medical services encounter the consequences of aggressive behavior or aggressive manifestations either in the conditions of providing pre-hospital emergency care (in the field or in the patients' home environment), during transport to a healthcare facility or when providing healthcare in a healthcare facility. They often provide specialist assistance to victims of aggressive behavior who suffer various types of injuries as a result of the aggressive behavior.

As the author Harwood states, an aggressive patient may display antisocial or even criminal behaviour. In health care delivery, acts of aggression or aggressiveness may occur in patients with mental illness or emotional problems, in people experiencing anxiety, or as a result of unmet needs. Conflict situations can be effectively prevented and de-escalated by analysing the cause, identifying the patient's current needs and attempting to meet them. The author considers the correct approach to dealing with these crisis situations to be: a medical approach (consisting of diagnosis and treatment) and a person-centred approach (consisting of understanding and dealing with psychological and emotional difficulties). Skilled communication, non-conflict, relationship building, and negotiation are the best ways to manage situations and avoid harm. If a conflict incident escalates further and becomes dangerous, health workers need to know how to act to calm the situation or ensure safety. Healthcare workers need to have theoretical knowledge and practical skills about de-escalating a conflict situation, non-medical approaches, options for physically restraining an aggressive patient, pharmacological treatment, monitoring and aftercare [1].

Recently, there has been more and more frequent information about aggressive attacks on members of the EMS call groups that provide pre-hospital emergency care to affected persons during emergencies. According to the findings of the World Health Organization (WHO), violence is considered a growing phenomenon. This organization records up to 38 % of physical assaults on paramedics in the context of providing medical care. According to a systematic literature review, paramedics experience an average incidence of 63 % of verbal violence and 21 % of physical violence [2]. Due to the frequency of occurrence of this negative phenomenon, members of EMS call groups are prepared to manage aggression and aggressive behavior during undergraduate but also lifelong education.

2. Problems of aggression and aggressiveness

Aggression can be viewed as a conscious act of an individual with the aim of harming oneself, another being or damaging an object. Thus, aggression is a certain kind of overt behavior aimed at causing harm or destruction to another organism or object. Aggression represents an aggressiveness, an attitude or an inner readiness for aggression. In a broader sense, it refers to the ability of an organism to mobilize its forces to struggle to achieve a goal and to resist hardship [3].

The act of aggression occurs as a result of the interaction of the aggressor (the individual who initiated the conflict and is therefore the source of aggression) and the protector (the individual who is exposed to the aggressor's attack, thus the protector of himself or another individual). In situations where individual members of the EMS emergency crew at the scene of an emergency or crisis assess the patient, family members or bystanders as the potential aggressor, it is appropriate to acutely initiate the process of de-escalating tension and calming the aggressive individual.

An effective procedure for coping with and preventing further escalation of aggressive behavior can primarily be considered to be an assessment of the situation (e.g. obtaining data about the emergency, signs of psychotropic or narcotic substance use, suitable escape routes, previous experience with the victim of the emergency, etc.) and the immediate initiation of crisis communication. It is important to remember that displays of verbal aggression are a very common indicator that a physical confrontation may be imminent. It is also important to bear in mind that a conflict situation with displays of aggression can occur unexpectedly, without any obvious external stimulus. In view of this, attention should be paid to any objects in the immediate vicinity of the aggressor that could be used in a physical assault.

The ABC of violence risk assessment aims to provide a practical framework for a systematic approach to violence risk assessment. Table 1 shows the three components of violence risk assessment, which includes:

– performing the primary survey;
– observing behavior;
– obtaining a self report of symptoms from the patient.

Step A in the assessment of the risk of violence is to complete the primary survey. The triage health worker's task is to pay particular attention to the presence of physiological indicators of impending aggression (e.g., facial flushing, dilated pupils, excessive sweating, symptoms of intoxication, etc.). Step B in the assessment of the risk of violence involves observing the patient's behavioral manifestations, in particular identifying any signs of agitation and irritability and threatening or intimidating gestures in non-verbal communication. Step C in assessing the risk of violence in triage involves analysis of the patient interview. The role of the triaging health professional is to analyze and evaluate information regarding risk or thoughts of harm to self or others, previous episodes of aggression, etc. If a

patient exhibits two or more indicators from the Triage Violence Risk Assessment Table, strategies for preventing and managing aggression should be considered [4].

Table 1 shows the problems of assessing the risk of violence.

Table 1.

An ABC approach to assessing the risk of violence at triage [4].

Situation assessment	Behaviour	Interview with the patient
• patient appearance • current health problems • psychiatric history • pharmacological history • orientation (time, place, person) • redness of the skin • dilated pupils • shallow and rapid breathing • excessive sweating	• general behaviour (intoxication, anxiety, hyperactivity) • irritation • hostile and aggressive behaviour • impulsive behaviour • restlessness and pacing • irritation • suspiciousness • breaking objects • anger • threatening gestures (clenching fists, etc.)	• patient admits to having a gun • admits to past violent behaviour • thoughts of harming others • patient plans to harm others • threatening violence • admits to substance use/abuse • hallucinations • admits to extreme aggression

In the process of crisis communication, it is necessary to actively apply the individual elements of positive social thinking, empathy and also the art of expressing humility. Even if the health worker is negatively affected by aspects of acute stress, his or her behaviour must be professional and decisive. His or her approach should help the patient regain a sense of security and safety. The information the health professional provides to the patient should be brief, easy to understand and use a slower pace of speech. It is important that he avoids verbal aggression, as he is aware of the so-called spiral of aggression, where each person encourages the aggression of his counterpart. The ability to be patient and to listen actively is also an integral part of crisis communication. This is because patients who are victims of emergencies or crisis situations are very often in different stages of an acute stress reaction. It will also require the healthcare professional to make the necessary effort to understand their current crisis needs. It is advisable to show understanding, encourage the patient to communicate, and at the same time be in control of their verbal and non-verbal expressions. In the process of effective crisis communication, active listening methods can be used, which include:

– maintaining constant eye contact;
– non-verbal and verbal expressions of active listening;
– not talking too much, creating space and allowing the patient to abreact and organize their own thoughts;
– use of open questions and questions clarifying the situation being experienced;
– using elements of assertiveness [5].

Already within the framework of a trip to the scene of an emergency or crisis situation, the members of the EMS call group have the opportunity to consider the solution of possible aggression in cooperation with members of the Police of the CR through the medical operations centre. In particular, if it is obvious from the description of the situation of the caller to the emergency line that the patient is under the influence of an addictive substance, the patient shows signs of a psychiatric diagnosis associated with manifestations of aggression, the patient has a history of aggressive behavior, there are other aggressive persons on the scene, etc. The reason for summoning members of the Police of the CR to the scene is to ensure the safety of the members of the ambulance dispatch groups. In such cases, the Police of the CR proceeds in accordance with Act No. 273/2008 Coll., on the Police of the CR [6].

3. Methodology

The primary method of research included a literature search and document analysis. We focused on the issue of aggression and aggressive behavior towards the members of the Emergency Medical Services. The aim was to define the basic terminology and to map the current state of the issue. Another research method we used was a retrospective observational study, through which we analyzed data related to the incidence of aggression and aggressive behavior towards members of the Emergency Medical Services exit groups. Specifically, we analyzed data

from internal, exclusively electronic, medical documentation of the EMS of the Pilsen Region and the EMS of the Ústí Region during the pandemic period in relation to the COVID-19 disease. Subsequently, we interpret these data to provide a picture of the incidence of this phenomenon.

Subsequently, the results of the findings of are presented, which ways members of EMS on the scene can defend themselves against aggressive attacks. An integral part is the interpretation of the results, including their comparison with the results of other authors who have dealt with the issue at hand.

Through the following graphs, we present the results of the analysis of the records of call-out groups that reported injuries to patients in the medical records in relation to manifestations of aggression and aggressiveness. Specifically, this was the period from 01.01.2020 to 30.06.2021, which was marked by the ongoing pandemic of COVID-19.

The total number of departures of individual call groups: 4459. Total number of patients receiving pre-hospital emergency care: 4765.

The graph in Figure 1 shows the division of patients who developed injuries following aggressive behavior by age category. The largest group was patients in the 26-35 age category. Specifically, 1143 (24 %) patients.

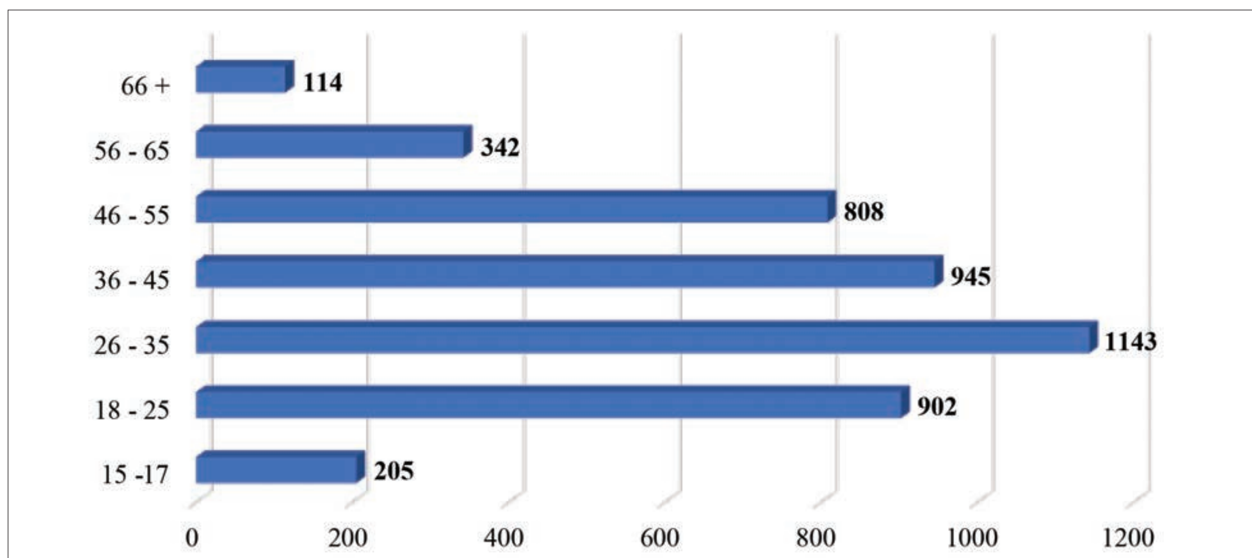

Fig. 1. Breakdown of patients according to age categories [source: own elaboration]

The object of interest was to find out which day of the week is the riskiest in terms of the occurrence of aggressive behavior. The analysis of the data shows that it is Saturday, with a total of 1289 (28.9 %) calls.

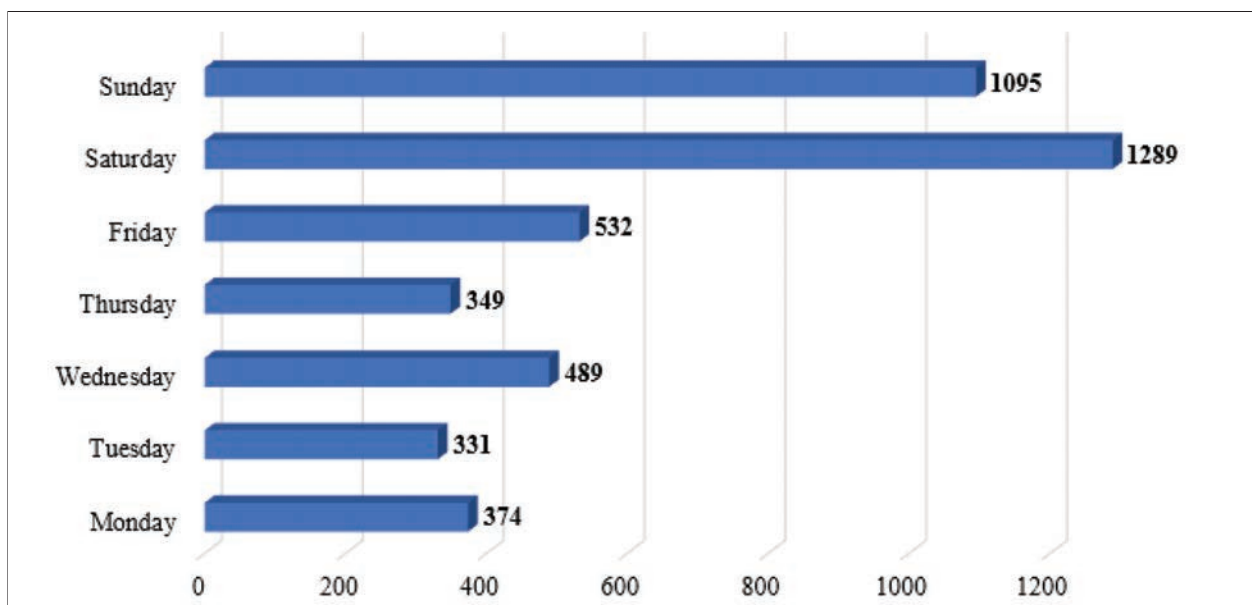

Fig. 2. Breakdown of trips by days of the week [source: own elaboration]

From the medical records of individual EMS, we detected the degree of urgency for each reported event. The most common urgency level was 3 - 3942 (88.4 %).

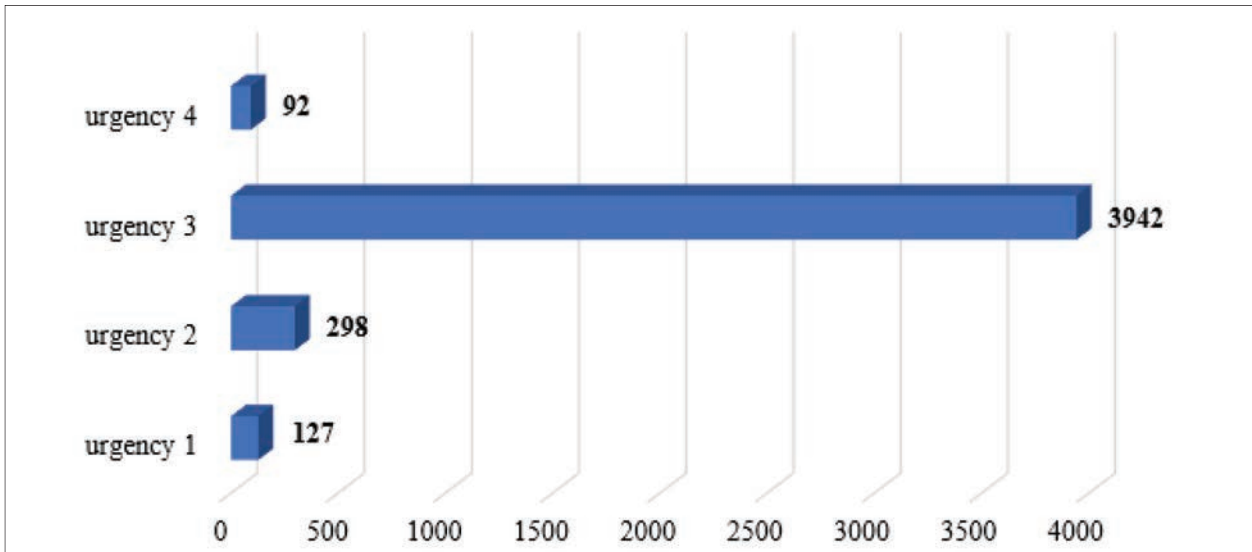

Fig. 3. Classification of calls according to urgency [source: own elaboration]

From the medical records of individual EMS, we also detected the call groups that were used to deal with reported incidents. The most frequent response to incidents was the Rapid medical assistance (RMA) - 3884 (88.1 %).

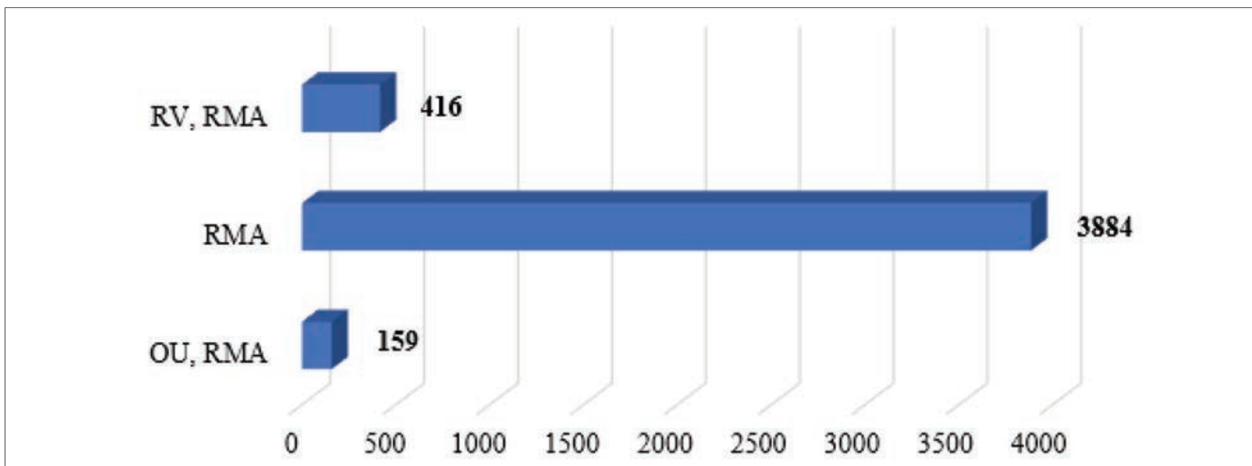

Fig. 4 Classification of calls according to the specification of the call group [source: own elaboration]

For a better understanding of the individual abbreviations, we present the breakdown of call groups used in the CR:

- **RMA** - Rapid medical assistance is a call-out group working in a two-person team (paramedic and ambulance driver). The paramedic is qualified to practice the profession without professional supervision.
- **EMA** - Emergency medical assistance and a doctor is part of it. Other members are a paramedic and an ambulance driver.
- **RV** - Rendezvous. This is a multi-level rendezvous system or rendezvous system, usually referred to as the RV system, is a way of organizing ambulance service rendezvous groups. The RV system operates on the principle of meeting two types of call-out groups - the ambulance and the RV in the RV system, allowing for greater mobility and flexibility of the medical crew in the pre-hospital emergency care delivery system.
- **OI** - the Operations Inspector performs the role of supervisor within the serving shift of the EMS, thus takes care of everything necessary and required to ensure the operation and running of the EMS. He is both a controlling factor and the head of the medical unit in the event of an emergency, which results from internal regulations.

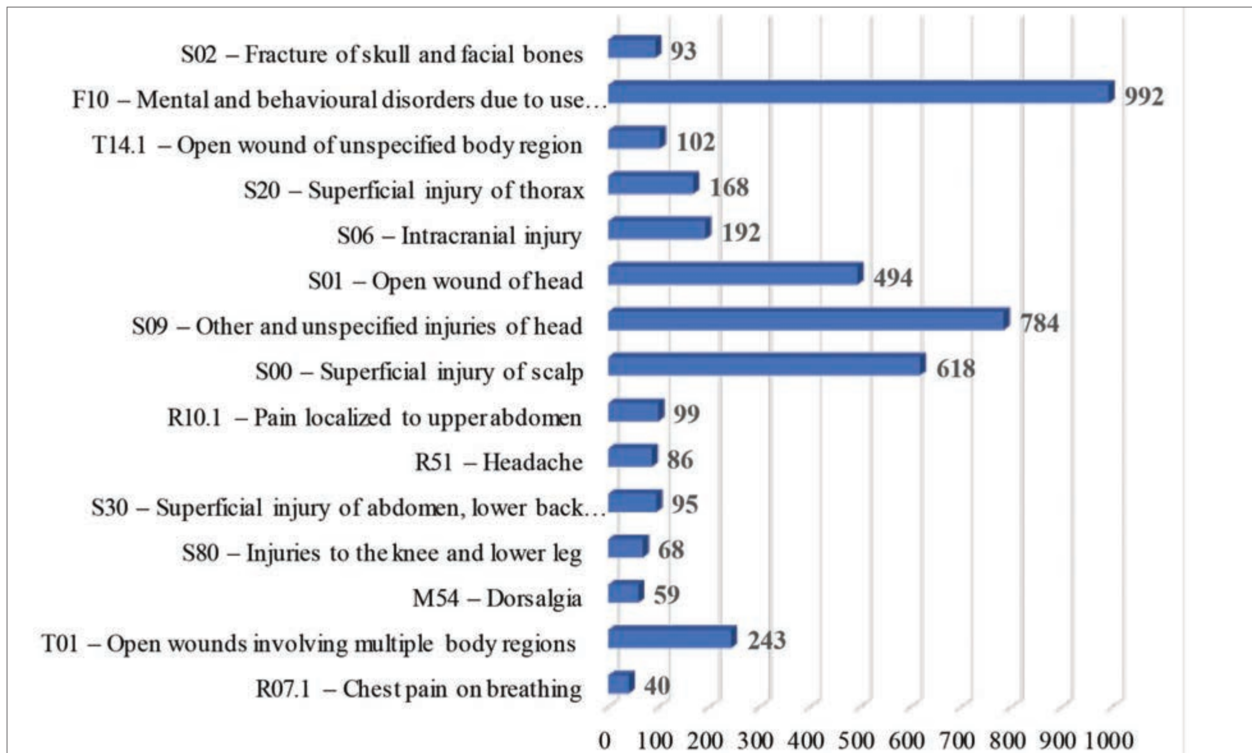

Fig. 5. Classification of injuries according to diagnoses [source: own elaboration]

Figure 5 illustrates a summary of the 15 most common diagnoses of the patients included in the study sample that occurred as a result of a direct aggressive attack. Specifically, the five most represented diagnoses include: F10 – Mental and behavioral disorders due to use of alcohol 992 (20.8 %) patients, S09 – Other and unspecified injuries of head 784 (16.5 %) patients, S00 – Superficial injury of scalp 618 (13 %) patients, S01 – Open wound of head 494 (10.4 %) patients, T01 – Open wounds involving multiple body regions 243 (5.1 %) patients.

In Table 2 we show the NACA (National Advisory Committee for Aeronautics) score and in Figure 6 we show the distribution of individual exits according to the NACA score. The NACA score is used to assess the severity of condition of patients treated in pre-hospital emergency care. It expresses the overall highest severity of the patient's condition over the period of time that the ambulance dispatch group is in contact with the patient. The NACA score is intended for administrative and statistical purposes only and is determined by retrospectively categorizing treated patients according to their severity. NACA score 3 was the most represented score with 1691 (35.5 %) patients. The number of incidents in the reporting period in which a firearm was used was 6.

Table 2.

NACA score [source: 7]

Score	Severity	Non-traumatological disability	Traumatological disability
0	**None**	No disease	no trauma
1	**Light**	Mild functional impairment	non-serious injuries
2	**Medium**	Moderate functional impairment	moderate trauma
3	**High**	Severe impairment threatening one vital function without signs of failure	severe injury to one body region, non-life threatening
4	**Potential life threatening**	Severe impairment of a vital function, but not immediately life-threatening	severe injury to multiple body regions, however not immediately life-threatening
5	**Direct threat**	Severe life-threatening impairment	severe injury to multiple body regions, life-threatening
6	**Cardiopulmonary resuscitation**	Severe impairment - failure of essential life functions that is immediately life threatening	severe multiple body region injury failure of essential life functions immediately life-threatening
7	**Death**	Primarily fatal disease	primarily fatal disease

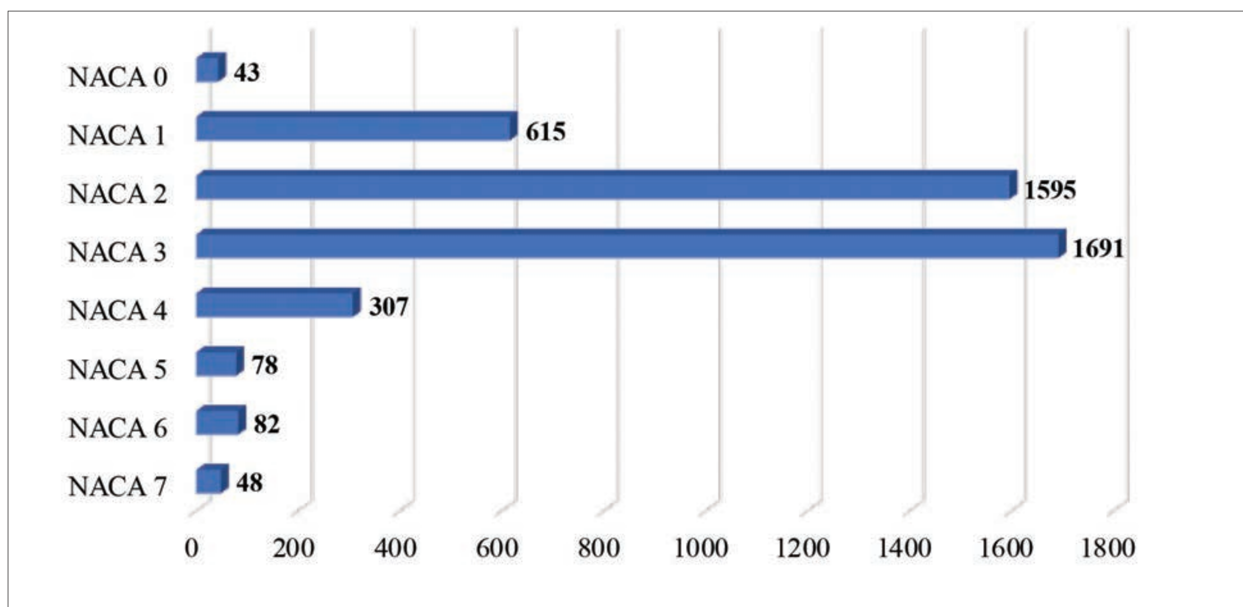

Fig. 6. Breakdown of calls according to Score NACA [source: own elaboration]

4. Discussion

The frequency of aggressive behavior (verbal and physical) in society in general among individuals is on the rise. At the present time, when the negative behavior of some individuals is tolerated, when there is an increase in the incidence of psychiatric diagnoses (especially those associated with aggressive behavior), and when alcohol and other substances are more frequently abused, it can be assumed that the current trend will continue to increase. It is important to note that in the current period the effects of the pandemic following COVID-19 are reverberating.

According to the authors Bartoš, Cahlíková, Bauer and Chytilová, who conducted a research survey between 30 March and 14 June 2020 within the framework of the project "Life during a pandemic" (every two weeks on a representative sample of 3 100 people in the CR), 20 % of respondents suffered from poor mental health (symptoms of at least moderate depression or anxiety) in the first phase of the pandemic. This result confirmed a more than threefold increase compared to the pre-pandemic situation related to COVID-19. Their results further showed that the most affected were: [8]

– women (prevalence 26 %);
– women with children (prevalence 37 %);
– young people aged 18-24 years (prevalence 36%);
– respondents from households affected by high income decline (prevalence 30 %).

Winkler et al. point to an increase in mental disorders in the context of the COVID-19 pandemic, in particular depression (threefold), anxiety disorders (twofold), a significant increase in alcohol consumption, and an increase in the number of people having suicidal thoughts (threefold). Concerns about health and about the economic impact of the pandemic on an individual's life are seen as risk factors for the development of mental illness and suicidal tendencies. An increase in incidents of domestic violence has also been linked to expressions of aggression [9].

Analysis of the results of the non-profit organization NeNa Coalition shows that during the pandemic period, there was a significant increase in the demand for help from victims of COVID-19, up to 40 % on average. The Bílý kruh bezpečí (White Circle of Safety) institution recorded a 42 % increase in the demand for professional help from victims of domestic violence during the pandemic period. An analysis of ROSA's results for the period from March to October 2019 and 2020 shows that the number of calls and email inquiries related to domestic violence cases has increased by almost 60 %. Therefore, the above-mentioned negative consequences of the pandemic in relation to COVID-19, as well as the obligation to comply with the subsequent anti-epidemiological measures, have also significantly affected the activities of the EMS call groups. In addition to calls related to the provision of pre-hospital emergency care, an increase in calls related to the psychosomatization of stress, the occurrence and development of psychiatric disorders, suicidal tendencies, as well as an increased incidence of domestic violence was evident during the pandemic.

Higher rates of tendencies to uncontrollable emotional reactions and agitation must be anticipated by emergency crews when providing pre-hospital care. Very often, the affected persons, their family members or witnesses of the emergency are under the influence of an acute stress reaction, and this determines their behavior.

From our professional experience we conclude that an indispensable component in the management of aggression and aggressive behavior is also professionally conducted crisis communication with the aggressor, adequate negotiation tactics and the provision of psychological first aid, as well as the active use of elements of empathy, which can be used to calm the aggressive person in certain circumstances and at the same time to convince them that they will receive subsequent professional medical care.

The manifestations of aggression (verbal and physical) and especially the physical assault of members of the EMS call groups have a significant impact on their psychological state. In addition to acute stress disorder, post-traumatic stress disorder or persistent personality changes may develop. Evidence from practice suggests that not only short-term psychosocial support, but also follow-up psychosocial support activities are essential to promote mental health (including feelings of life satisfaction) in members of the EMS crews.

On the basis of knowledge from practice, we recommend educating EMS employees in the area of Critical Stress Management. We justify our idea by the fact that these workers are obliged to provide first psychological aid to the affected persons as well as to their colleagues at the scene of an emergency. If these workers are members of the Psychosocial Intervention Service System (thus psychologists, crisis interventionists in the health sector or peers), then they also provide post-trauma care and crisis intervention.

Due to the above-mentioned factors (occurrence of aggression and aggressive behavior), the EMS of individual regions of the CR annually prepare tactical exercises, which, among other things, train and test the ability of ambulance groups to provide pre-hospital emergency care in conditions where aggressive attacks occur. The subject of such exercises is usually, for example, violence in sports stadiums or so called AMOK - active shooter attack.

Figures 7 and 8 show photographs from the tactical exercise of the EMS of the Pilsen Region. Figure 7 - Tactical exercise Amok 2021. The theme of this exercise was the initiation of shooting by close persons of a young girl who died despite the efforts of the ambulance group to resuscitate her cardiopulmonary resuscitation. The exercise involved 180 Czech and 34 German police officers and 91 responders from other Integrated Rescue System (IRS) units. Several people were left dead, and two dozen seriously injured on the scene, while another fifty people were injured during the ensuing panic. During this emergency, the different IRS units followed the IRS activity type called: Amok - Attack on Active Shooter referred to as STČ-14/IZS.

Fig. 7 Tactical exercise - Amok 2021 [photo Ralbovská archive]

Fig. 8 Tactical exercise - Rozvadov 2017 [photo Ralbovská archive]

Figure 8 shows an example of the tactical exercise Rozvadov 2017. The subject of the exercise was a mass casualty of persons as a result of a truck running into techno party participants. In this emergency, the individual IRS units proceeded in accordance with the IRS activity type entitled: Intervention of IRS units in an emergency with a large number of injured persons, referred to as STČ 09/IZS.

The basic principles that lead to an effective increase in the quality of emergency preparedness of the EMS include: elimination of shortcomings and errors identified by the analysis of individual interventions in previous mass casualties, thorough evaluation of tactical and screening exercises, implementation of relevant knowledge and experience from publications evaluating mass casualties in the CR and abroad. The process of evaluating the quality of emergency preparedness of the EMS for possible future emergencies and crisis situations must also be continuously ongoing. On the basis of the findings, it can be argued that the current assessment tools do not fully take into account all the specifics in emergency preparedness activities in emergency pre-hospital care. And accreditation standards also do not provide a comprehensive and evaluative assessment of emergency preparedness for dealing with mass casualty incidents [10].

Another increasingly discussed issue is the question of legal protection of ambulance crews in the exercise of their profession. From a legal point of view, it would be advisable to give paramedics the status of a public servant (official person) and at the same time to increase legal sanctions for aggressors whose attacks were not caused by an actual illness. Physical protection of ambulance crews and technical equipment of emergency vehicles should also be increased. The possibility of using the cooperation with the Police of the CR also leads to an improvement of the situation.

5. Conclusion

The paper deals with the incidence of aggression and the related occurrence of psychological traumatization or physical injury in aggressive attacks. The concept of aggressiveness is not a foreign concept for the employees of the Emergency Medical Services, which is evident from the above-mentioned findings. Experience from practice, as well as the results of various studies reported in the literature related to this issue, also point to the fact that often the target of individual aggressive manifestations during the provision of pre-hospital emergency care are also members of ambulance groups of the Emergency Rescue Service or medical staff working in emergency rooms. In such cases, we encounter a contradiction where, on the one hand, professional assistance is provided and, on the other, these employees are the target of aggression, various forms of aggression and aggressive behaviour. These incidents escalate into verbal or physical assault. This has a negative impact on the delivery of pre-hospital non-elective care for primary or secondary affected persons. In view of the increasing number of cases of verbal or physical assault, professional management of these negative expressions will become one of the essential skills of health professionals.

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