

EMERGENCY MANAGEMENT IN COMMUNICATION INCIDENTS

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Purpose: The aim of the article is to assess the actions of emergency services (Fire Department, Police and Medical Emergency Service) at the scene of an incident and to indicate the importance of the exchange of information between the emergency services mentioned.

Design/methodology/approach: The article presents the characteristics of the concept of risk, traffic disaster threat and crisis management. It also presents the results of research on the assessment of the logistics of emergency services by people involved in traffic accidents. The first part presents the theoretical background related to the concept of crisis management and related issues. The next part presents the characteristics of Polish emergency services and describes their procedure at the scene of an incident. A diagnostic survey method was used in the empirical analysis. The basic source of data for statistical research for the development of the article was a survey questionnaire available online.

Findings: The results of the conducted analyses indicate that the public correctly assesses the operations of emergency services at the scene of a traffic accident.

Originality/value: The process the operations of emergency services should be accompanied by appropriate in-formation activities because a consistent approach to disasters, based on an understanding of their common features and the response expertise they require, is becoming the accepted practice throughout the world.

Keywords: exchange of information; risk; crisis management; traffic disaster; resource management.

Category of the paper: research paper.

1. Introduction

Globally, the number of accidents (especially road traffic accidents) is increasing and so are more injuries caused by sudden incidents and accidents. In order to priorities patients to ensure that they are properly attended to and that the resources and facilities of medical facilities are used optimally during accidents, it seems crucial to know the competences and responsibilities of emergency services at the scene of an accident. Human life and health are paramount values, therefore ensuring road safety is a basic global, EU, national and local priority. Emergency

management services, such as firefighting, rescue teams and ambulances are all heavily reliant on road networks (Rohr et al., 2020). In Poland, emergency services, organizations and entities differing in character and scale of preparation are prepared to carry out rescue operations. In this diversity of services one can indicate different affiliation, organizational structure, numbers, type of equipment and financing methods, nevertheless their priority actions are convergent. These services are: National Fire Department, Police and Emergency Medical Services. They are one of the essential public entities ensuring a certain type of safety and protection of health and life, based also on the provisions of the Constitution (Journal of Laws No. 78, 1997) and other legal acts, such as the Act on crisis management (Journal of Laws of 2019). Efficient emergency response to traffic incidents is crucial for the purpose of saving lives and properties. However, it is important to point out that there are barriers to effective communication. They include lack of information or knowledge, lack of attention to detail, selective listening, status biases and different perceptions of risk (Cole, 2020) A review of the current literature highlights the growing role of disaster management teams as an integral part of responding to traffic accidents (Briggs, 2005).

The European Commission's published data shows that in 2021, the rate of fatalities per million inhabitants fell to 59 from 66 in 2020 and 77 in 2019. The number of fatalities in Poland is decreasing, but their share is high compared to other European Union countries. As a country, however, Poland is above the EU average of 44 fatalities. Especially when we compare Poland with other countries in the region: in Romania last year, the number of fatalities per million people rose to 93 from 85 the year before (but in 2019 it was 96), and in Bulgaria to 81 from 67 the year before. In Latvia, 78 people per million were killed on the roads, and in Croatia, 72. Compared to Western European countries, however, we are a long way off: in Germany, 31 people per million people were killed, in Denmark - 23, similarly in Switzerland, in Sweden - 18, and in Norway - only 16. The European Commission's data shows that 19,8 thousand people died in accidents in the EU in 2021. That's 5 percent and 1,000 more victims compared to pandemic 2020. This issue is also relevant because of the increasing number of road accidents and the resulting increase in fatalities. Therefore, it is important for emergency services to ensure safe and rapid action at the scene of a traffic accident to minimize the time to receive and exchange information, reduce the number of casualties and the time to provide assistance (European Commission, 2022).

I will first describe and present arguments from the existing literature related to communication management, disaster avoidance and organizational communication climate. Based on this discussion, I will develop a framework. In the methodology section, I will identify the method and analysis used to conduct this study. I will then present results. The next section includes a discussion based on the results. Finally, I will present conclusions, limitations of the study and recommendations for the future.

2. The review of literature

The concept of risk has been discussed in many publications, hence I will only mention a few aspects that appear in relation to its definition in the literature. De-fining risk is quite a difficult task, and it is almost impossible to provide an unambiguous, precise definition. Since the mid-1970s, the concept of risk has come to encompass more and more areas of social life and is defined on the basis of various sciences and theories, including economics, behavioral sciences, legal studies, psychology, statistics, insurance, probability theory and public safety sciences (Hood, 1992; Power, 2007). Some authors perceive an excessive effort in the typology and classification of safety, hazards, risks and a syndrome of 'reinventing the wheel', as the literature on risk theory and its applications in insurance, banking, investment, but also management and command is rich and valuable (Sienkiewicz et al., 2020). A crisis is inseparably connected to contemporary companies (organizations). The history of risk research and the philosophy of risk, among others, has been discussed in detail by Kaczmarek (2006; 2010). The most widely known book in this area is *Against The Gods: The Remarkable Story of Risk* by Peter Bernstein from 1996. In it, the author analyses how risk has been perceived from ancient to modern times. In this context, he pays much attention to the invention of the calculus of probability and its application in conjunction with decision theory to the analysis of risk issues. The word risk comes from the Italian *risicare*, which means 'to dare'. Therefore it follows that risk is a choice rather than an inevitable destiny. According to the ISO definition, risk is defined as the effect of uncertainty on the activity undertaken (ISO 9000). Risk can be defined as the result of the probability of a negative occurrence and its outcome (Manstead et al., 1996). Risk is most often interpreted as the probability of loss (Institute of Risk Management). It is therefore treated as a synonym for a state of risk. Kabus et al. (2020), on the other hand, indicates that risk is the uncertainty associated with future events or the outcome of decisions. Risk and its division into different categories indicates that it is a subject closely related to the concepts of safety and disaster.

The subject of defining the word disaster is to begin by defining a word with the opposite meaning, which is safety. This word is derived from the Latin language from the words: "sine cura", understood as stability. Broad, lexical formulations treat security as: a state of non-threat, calmness, certainty. The term of safety can be found in each and every scientific discipline and depending on the level and objectives of the research it is interpreted accordingly. Safety is one of the basic human needs and a situation characterized by the lack of risk of losing something that a person values in particular, for example: health, work, respect, feelings, material goods. Security is the main need and supreme value of a human being and social groups, as it is also the basic need of states and international systems, as well as their declared goal. Historically, security has been known to mankind since the dawn of time. Some even claim that the need for safety was an indispensable need for the establishment of the state

(Pieprzny, 2007). Providing security to citizens is one of the fundamental duties of any state organization and one of the essential functions of the state, so richly described in political, legal and administrative literature (Malešič, 2021). Various institutions and services in the country are responsible for national security. Ensuring security is a condition of great significance for sake of the development of the society and the state as a whole (Olak, K., Olak, A., 2016). Security is associated with order, calmness and the ability to react in an organized and rapid manner to violations of the law that occur. For the society, on the other hand, security is the key notion in the everyday functioning of the society, ensuring the possibility of development and peace of mind associated with everyday life in both the public and private spheres. Unnatural threats, i.e. these caused by various forms of human activity, take the form of disasters - sudden and unexpected events with negative consequences. In reference to the subject of this article, ensuring the safety of the population during a variety of traffic incidents on Polish territory lies with the emergency services, which are mainly composed of emergency medical services, fire departments, the army, and the police (Trzos, 2004).

The first of definitions of a disaster to be mentioned is derived from the National Defense Academy's Dictionary of National Security Terms, which defines this event as: a sudden event with tragic consequences, causing material damage and serious injury or death to people. Another definition states that it is an event requiring the use of forces and resources beyond the capabilities and capacities of local services adapted to combat and to prevent the effects of such situations, where assistance is required beyond local medical services. However, this definition also includes the additional aspect that not all victims can be helped at the same time, which contributes to medical segregation (Zawadzki, 2007). Following an analysis of the division of disasters, one may notice a significant multitude of the variety of these events. The lack of specific divisions and particular events assigned to them may result in many controversies during the occurrence of a disaster and its proper classification as well as effective overcoming of the situation at hand. However, it is worth noting that despite the variety of divisions of disasters, each of them share some points. The main focus should be on those types of disasters whose risk of occurrence is greatest. As one of the most frequently occurring technical threats (external material threat caused by human activity), are communication disasters, more specifically disasters related to road transport. Traffic accidents are a serious problem in the modern world, as they are one of the main causes of all injuries, accounting for one third of deaths world-wide. Every year about one million people, adults and children, are killed on the roads and several million are injured. The death rate from road traffic injuries is 2,2% of all deaths worldwide (Paradowska, 2016). As a type of disaster, it is a major social and public concern, generating a heavy burden, not only because of the loss of health or life, but also through the significant strain on emergency services, the health system and the environment. A traffic accident is a sudden and unforeseeable event that occurs on or off a public road and causes damage to property (damage to vehicles) and/or to the health or lives of those involved. Traffic disasters primarily include an event in land, sea or air traffic involving at least one

vehicle and resulting in loss of property, health or life of the people involved. Due to the development of the road infrastructure, and the consequent increase in the number of vehicles on the road, it is disasters and land traffic incidents that are the events with the highest number of fatalities. An extremely important factor during a traffic incident is not only the proper equipment, securing the scene of the incident, qualified rescuers, but also the exchange of information between the emergency services and hence their cooperation. Traffic incidents are unique. The emergency services must work closely and efficiently together for the improvement of all operations at the scene. Injuries and damages resulting from traffic accidents involve significant costs and losses, which Brongel called 'the most serious and the most expensive war of the modern world' (Brongel, 2007).

The issue of crisis management logistics is a subject closely related with the increase in road accidents in Poland and worldwide. Road accidents belong to the category of the non-military crisis threat as technical disasters. In the light of the literature review, several crisis management themes emerge. Crisis situations are a set of certain unfavorable circumstances occurring in a given area, resulting in certain unfavorable changes for people or the environment. They affect not only the environment, but also the physiological, emotional and social well-being of the live functioning within. The logistics of crisis situations is to eliminate, to some extent, these unfavorable circumstances through appropriate management and planning of operations at the site of the incident. It is focused on saving the life and health of the injured, providing them with all the necessary resources and medical aid. In such situations, the time of arrival on the scene and the fastest possible execution of the necessary actions is particularly important, as time affects the chances of survival of the injured. A state of crisis causes an imbalance, and the task of logistics is to restore it (Kochanek, 2013). A valid element of an efficient crisis management system is the logistics of crisis situations. It provides theoretical solutions to support planning, preparation, response and recovery processes in the event of a crisis situation. The subject of crisis logistics is especially the affected population. Moreover, it deals with all logistical aspects taking place either to secure property or to rebuild critical infrastructure. The main objective of emergency logistics operations is to reach all victims as promptly as possible, to save the health and lives of the injured and to meet the basic needs of the affected population.

An efficient emergency response requires an emergency response plan. It consists of four stages: prevention, preparation, response, recovery. These stages are interconnected and form a closed cycle. The emergency logistics is to plan for situations that have not yet occurred in order to be as prepared as possible and to be able to act as quickly as possible the moment an event occurs (Ziarko, Walas-Trębacz, 2005). Difficult and complex decision-making is characteristic of disaster site management. Thus, disaster management is in a sense a specific form of risk management. Risk management itself aims, among other things, to improve human safety and prevent losses, but above all to avoid unnecessary risks (Vasvári, 2015; Berek, Kovacs, 2018). On the other hand, the main objective of disaster management is to save lives

and protect the health of citizens - which further emphasises the need for sound decision-making. Traffic disasters pose a unique challenge for teams providing medical assistance to the affected population (Oldenburger et al., 2017).

However, it is important to remember that communication is an essential tool for crisis management. The purpose of communication in crisis management is to raise awareness of threats and to induce protective practices before and during hazardous occurrences (Coombs, Holladay, 2018). The veracity of messages sent and received becomes essential in crisis situations, and people's well-being and decisions depend on the quality of the information they receive. Regular and accurate communication is essential for the proper functioning of crisis management (Coombs, 2021, Thai et al., 2019). Information flows are an integral part of any logistics supply chain (Kadłubek, 2020). The decision-making process in its essence is a complex activity, requiring not only knowledge from the decision-maker, but also their experience in similar situations, or those learnt from relevant training (Kabus, Dziadkiewicz, 2022). An important logistical element in a communication incident, especially a mass incident, is the flow of information (Salomone, 2017), without which it would not be possible to provide efficient and rapid assistance to the injured. The decision theory is a common area of interest for numerous fields of science, covering the analysis and support of the decision-making process, which is an attempt to determine the best solution with a given resource of knowledge and information about possible consequences (Bhalla et al., 2015). Information is important from the very beginning, even before the operations start. Thanks to the notification, the services know how many victims are on the scene, where the incident occurred and what caused it. Most services operate on their own radio channels, but during a mass incident it is important to organize communications in such a manner so the information flows through all the services involved. There is a B112 channel that allows communication with other services. Through this channel, the coordinator communicates with the officers of the teams concerned. The members of these teams can communicate with each other through their own channels. This avoids confusion in the information received by the commanding office at the scene of the incident and makes all operations more efficient. A persistent problem in the management of response to disasters is the lack of coordination between the various agencies involved. There is an intense stress on the characteristics of networked relationships, set apart by flexibility, transparency, participation, and accountability. These factors impact not only the effectiveness and efficiency, but also the legitimacy of the overall emergency management governance process (Journal of Laws 2020.360).

However, no emergency operation, despite the use of the latest equipment and qualified personnel, will be efficient and effective without ensuring the safety of rescuers, as well as coordination and reliable information flow between services. Correct and reliable information flow is essential in the logistics of emergency services providing assistance in traffic incidents. Without a proper flow of information, emergency services are not able to help the victims sufficiently, and thus to do their job properly. Nowadays, the organization of effective

information transfer, as well as the proper management of information transfer, is an essential condition for the efficient conduct of all large emergency operations. The lack of proper information and effective communication between the various participants in an operation leads to chaos. Chaotic emergency operations are usually caused by a misunderstanding of the real needs and thus, despite the effort put into them, are not very effective. The proper coordination of emergency operations carried out at the scene of a mass incident is of vital importance for its success (Cronin, Weingart, 2007). The type of information transmitted is strictly dependent on the current phase of the activities. However, the first information causing the start of the response phase is crucial, as they are often obtained from accidental witnesses of the incident and are sometimes inaccurate, which may be the reason for an inadequate response to the incident. Therefore, it can prove to be difficult to gather complete and precise information about an incident shortly after its occurrence. Usually the first accurate and reliable information coming from the scene of an incident is the one received from the emergency services that arrived on the scene. They provide the necessary precise information for further action, i.e. the exact location of the incident with optimal access routes, current and potential risks, number of victims and type of injuries, type of assistance needed. This information is a priority and must be shared immediately to all the services required during the operation. It should be known before segregation and provision of qualified assistance. Differences in knowledge and expertise can lead to representational gaps, differences in how problems are conceptualized, affecting what information is viewed as being relevant to share and pay attention to, and how it is interpreted (Waring, 2018). These information-sharing difficulties have been observed across several countries, including the USA (Bharosa, 2010) and Netherlands (Jarosławska-Kolman et al., 2016). In summary, information is very important and is a pillar in an effective organization.

3. Description of the functionality of emergency services in Poland

The beginnings of medical emergency services in Poland date back to the end of the 19th century, precisely to 1891, when the first emergency ambulance service was established in Cracow. It was located in the Fire Brigade building, and students of the Jagiellonian University's Faculty of Medicine were on duty in the ambulatory. All the people involved were volunteers, hence the name: the Cracow Volunteer Rescue Company. It ceased its activities in 1950. The impulse for its establishment came from two tragedies in 1890 – a fire in the warehouse of the Kretschmer company in the Market Square, in which, among others, the owner of the company was killed, and a fire in Wiśniewski's pharmacy in Stradom District, in which two people were fatally burnt. In the following years, especially at the beginning of the 20th century, ambulance stations were being established in many larger Polish cities.

The Polish Red Cross Society was also founded in 1919. The members helped war victims and set up many outposts and ambulance stations, which were later taken over by the government. With time, legal regulations for ambulance services began to be introduced, and this mainly happened at the beginning of the 21st century (Journal of Laws of 2019, item 993). According to the Act of 8 September 2006 (Podgórski, Nadolny, 2016), the composition of the medical system in Poland includes: ZRM (Medical Rescue Teams), which use the land route - ambulances, LPR (Polish Air Rescue), which use the air route - it disposes of helicopters and sanitary planes, SOR (the E.R.), and cooperating units, i.e. WOPR (Water Volunteer Search and Rescue), TOPR (Tatra Mountains Volunteer Search and Rescue), GOPR (Mountain Volunteer Search and Rescue).

In modern medical rescue, the aid at the scene of the incident and, subsequently, during transport is of great importance. The proper organization of tasks allows saving life on the site of an incident, proper evacuation and treatment of an injured person in a specialized center in accordance with health indications. The manner of operation by medical rescue services in a mass casualty incident is defined by the procedures developed by the Ministry of Health. First, the team receives information about the incident from the medical dispatcher. On the scene one of the persons takes the role of the Medical Operation Commander. Other services arriving on the scene must report their presence to this person, and then the tasks are assigned. This is followed by a general assessment of the incident and securing the scene. The so-called segregation of the injured is carried out, the so-called triage. Radio communication is essential in order to communicate with each other at all times. Assistance, constant supervision of all involved, psychological support if possible and, if necessary, transport to hospital is provided to the affected persons. Finally, an action card documentation, based on the 'mass casualty incident assessment card', is to be drawn up (Journal of Laws of 1991, No. 88, item 400).

Another emergency service participating in traffic disasters is the State Fire Brigade. In the current legal status the basis for the operations of the State Fire Brigade is the Act on the State Fire Brigade of 24 August 1991 (Liwo, 2020). The Act on State Fire Brigade corresponds with the Act on fire protection. The State Fire Brigade in its current status is a public entity performing the functions of a public authority. The legal forms of measures taken by the State Fire Brigade force up the obligation of a specific conduct of entities subordinated to the competence of this fire brigade and its actions. In the literature, it also included uniformed services in light of the administrative law (Journal of Laws of 1951, No. 58). The history of firefighting in Poland dates back to 1836, when the first Professional Fire Brigade was established in Warsaw. However, the first records on fire protection appeared much earlier, in the 14th century. They stated on warrants and prohibitions of the performance during the occurrence of the danger of fire. Under the Act on Protection against Fire and Other Disasters of 13 March 1934, the regulations and duties of the Fire Brigade were determined (Journal of Laws No. 41, item 365). The present-day division of the State Fire Brigade is quite similar to

the one established by the act of 4 February 1950 on fire protection and its organization (Journal of Laws 2020.360). There are headquarters of the State Fire Brigade, their provincial headquarters and district/city headquarters. Numerous Voluntary Fire Brigade units are worth mentioning. Of great importance in taking care of general safety is the National Rescue and Firefighting System. It is an integral part of the state's internal security organization, aiming for saving life, health, property or the environment, forecasting, recognizing and fighting fires, natural disasters or other local threats. The system associates fire protection units, other services, inspections, guards, institutions and entities which voluntarily, by means of a civil-legal agreement, agreed to co-operate in rescue operations. The main objective of the National Rescue and Firefighting System is to provide protection of life, health, property or environment, within the framework of actions undertaken by the State Fire Brigade and other rescue entities (with particular emphasis on Voluntary Fire Brigades), through: firefighting, elimination of local threats (rescue operations), chemical and ecological rescue, technical rescue, medical emergency service within the scope of providing qualified first aid. During a mass incident, the State Fire Brigade reminds the Emergency Medical Service. After receiving the notification and arriving at the scene of the incident, one person is appointed to lead the operation. The officer of the fire brigade classifies the occurrence of the incident, whether it is a multiple event, a mass event, or a disaster or natural disaster. This is followed by medical segregation. The State Fire Brigade cooperates with the other services. Together with the emergency medical service, they rescue people and evacuate the injured, as well as secure the incident area. Depending on the type of incident, they also deal with elimination of dangers and prevention of further dangers in the area. Polish legislation states that a rescue operation with the participation of the National Rescue and Firefighting System entities is usually commanded by an officer of the State Fire Brigade. In case there are not enough ambulances to transport the injured, transport by the State Fire Brigade is possible. The rescue operation officer can also send public means of transport, such as city buses.

Another service involved in a mass incident is the Police. It is an executive entity which was established on 24 July 1919 by an act of the Parliament of the Second Republic of Poland. During World War II, the activities of the Polish police were significantly limited. In 1944 the State Police was dissolved and the Citizens' Militia was created. Its main task was to maintain public order. The organization of the Militia was specified in 1955. Its main organ was the Headquarters. Since 6 April 1990, in accordance with the act on the Police, the Citizens' Militia was dismantled and the Police was established. In the current legal state, the basis for the Police activity is the Act of 6 April 1990 on the Police (Journal of Laws 2017.1319).

Police operations at the scene of a traffic incident can be divided into two stages, namely the stage of preliminary activities (when the Police receive information about the incident, verify it and direct police patrols to the scene of the incident) and the stage of proper rescue response, consisting of the following three stages. First, alarming and warning, then the order stage, ensuring freedom of access for other services, securing the place, preventing panic,

informing bystanders about the event, directing the traffic. The Police are also involved in providing first aid to the injured.

It is necessary to present the characteristics of the incidents, in which the respondents surveyed may have been involved. In the case of mass events, the medical aid, due to the large number of injured and sick people and due to the limited medical potential, is narrowed down to the so-called "vital considerations", and all the injured are subject to medical segregation. It is an essential element of rescue operations in mass incidents. The aim of this procedure is to find among the victims of the incident those who are in a life-threatening condition and in this way to enable them to receive the medical aid in priority. The aim of segregation is also to organize medical rescue activities. Thanks to this, the medical personnel can provide medical assistance to an increased number of the injured and wounded, especially to people in the state of direct threat to life. In the literature, a mass accident is an event that suddenly results in a large number of injured people exceeding the capabilities of the emergency services arriving on the scene. In such events, the emergency services are not able to provide the medical aid to all victims at the first moment, despite medical procedures specially developed for such events. A large number of victims and the scope of their injuries create obstacles for the emergency services, which, guided by the principle - to save as many people as possible, are often forced to make medical compromises. In practice it means that victims whose chances of survival are slim are not treated. The moment the disproportion between the needs of the injured and the possibilities of providing help by emergency services, which occurs in mass accidents, is eliminated, the injured can be treated at the scene of the accident in a routine way, using the available equipment and human resources. A single accident is an emergency event with risks to a single victim. This person will receive full medical attention in accordance with current emergency procedures (Vassallo, 2017).

Addressing the procedures of emergency services at the scene of the incident, it is stated that they first secure the scene, if necessary facilitate access to the injured, evacuate people to a safe place, and then proceed to the initial segregation of the injured, i.e. triage. Evacuation is the movement of the injured from a dangerous area by the decision of the State Fire Brigade officer.

Any movement of people by decision of a doctor or paramedic is an extraction or transportation. Triage is one of the key principles for the effective management of major emergencies (Koenig et al., 2010). Triage is a French word derived from 'trier', meaning to select, to separate, to categorize or to classify, and refers to the categorization, classification and prioritization of patients and injured people based on the urgency of their need for treatment (Bazyar et al., 2019). It is a medical procedure to priorities treatment and to classify injured people in accordance to the severity of their injuries. Medical segregation is a continuous, ongoing process, repeated from time to time. The aim of the triage is to help as many victims as possible in a relatively short period of time. Medical segregation may be undertaken by paramedics, system nurses, doctors, as well as firefighters or any other person with a completed

course of qualified first aid, appointed by the officer of the operation. Medical segregation should be delegated by the most experienced paramedic in the team. People are assigned to a particular category by making a preliminary assessment of basic vital signs such as ability to walk, breathing, pulse, state of consciousness. If the initial segregation is carried out by State Fire Brigade rescuers, they are not qualified to declare death, so in a situation where movement and breathing are not detected, they assign a yellow category, thereby giving these victims secondary priority for transport. There are several different segregation systems. The most popular system in Poland is the START system. It is also the system most commonly used in the United States. This system is also used in Canada and selected regions of Australia and in the Israeli-occupied territories. It was developed by the Newport Beach Fire Department and Hoag Hospital in California in 1980 (Koenig et al., 2010). In this system, all injured adults over the age of 8 are assessed based on the system's algorithm in 60 seconds or less (preferably 30 seconds). In this system, criteria including walking ability, respiratory rate, capillary filling, radial pulse and command performance are used. According to this system, victims should be divided into four groups (priorities). The red colour is used to indicate those injured people who should be helped first and immediately. These are patients who can recover with appropriate medical care. Yellow is used for victims who need medical attention but whose life will not be endangered by a short delay in receiving it, so they are treated second. Their proper treatment must start within the first 24 hours following the incident. Green is for patients who will survive regardless of the help received. Black, on the other hand, means the victim who has no breathing and no pulse after the airway has been opened, and there is a high probability of death. This group also includes people with burns over the entire body surface, or with extensive crushing. While rescuers, doctors and firefighters are giving first aid to victims in the red and yellow groups, people in the green group are gathered in one place in a sit-ting position so that one person can control them and constantly observe their behavior (Smith, 2012).

Moreover, the types of medical segregation, namely primary and secondary segregation are also to be discussed. Primary segregation is the segregation of the injured performed immediately after the arrival on the scene of the emergency entity. At that time, victims are initially assigned to the appropriate colours. Secondary segregation is the segregation of the injured which is carried out after the implementation of medical emergency procedures in relation to the highest priority victims. It begins after the red group has been treated, but before their transportation. Then the medical records come into use. Secondary segregation usually differs from primary segregation. After secondary segregation the victims are transported to the appropriate medical facilities in the order determined by the qualified in the first aid in consultation with the doctors present (Podgórski, Nadolny, 2016).

4. Research methodology

The source data for the statistical research were obtained by the questionnaire method. The survey questionnaire was distributed electronically through a web service. The link to the questionnaire was sent to people involved in traffic incidents, but not belonging to the emergency services. In order to obtain the most extensive and thorough information, a typical case of random selection was used.

The study proper was based on questionnaires. It was conducted between January and February 2022 on a group of 150 people. Respondents completed an online survey via a website. In the empirical sphere participated the people who were involved in traffic incidents but are not members of the emergency services. In order to obtain the widest and most complete information, a typical random selection case was used. Spatial coverage was determined randomly. The questionnaire contained questions concerning the evaluation of the actions of the rescue team in terms of preparation for the rescue action. The questionnaire was completed by 258 people, but 102 people did not participate in the road incidents or were members of the emergency services, and 6 questionnaires were filled in incorrectly (not all questions were answered). 58% of correctly completed questionnaires were obtained. A total of 156 questionnaires were obtained, of which 150 correctly completed were included in the further analysis.

The structure of the sample was selected based on the percentage of population registered by the Central Statistical Office. The population aged 18 to 66 was taken into account. Due to the fact that the sample cannot be considered fully representative, the obtained results should not be generalized to the entire population. Nevertheless, they contribute to a better understanding of the functioning of emergency services at the scene.

Undertaking a study to analyze the preparedness of emergency services to participate in rescue operations, research questions were formulated: whether there is a correlation between perceptions of uniformed services and gender, place of residence or education, and whether there is a relationship between ratings of the usefulness of particular emergency services and demographic variables. In addition, the respondents were asked about their opinion of individual emergency services and to indicate which of them has the most important role at the scene of a traffic incident. In addition, it was determined whether there are irregularities at the scene, and if so, what they are.

BM SPSS Statistics for Windows, Version 24.0 was used for the statistical analysis.

5. Results

150 people participated in the survey: 64% male and 36% female. The largest groups of respondents were people aged 18 to 26 years and 27 to 40 years. On the other hand, a less numerous group were people between 41 and 65 years old. The least numerous group was people over 66 years old. The structure of the sample by age and gender of the respondents is presented in Table 1.

Table 1.

The structure of the sample of the respondent by age and gender

Variable: gender	Frequency	Percentage (%)
Female	54	36
Male	96	64
Variable: ages	Frequency	Percentage (%)
18 - 26	72	48
27 - 40	45	30
41 - 65	30	20
Over 66	3	2

Source: own study.

The opinions of respondents vary depending on: gender, level of education and place of residence, therefore they were analyzed from this point of view. Among the respondents, 73% come from a small town (up to 250 thousand residents), 21% from a medium town (between 251 and 500 thousand residents), 6% from a village. The highest number of female respondents in the study were women with secondary education (60% of female respondents) and with higher education (31%), while male respondents were mostly respondents with secondary education (52%) and with higher education (31%).

First, the respondents were introduced to the definitions of traffic incidents: single, multiple, mass and traffic disaster. Then, they answered which communication incident they had participated in. The individual incidents were characterized in de-tail in the questionnaire. The distribution of answers to the above inquiry showed that 58% had been involved in a mass traffic incident. This was followed by those who had been involved in a single incident (24%) and those who had been involved in a multiple traffic incident (9%). One person was involved in a traffic disaster, while despite its characteristics 6% of people, could not specify what type of incident they were involved in.

The next question was designed to explore which of the emergency services holds the most significant role during these traffic incidents. Respondents could mark only one answer. Most people indicated the Medical Emergency Service (54%). Next was the Fire Brigade (32%). The Police came last (14%). None of the respondents marked the "no opinion" answer. Relationships between ratings of the relevance of emergency services and demographic variables such as age, place of residence and education were also examined. No significant relationships could be found between any of the variables examined. There are also no differences between men and women in this regard (Table 2).

Table 2.*Correlations between emergency service relevance ratings and demographic variables*

Attitude towards the uniformed service			
Women	Age	Correlation coefficient	-0,122
		Relevance (double-sided)	0,298
	Education	Correlation coefficient	0,055
		Relevance (double-sided)	0,642
	Size of the place of residence	Correlation coefficient	-0,072
		Relevance (double-sided)	0,538
Men	Age	Correlation coefficient	0,161
		Relevance (double-sided)	0,167
	Education	Correlation coefficient	0,115
		Relevance (double-sided)	0,324
	Size of the place of residence	Correlation coefficient	-0,069
		Relevance (double-sided)	0,555

Source: own study.

Furthermore, the work of emergency services involved in the incidents was examined using a Likert scale, where 1 - is a very bad rating, and 5 - a very good, with the middle value of 3 - I have no opinion. According to the questionnaire, the vast majority of men (86%) answered "very good" or "good" when asked to evaluate the operation of the medical emergency service, and as many as 72% of women also answered the same way to the above question. Only 14% of men had a negative opinion of the medical emergency service's performance at the scene of the incident. In the female group, 28% of the respondents answered that they had a bad or very bad opinion of this uniformed service. Relationships between attitudes to the assessment of medical emergency service performance with demographic variables such as age, place of residence and education were also examined. No significant relationships could be found between any of the variables examined. There are also no differences between men and women in this regard (Table 3).

Table 3.*Spearman's rank (rho) correlations between medical emergency service performance ratings and demographic variables*

Attitude towards the uniformed service				
Women	Age	Correlation coefficient	0,053	
		Relevance (double-sided)	0,635	
	Education	Correlation coefficient	-0,005	
		Relevance (double-sided)	0,968	
	Size of the place of residence	Correlation coefficient	-0,044	
		Relevance (double-sided)	0,705	
	Subjective assessment of the financial situation	Correlation coefficient	0,031	
		Relevance (double-sided)	0,794	
	Men	Age	Correlation coefficient	-0,003
			Relevance (double-sided)	0,980
Education		Correlation coefficient	-0,014	
		Relevance (double-sided)	0,903	
Size of the place of residence		Correlation coefficient	-0,540	
		Relevance (double-sided)	0,647	
Subjective assessment of the financial situation		Correlation coefficient	0,117	
		Relevance (double-sided)	0,316	

Source: own study.

In summary, it may be concluded that people who positively evaluated the performance of the medical emergency service at the scene of an incident are not assigned to the appropriate age group, do not have a specific education, and do not come from a small or large city.

Table 4 presents an analysis of the averages for the different uniformed services. The descriptive statistics show that there are differences between the individual uniformed services. Respondents recognized that the medical emergency service is the first in the ranking of acting at the scene of an incident, followed by the fire service. On the other hand, by far the worst rated emergency service was the police.

Table 4.

The averages for the different uniformed services

Type of the uniformed service	Average importance score	Standard deviation
Fire Service	3,120	0,704
Medical Emergency Service	2,147	0,790
Police	3,427	0,846

Source: own study.

The distribution of answers confirms the results obtained earlier concerning the role of emergency services at the scene of an incident and shows that the main role in mass incidents is played by the Fire Department and the Medical Emergency Service. These entities have the authority to provide assistance to the injured, to assess the condition of the injured through medical segregation and are equipped appropriately to save people's lives. They can also provide transportation for the injured. The Po-lice, on the other hand, while also important is perceived from a slightly different angle. They are mainly involved in securing the scene of the incident, directing traffic, and marking out areas for arriving services.

Another of the questions asked if there were any irregularities while providing assistance and securing the scene. The results show that the majority of people (64%) answered that there were no irregularities, while 36% of people noticed them. Those who gave an affirmative answer to the above question were asked to justify their answer, either by selecting the answers considered by the interviewer or by describing the problems noticed themselves. Among the features that significantly affect the assessment of the performance of uniformed services in terms of irregularities that occur at the scene of an incident, the following should be indicated:

- insufficient security provided at the scene of the incident (12 people),
- late arrival at the scene of the incident (30 persons),
- inefficient level of cooperation of services at the scene of an incident (14 persons),
- noticeable chaos (12 persons),
- little information provided to those affected by the incident (6 people).

It was noticeable that most of the people surveyed (71%) believe that the emergency services were able to control the chaos at the scene of the disaster, while the opposite was true for 29% of the respondents. According to 60% of the people surveyed, the emergency services

are adequately equipped technically and in terms of training to ensure the safety of those involved in the incident. 70% of the respondents gave a positive answer to the question.

A large part of respondents (76%) confirmed that the rescue system at the scene of an incident is well organized, 6% of people had no opinion on this issue, while the rest of the respondents (18%) marked a negative answer. The survey also asked about public expectations of emergency services. The results are shown in Figure 1.

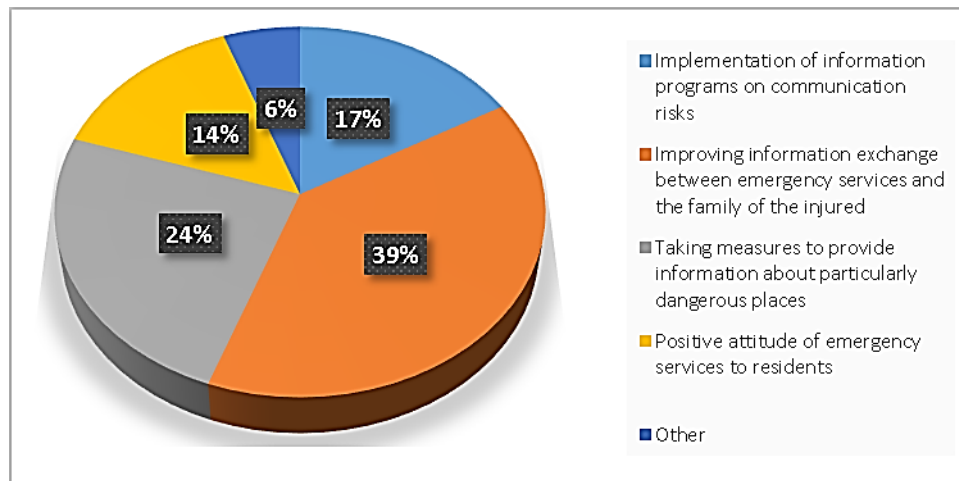


Figure 1. Public expectations of emergency services.

Source: own study.

The analysis of the above questionnaire shows that emergency services meet the expectations required by society. The operations of rescue units are carried out in a professional manner and the knowledge of rescuers is sufficient to provide assistance. The rescue system itself operates in a satisfactory manner. The paramedics were rated highest, followed by the firefighters. It can be concluded that they are considered as people to have the best training and have the greatest impact on ensuring the safety of victims and witnesses. Respondents also pointed out that it takes too much time for the emergency services to arrive at the scene of an incident, there is chaos, and there is poor communication between the injured and the rescuers. It can be surmised that the chaos stems from the fact that rescue teams struggle to make decisions due to poor communication, inconsistent situation awareness, and conflict of interests (Chen et.al., 2013). In order to eliminate these mistakes, it is necessary to increase the number of training to improve the skills of emergency services, as well as to improve the dynamics of arriving at the scene of an incident.

6. Discussion

The purpose of this study was to assess the actions of emergency services (Fire Department, Police and Medical Emergency Service) at the scene of an incident and to indicate the importance of the exchange of information between the emergency services mentioned.

The study considered the largest number of people involved in a mass traffic incident, followed by those involved in a single incident and those involved in multiple traffic incidents.

It was found that there were no significant relationships between ratings of the usefulness of emergency services and demographic variables such as age, place of residence and education. No significant relationships were found between any of the variables studied. In addition, the work of emergency services involved in incidents was positively evaluated by both men and women. An examination of attitudes toward evaluating the performance of emergency medical services with demographic variables such as age, place of residence and education found no significant relationships. There were also no differences between men and women in this regard.

Evaluating all emergency services, the best rating was given to the ambulance service and the weakest to the police. Important factors affecting the situation at the scene included.

Important factors affecting the situation at the scene in terms of bad behavior included: arriving too late at the scene of an ineffective level of cooperation between services at the scene, insufficient security provided at the scene, chaos, too little information given to those affected by the incident.

The complexity of the communication process is very often underestimated, where errors in communication can lead to serious negligence and delays at the scene.

7. Conclusions

The content presented in the article and the results of the author's research can inspire further work for researchers dealing with issues of crisis management, public management, risk management. The analysis presented in the article provides a basis for further research on various information activities in different types of emergency situations. Further research is needed. The article discusses only selected articles, providing a basis for further research. The literature review can be expanded to include an analysis of related scientific works produced in other social science disciplines. The results of this study will not only contribute to the discourse in the context of crisis management in communication incidents, but will also benefit practitioners and policy makers.

There are limitations to the research undertaken. The main one is the number of respondents taking part in the survey. In order for the study to be generalizable to the entire population, a much larger research sample would need to be surveyed.

As part of future research, I think it would be worthwhile to expand the study to include the professional competence of emergency responders, as well as to include work experience as a factor that can affect traffic management and faster response at the scene of a traffic disaster. Having worked too long in an organization or industry can have both positive and negative effects. Z positive perspective, employees tend to be more experienced and familiar with risks and related information. However, employees can become too comfortable in their work environment and take risks. In addition, because they no longer understand details of the workplace, non-compliant behavior may occur. Therefore, future studies should examine the impact of work experience on all factors related to communication management.

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