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STRESS AT WORK OF FIRE SERVICE MANAGERS

Introduction

Stress is included in the type of human health behaviours that have a specific impact on his psycho-physical well-being and therefore may be of considerable importance in making the right decision-making processes when managing rescue actions (Sygit-Kowalkowska 2014).

Occupational stress or work-related stress is one of the most common work-related health problems in Europe and the world. Stress, which develops or intensifies as a result of work, is considered work-related. In firefighters, it is manifested, among other things, by symptoms from the musculoskeletal system (Soteriades and others 2019).

The firefighter profession is classified into a narrow group with a very high level of risk. It is well known that its specificity and at the same time its special nature is the result of the social mission of firefighters. Their daily work is associated with a number of risks occurring during any rescue and fire-fighting operations that may adversely affect their health and quite often endanger their lives. Typically, fire officers are forced to do their job in situations requiring them to be very responsible, while mastering, reacting immediately, increasing psycho-physical endurance or properly dealing with various types of people who were involved in an accident (Oleksi 2015).

Occupational exposure to stress and high risk at work can be associated with faster burnout, also in case of fatal accidents, e.g. firefighters (Vinnikov and others 2019).

Stress in this type of work is associated with the need to perform very difficult and responsible tasks, often at the limit of feasibility, most often in an unknown

environment, with an existing threat to health and life of one's own and other people (fires, construction disasters, chemical and ecological disasters, traffic accidents). A stressful situation is just waiting for an alarm. In addition to the constant stress caused by the daily demands of the service, there is also traumatic stress and it is a reaction to a critical event that has caused a possible immediate threat to the life of the firefighter himself.

Chronic exposure to stress causes excessive strain on the nervous system and requires above-average mental exertion. However, the experience of traumatic stress not only has negative psychological health consequences, but also reduces motivation to work and perform tasks. Firefighters who have experienced prolonged traumatic stress may develop post-traumatic stress disorder (PTSD) and/or depression and many other such as acute stress disorder (ASD), which lasts from about 2 days to 4 weeks (Sawicki 2012).

Undoubtedly, the functioning of a person in often emerging situations of challenges and threats will expose him to certain health losses. Their health behaviour plays a significant role in maintaining the good health of those in managerial positions in the PSP. Health behaviour has a significant impact on the further course of service and consequently the rapid and correct decision-making when managing firefighting or rescue operations.

We should remember that every day in most fires, catastrophes and other events, the lives or health of people waiting for help depends on the correctness of the decisions made to save.

The importance of stress in a fire service manager job

The occurrence of stressful situations is an inseparable attribute of everyday human life, and the discussed term "stress" has become a permanent feature of our colloquial language. As we can show it on the basis of the following MA thesis, the scientific community, despite the universality of this phenomenon, have not managed to work out a unified definition so far. Modern psychology, however, will tend to understand stress in relational terms as an imbalance between specific resources or capabilities of a given individual and specific requirements of his environment. One of the most frequently cited definitions is the known concept of Lazarus and Folkman (Lazarus, Folkman 1984). According to their theory, the effect of a specific stressor on an individual will usually largely depend on the undertaking of a specific activity aimed at regaining the desired state of equilibrium, which is synonymous with specific ways of coping with the existing difficult situations. At the moment, it is believed that any effectiveness of coping with the stressful situation will be determined rather by the specific compliance of the behaviour with his individual coping style, and not by adapting the behaviour to the type of a given situation (Grygorczuk 2008).

Current psychological concepts of humans treat the role of the environment as essential for shaping a specific well-being and the way a given individual

functions. Moreover, at the very centre of scientific considerations, the issue of potential actions allowing to protect a given individual from the adverse influence of their environment and the full occurrence of frequent stressful situations appeared.

Therefore, for the above reasons, we should pay special attention to issues such as: ways of coping with stress, based on the available literature on the subject, that stress is classified as a health-related behaviour for people and, accordingly, it affects the person's the state of psycho-physical well-being.

In the literature, there are many reports and a large number of scientific works in the field of research dealing with the relationships between the methods of coping with specific difficulties and a specific psycho-physical well-being of a person. Moreover, all the beneficial effects for our health, as well as those negative consequences for a number of individual human choices, which are made in the face of stress, were discussed (Sygit-Kowalkowska 2014).

The concept of stress

The very term "**stress**" first appeared in the public scientific literature in the 1950s thanks to Selye (Selye 1960). Despite the fact that the word stress has found its permanent place in colloquial language, the creation of a precise operational definition was not an easy task. To put it simple, "stress is a process whose environmental factors will threaten the balance of the organism or disturb it; it is also the way in which the organism reacts to the threat. All the environmental factors mentioned are often called stressors. They usually activate a number of complex mechanisms of both physiological and psychological responses and to a large extent influence the health condition of a given individual. The very concept of stress has received a large amount of scientific explanation in the field of psychology as well as medicine. Only the best-known theories that describe the essence of this phenomenon were selected and discussed in the paper (Grygorczuk 2008).

Psychology distinguishes three definitions of stress: as a specific stimulus, as a specific internal human reaction and a specific relationship between the above-mentioned elements. Earlier studies that dealt with the issue of psychological stress proved that it must be based on an external situation or an event (a specific stimulus), which, by such inducing a high degree of emotional tension in a given individual, prevents it from functioning properly. In addition, this theory was also referred to by, inter alia, Holmes and Rahe in the description of their concept of life changes (Holmes 1967).

Among the three basic types of stress definitions we can mention (Heszen, H. Sęk, 2018):

- 1) **Stress as a stimulus** - is usually defined as a certain situation occurring mostly in the circle of our immediate environment, and which at the same time has a natural ability to cause a certain tension or a surge of strong emotions. Theories

that are undoubtedly related to this type of definition include, among others, the well-known theory of Elliott or Eisdorfer, the concept of Janis, and concerning certain life changes, the one by Thomas Holmes, and Richard Rahe.

- 2) **Stress as a reaction** - both as a physiological and psychological phenomenon, which usually occurs as a response to a specific set of actions of certain stressors (creating the whole of certain situations that can cause a state of stress). In addition to a number of theories that are usually associated with this form of definition, we can also include: the homeostatic form of the theory developed by Walter Cannon or the one Seley's.
- 3) **Stress as a process or form of transaction** - as a definition of certain relations that an individual creates with a certain circle of the closest environment: the well-known Antonovsky's concept, also the well-known transactional model of Lazarus, Tomaszewski's theory of concepts in certain difficult situations, Hobfoll's theory of concepts and the regulatory and information theory of explaining the phenomenon of stress according to Reykowski.

In the literature, there are three types of reactions to stress phenomena:

- 1) **Distress** occurs as a reaction of a given organism to a number of existing threats, difficulties or even inability to fully implement the set important goals and certain tasks of a human, during the appearance and activation of a certain stimulus - a stressor.
- 2) **Eustress** appears as a form of stress positively mobilizing to the desired actions.
- 3) **Neustress** acts as a neutral stimulus in its action; interestingly, for others it may turn out to be e.g. eustress or distress.

Work stress is defined as a negative physical and mental reaction to circumstances in which work requires effort beyond the employees' capabilities (Jebelli, Hwang, & Lee, 2018).

Stress can result in many negative phenomena, such as trouble falling asleep, physical and mental health, and thus lowering employees' productivity (Lu et al. 2017). Moreover, it should be emphasized that not all types of stress may negatively affect the physiology of a given human organism. According to the observations so far, stress can also motivate to positive actions and even help in coping with difficult situations. Only long-term and chronic exposure to the factor of the specific risk could cause serious dysregulation of a properly functioning human organism (Ogińska-Bulik 2009).

Briefly, the diagram (Fig. 1) should be understood as follows. Certain stimuli that reach us are beneficial and mobilize us to act. We can then achieve better results in education, work and sports. We call such stress favorable (eustress). On the other hand, negative stimuli cause harmful stress (distress), which is the result of the body's reaction to a threat, difficulty or inability to perform the assigned task (Mastej 2018).

The figure shows human reactions to external stimuli (Fig. 1).

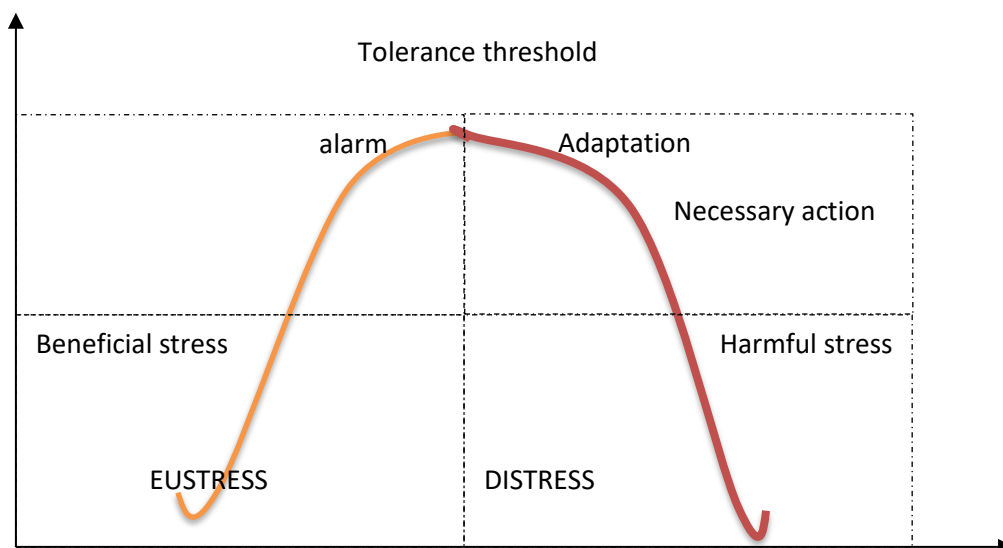


Figure 1. Human reactions to external stimuli

Source: (Mastej 2018)

Stress is an inseparable element of everyone's life, which accompanies various areas of our activity, including professional work. For many years, the very phenomenon of stress in the work environment has been a priority issue for the European Agency for Safety and Health at Work. The phenomenon of stress, according to the recognized definition quoted by the Agency, will occur when the requirements of the working environment exceed its specific ability to cope with them and to control them.

Stress is of interest to employers, not only because of the employee's health and mental safety, but also because of its effects. Dealing with stress and implementing innovative solutions to combat organizational stress should become a priority for those employers who want to reduce the measurable economic costs associated with the effects of stress.

The phenomenon of stress concerns various professional groups. Particular attention should be paid to one of them, which is in the group of professions of high social trust, i.e. the State Fire Service.

In connection with the above, a number of studies were carried out in order to assess the subjective perception of stress and to compare the specific ways of coping with stressful situations by firefighters of the State Fire Service.

It is commonly known that the firefighter profession is classified into a narrow group with a very high level of risk. It is well known that its specificity and, at the same time, its special nature is the result of the social mission of firefighters. Their daily work is associated with a number of risks occurring during any rescue and fire-fighting operations that may adversely affect their health and quite often endanger their lives. Typically, fire officers are forced to do their job in situations requiring them to be very responsible, while mastering, reacting immediately, increasing psycho-physical endurance or properly dealing with various types of people who were involved in an accident (Oleksy 2015).

Stress in this type of work is associated with the need to perform very difficult and responsible tasks, often at the limit of feasibility, most often in an unknown environment, with an existing threat to health and life of one's own and other people (fires, construction disasters, chemical and ecological disasters, traffic accidents). Waiting for an alarm may occur to be a stressful situation. In addition to the constant stress caused by the daily demands of the service, there is also traumatic stress as a specific reaction during a critical event that directly threatened the life of a firefighter.

Moreover, chronic exposure to stress causes excessive strain on the nervous system and will require above-average mental exertion. The experience to date regarding traumatic stress shows that it causes not only a number of negative psychological consequences for health, but also significantly reduces the motivation to perform work and the manner of performing tasks. It has been proved that firefighters, who experienced prolonged traumatic stress in the past, may develop post-traumatic stress disorder (PTSD) and/or depression and many others such as acute stress disorder (ASD), which lasts from about 2 days to 4 weeks (Sawicki 2012).

It is unquestionable that the specificity and the prevailing working conditions in each job will not be identical. The professional group characterized by high work requirements includes, among others officers of the State Fire Service.

The research, which was carried out using the PSS 10 questionnaire with the participation of fire brigades, showed that this group experienced a high intensity of stress - 77%. According to a study carried out by Ogińska-Bulik among 140 firefighters, the intensity of the tested stress was defined as significantly increased (Ogińska-Bulik 2013). Dudek's research showed that specific stressful situations concern about 72.9% of firefighters (Dudek 2003).

Among many ways to deal with stress, a sense of humor or a turn to a religion are a small fraction. According to the British research conducted on police and fire brigade officers, it clearly showed that British officers usually fight stress through conversation, the support for the loved ones and a sense of humor. It has been proved that a sense of humor or meditation can be helpful in coping with the burden of stressful situations (Ogińska-Bulik 2013). The results of Dudek's

research prove that meditation and spirituality are very important values for firefighters. About 61.5% of firefighters seek emotional support (Dudek 2003).

The technique of using psychoactive substances by firefighters turned out to be a marginal phenomenon, according to the research, the average amount of using this type of substance is 0.89% (Mitura-Czaja et al. 2013).

Managing Stress

Ways of coping with stress are a series of cognitive and behavioral efforts aimed at controlling, reducing or tolerating external or internal demands (Heszen, Sęk 2018).

The general state of health of a given individual and their general mental condition largely depend on the nature of stressful events or on the efforts made to transform them favorably (Makowska, Poprawa 2001).

The ability to control oneself is a fundamental element of mental health (Persaud 1998). Therefore, coping with stressful situations can be included in the group of behaviours that affect the general well-being of a person.

S. Folkman, R.S. Lazarus et al. (1986) show three options for choosing the path of a specific stress coping process (impact on health):

- a) Ways of coping with stress that may affect neurochemical responses (duration, intensity and frequency);
- b) Ways of coping with stress that may influence the undertaking of anti-health behaviours, e.g. using substances considered addictive;
- c) The use of certain forms of coping, e.g. denial, which may have an impact on not taking any adaptive coping behaviours (Sygit-Kowalkowska, 2014).

The stress itself which reduces the resistance of the immune system, when it is strong and persists, can reduce its efficiency in a long-term way. On the other hand, the energy from immune cells saved in this way can be used by a given organism in a potentially dangerous situation. Behavioral and neurochemical patterns of emotions will constitute the axial process shaping our health. The state of stress may contribute to the development of ischemic disease by activating the entire sympathetic system and by increasing the amount of fat in the blood. For this reason, the individual ability to cope with stress may contribute to a specific change in the long-term presence of states of stress (Chojnacka-Szawlowska 2009).

One of the ways of coping with stress can be anti-health behaviours, which include the use of psychoactive substances. The use of specific intoxicants aimed at coping with the state of stress usually performs the functions of regulating the emotional state. The effects of their impact will be reducing or stimulating tension and increasing the sense of personal power (Bargiel-Matusiewicz, et al. 2004). On the other hand, the use of intoxicating substances is one of the escape-avoidance strategies. All intoxicants, such as tranquilizers, painkillers, alcohol and drugs will abolish rational judgment of reality. They fill the realization of their anti-stress

activities with calming actions, the disappearance of fatigue or openness in maintaining social contacts. The consequence is that the resources of coping with stress are significantly impoverished and permanently blocked. In addition, the personal willingness to engage in any other effective remedial measure diminishes. For this reason, the definition of self-destructive stress coping strategies was adopted. Gambling, watching TV for a long time or binge eating is assessed in a similar way (Chmiel-Baranowska 2008).

As described by G. Chojnacka-Szawłowska (2009), there are a number of individual coping abilities that may contribute to increasing or reducing the presence of stress. Possibilities of avoiding unpleasant experiences initiate and maintain improper eating habits. As reported by K.B. Matheny et al. (1986), overeating will make it possible to escape from feelings such as anger, worry or loneliness (Sheridan, Radmacher 1998). What kind of food a person eats and how he or she does it has a lot to do with their emotions. In line with the above, excessive consumption of food, especially fat, sugar or alcohol, may be caused by the inability to cope with stress. In addition, excessive eating will be a form of coping with certain troubles. The increased need for food will be a result of experiencing extremely negative emotions and will allow you to divert attention from them (Pietrzykowska, Wierusz-Wysocka 2008).

C.S. Carver et al. (1989), when analyzing particular types of coping with stress, took into account the perspective of specific health consequences that may be caused by all individual stress reactions of a given individual (Hobfoll 2006). As the authors of such a concept emphasize, the style of coping with stress is a characteristic of a given person. All responses that focus on the problem are considered to be healthy and most adaptive (for example: active coping, seeking support, planning). The willingness to transfer anger and frustration to the immediate environment, not accepting the existing reality are typically potential destructive reactions (Salmon, 2020). These views are confirmed, inter alia, by J. Strelau et al., who argued that reducing the stress state, as opposed to focusing on emotions, is a complex process of resource management (Strelau et al. 2004).

According to the views of I. Heszen-Niejodek (1997), it was not possible to unequivocally prove the health advantage of any of the styles in the way of coping with stress. At the same time, we should take into account the situational context and the criterion against which the effectiveness of an individual's actions is assessed.

The benefits obtained from the application of a specific stress coping strategy can be measured only by its effects. Experiencing certain situations with a state of chronic stress (e.g. related to a disease), on which we have a limited influence, activates specific coping styles. The very use of the avoidance strategy can be used more often; whilst at the beginning it is possible to adapt its character to a greater degree, it becomes ineffective even after a longer influence of a specific stressor (Ledwoń, Wróbel 2006). For this reason, there is a need for a

flexible approach to coping with difficulties. The results of the research show that the assessment of a situation as possible for a specific change more often leads us to strategies focused on solving a specific problem. Too low level of the sense of influence and personal control directs such units to strategies definitely focused on emotions (Makowska, Improve 2001).

We should remember that pro-health behaviour in the form of coping with a stressful situation may interact with a number of other behavioral factors, which in turn will determine the specific health condition of a given individual. The very probability of the disease can be modified by adding up individual behaviours that are harmful to health. Additionally, the use of unfavourable strategies in coping with stress may act as a factor that enhances additional actions of other anti-health behaviour (Dolińska-Zygmunt 2001).

Increased attention during an intervention can also be an effective way to reduce stress levels (Sharma, Rush 2014).

Research also shows a positive relationship between a mindful leadership, employee stress, interpersonal justice, LMX quality and employee performance. Organizations can benefit from paying attention to their leaders' mindfulness and investing in it. This can be achieved by systematically trying to raise the level of mindfulness of your leaders through mindfulness training, especially workplace-specific training programs (Reb et al. 2018).

Research by J.C., Chen C. Silverthorne (2008) found that respondents who had an internal sense of control perceived lower levels of stress at work, reported higher levels of job satisfaction and job performance.

Research methodology

The aim of the research was to assess the stress resistance of people performing managerial functions in the State Fire Service. The research was performed using the stress resistance self-assessment test (Tokarski, 1997).

The research was carried out on a group of 50 people performing specific managerial functions of the Municipal Headquarters of the State Fire Service.

The research was carried out at the National Headquarters of the State Fire Service on from 01/11/2018 to 15/12/2018

Research results

The research was carried out on a group of 50 people performing specific managerial functions of the National Headquarters of the State Fire Service.

Table 1. Characteristics of the respondents

| |
|-----|
| Age |
|-----|

| | | | | | |
|----------------|-------|---------------------|-------|----------------|-------|
| below 30 years | | over 30 to 40 years | | Above 40 years | |
| 9 | 18,0% | 34 | 68,0% | 7 | 14,0% |
| Seniority | | | | | |
| below 10 years | | over 10 to 20 years | | Above 20 years | |
| 21 | 42,0% | 18 | 36,0% | 11 | 22,0% |
| Education | | | | | |
| Secondary | | Higher | | | |
| 26 | 52,0% | 24 | 48,0% | | |

Source: own research

Nine people aged up to 30 years took part in the study, who constituted 18% of the respondents. The most numerous group were people aged over 30 to 40 years - 68% of respondents. The remaining people were over 40 years old and constituted 14% of respondents. Most respondents (42% had work experience of up to 10 years. 36% of respondents had work experience over 10 to 20 years, and 22% of respondents had over 20 years of experience. 52% of respondents had secondary education and the rest had higher education (Table 1).

Two people (managers) obtained a high response result $Dz = 76$ and more (1 person 83 points and 1 person 85 points, respectively (Figure 1).

It means that managers with such a score show defensive reactions against obstacles. They are characterized by a change in the original direction of action, which is the implementation of the task performed in a difficult situation. A manager displaying this attitude pattern may manifest it by such behaviours as searching for reasons for the inability to perform a task, running away from illness, dismissal, substitution, sublimation and fixation, compensation, rationalization, projection, and denial. The manager's behaviour is to run away from the stressor rather than overcome it. It is a defense against the task. In the strategy of planning variants of paths to reach the goal, the factor of protection against a stressful situation in managers with high Dz plays an important and sometimes dominant role. Whenever possible, they avoid emotional situations because they know that in such situations they act more effectively. Managers with a resistance scale of 76 and above have relatively low stress resistance thresholds.

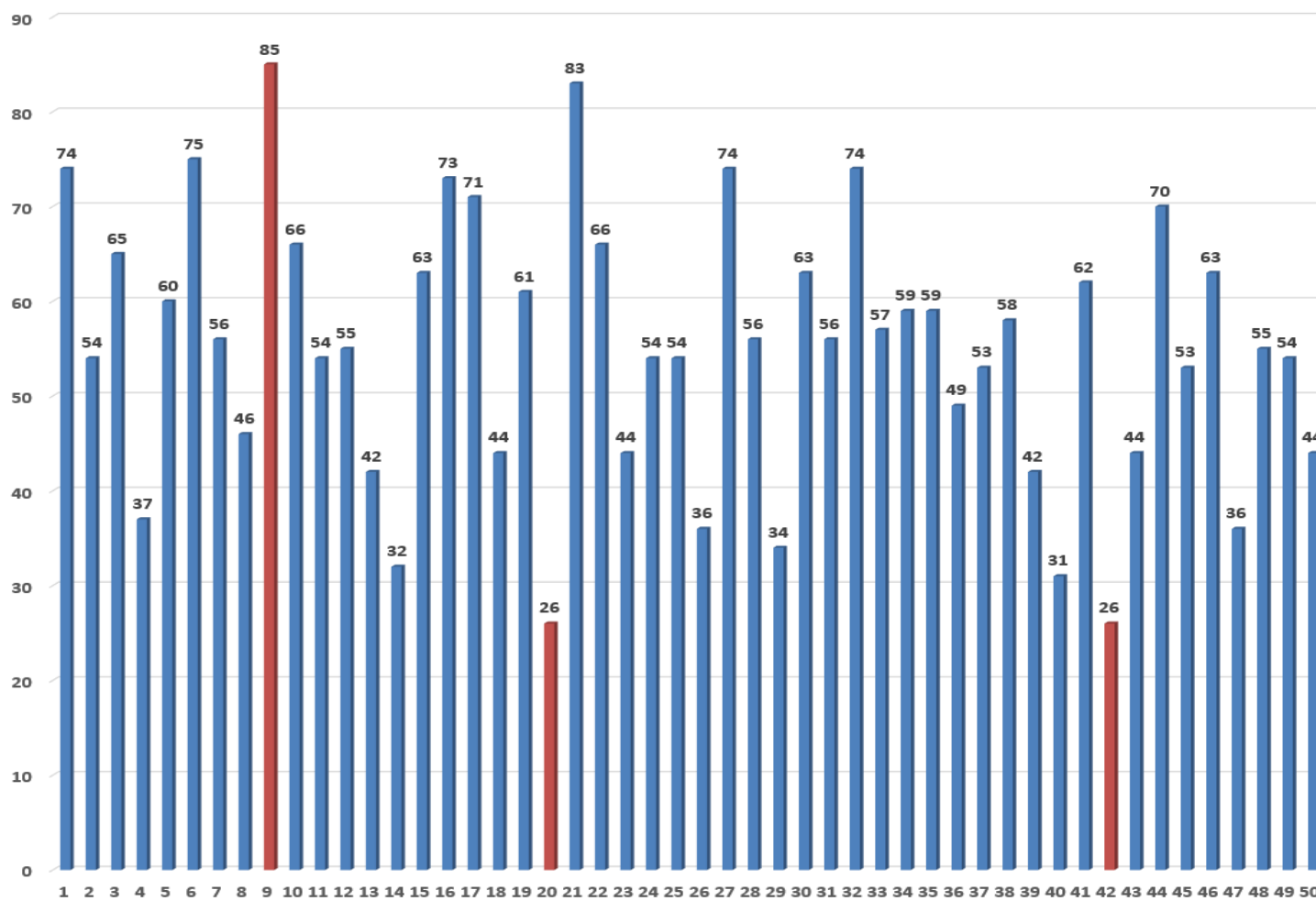


Figure 1. The results of the author's own research based on the self-assessment test of resistance to stress of firefighters performing managerial functions
Source: own research

Forty-eight people (managers) obtained a response result with a low rate of Dz = 75 and less .

This means that managers with such a result are characterized by an active, positive attitude to their managerial work, despite the existing difficulties, and show a tendency to achieve the basic goal of activity. A manager representing this type of reaction tries to re-analyze the tasks in order to check the opportunities in its implementation, strives for new funds, tries to obtain new information, new specialists to perform the task and tries to apply new variants of solutions. Managers with a low Dz actively fight the stressor in order to overcome it. Some managers with Dz to 75 achieve better results under the influence of a stressful situation than in normal situations. Managers with a low Dz are emotionally resistant and do not avoid stressful situations. For such managers, overcoming difficulties brings satisfaction from the achieved goals in a difficult situation. In the strategy of the prepared programs and activities, the factor of avoiding a stressful situation is not taken into account when the stress resistance threshold is relatively high. The lowest coefficient (Dz = 26 was obtained by 2 persons) and the highest coefficient (Dz = 85 was obtained by 1 person).

Summary and conclusion

When analysing the issue of remedial actions in the face of stress, it is important to focus on the problems of effectiveness of such behaviours. The literature shows that focusing on a task is assessed as the healthiest form of functioning in various difficult situations. In addition, it allows you to overcome various difficulties, while strengthening the positive attitude of a person. Nevertheless, it is the properties of a particular situation and subjective reception of one's life that will allow you to decide which of the ways of coping with stress perform an adaptive function.

Being able to cope with stress can protect an individual's health. The results of most empirical studies clearly indicate the regulatory role of certain remedial activities. If certain strategies do not lead to a change in situation or well-being and do not favour a constructive view of the problem, they are certainly unfavourable behaviour. Therefore, stress responses can play a twofold role - both as a preventive role and as a pathogenic role.

- 1) Stress is an integral part of every person's life, inextricably accompanied in various areas of our daily activity and professional work.
- 2) It should be emphasised that not every stress negatively affects the physiology of the human body. According to a number of observations to date, in some cases stress can be a mobilizing factor and may even facilitate the management of difficult situations. Only protracted, prolonged and

chronic exposure to an undesirable risk factor can very seriously deregulate the previously properly functioning human body.

- 3) The firefighter profession belongs a narrow group with a very high level of risk. Since its specificity and very special nature is the result of the social mission that firefighters perform. Their daily work is associated with various dangers that occur when conducting rescue and firefighting operations. Undoubtedly, these risks can adversely affect their health and sometimes endanger their lives. In doing their job, Fire Brigade officers are usually in situations where they require a lot of responsibility, extraordinary control, immediate response, high psycho-physical resilience and proper behaviour towards those who have suffered in an accident.
- 4) The source of stress in the daily work of a firefighter is related to the need to perform very responsible and difficult tasks, often at the limit of their feasibility, generally, in an environment unknown to them, during the existing threat to their health and life and the health and life of others (e.g. fires, chemical and ecological disasters, construction and traffic accidents). The occurrence of a stressful situation is the result of waiting for the alarm itself. In addition to the occurrence of continuous stress, caused by the daily requirements of the service, there is also traumatic stress, which is a reaction to the occurrence of a specific critical event caused by a direct threat to the life of a given firefighter.
- 5) Day-to-day work in uniformed services undoubtedly requires all officers to make significant sacrifices and maintain discipline. Employees and their family members do not want their daily work to interfere with their family life. Therefore, it is extremely important to have certain skills to deal positively with the stress that has occurred and reduce its negative impact on overall health effectively, both among working people and their loved ones, regardless of their place of residence, age, education or social status.
- 6) Usually, chronic exposure to stress is the reason for excessive load on the nervous system and will undoubtedly require above-average, increased mental exertion. However, each experience of a certain traumatic stress cannot only cause a number of negative health consequences on a psychological basis, but can also significantly reduce the motivation for the work performed and the way in which the assigned tasks are performed.
- 7) Managers with a resistance scale of 76 and above have relatively low stress resistance thresholds. It means that managers with such a result show defensive reactions in the face of encountering obstacles. They are characterized by a change in the original direction of action, which is the implementation of the task performed in a difficult situation.
- 8) Managers with low Dz (75 and below) are characterized by greater emotional resilience, do not avoid stressful situations. It is very rewarding for managers to overcome certain obstacles in difficult situations. This means that

managers with this result have an active, positive relationship to carry out their managerial work, despite the difficulties that occur and they tend to achieve the basic objective of the action.

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Abstract

The article discusses the concept of stress and its importance in the work of people performing managerial functions. The specifics of work in the fire brigade and the consequences related to stress were indicated. The ways of coping with stress and the possibilities of support by the organization of managers in this regard were discussed. The research part presents the results of the research carried out among people holding managerial positions in the State Fire Service. The aim of the research was to assess the stress resistance of people performing managerial functions in the State Fire Service. The research was performed using the stress resistance self-assessment test (Tokarski, 1997). Research results show that most of the respondents are resistant to stress and actively fight the stressor in order to overcome it.

Keywords: manager, leader, stress, coping with stress

JEL Classification: M20