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CHARACTERISTICS OF THE STRESS-COPING BEHAVIOUR OF FIRE SERVICE EMPLOYEES

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Abstract.

The aim of the article is to analyze, based on theoretical and empirical data, the stress-overcoming behavior of fire service employees and to identify its specifics and formation factors. The relevance of the study of the characteristics of stress-overcoming behavior of firefighters is due to their important role in society, the need to maintain their mental and physical health. The main methods of research were theoretical analysis and empirical experiment. The theoretical method made it possible to study and generalize foreign and domestic experiences of stress-overcoming behavior. In the course of the empirical study, a SACS questionnaire «Strategies for coping with stressful situations» (S. Hobfoll); questionnaire (J. Roter); questionnaire «Coping-strategy» (R. Lazarus); questionnaire of the pro-active Greenglass and 16-factor personal questionnaire R. Kettel. Correlation analysis of the results of the study was carried out using T-criteria for independent samples. The results of the study show that fire service employees are exposed to high stress due to risk, emotional stress and difficult interpersonal relationships. The importance of personal characteristics for professional training and psychological support of fire service employees was established. The results can be used to conduct regular preventive work with firefighters, provide professional psychological assistance, as well as organizing team-building activities that will help overcome stress and emotional regulation.

Key words: stress, stress coping behaviour, first responders, fire service personnel, occupational stress, psychological resilience, stress resistance.

Introduction

The activities of firefighters are associated with frequent exposure to hazards and extreme situations. Special circumstances are directly related not only to threats to the life, physical and mental health of fire service personnel, but also to threats to the life, health and welfare of others, as well as to a large number of human and material losses [1]. The biggest source of stress is a system of daily responsibilities, accompanied by constant mental pressure that disrupts the normal work patterns of employees. This can lead to reduction and disruption of the sleep regime, which leads to development of pathological processes [2-3].

The results of a study by scientists at the Hong Kong Polytechnic University show that emergency responders, i.e. firefighters, may experience professional psychological disorders not only because of the specifics of their work, and personality traits or lifestyle [4].

The stress factor in the work of firefighters is the alarm. According to M.I. Maryina and E.A. Meshalkin, more than 70% of the firefighters experienced nervous-emotional discomfort and more than 50% of the heart rate jumps when anxiety was associated with an emotional component of the heart reaction [5].

A. Kagan and L. Levi studied stress factors as mediators, emphasizing that the interaction between external and genetic factors creates a psycho-biological model representing a «tendency to react according to a certain pattern» [6]. The well-known stress transactional model of Cox and Mackay, which allows us to study stress as part of a system of personal and social interaction.

According to A. Ahami et al., the system of beliefs about oneself, others and the surrounding world dictates the reaction to certain events [7]. The Indian researchers are sure that professional stress is caused by psychological, physiological and behavioral factors: workload, role uncertainty, role conflict, social support, work control, length of service, etc. [8].

In domestic science the topic of stress is one of the central ones. M. Kovalchikova defines stress as a specific state in which «the living system mobilizes protective or restorative mechanisms activated in response to non-specific environmental irritants» [9]. Yu.S. Savenko defines psychological stress as a state in which the person is in conditions that prevent his self-realization [10].

In modern society, «stress» is understood as the general reaction of the body to various irritants, including generalised mobilization of internal resources to overcome difficulties [11]. E.A. Yumatov and S.S. Petrov consider the biological nature and origins of emotional stress, which brings us closer to understanding the nature of emotional tension [12].

By analyzing the behavior of people in stressful situations, researchers highlight active emotional response and passive emotional response. In an active response to a stressful situation, the person seeks to eliminate all sources of stress as soon as possible. In a passive reaction, the person simply experiences these factors and in such cases he can quickly reduce his activity level [13].

To prevent and treat the consequences of stress, it is necessary to learn how to identify its symptoms and their severity [14]. It is important to understand individual psychological characteristics in order to combat individual stress [15]. Prevention of stress through the development of stress resistance is the task of psychologists who accompany fire service employees in their professional activities.

K.B. Subbotin defines stress resistance as an individual psychological feature that ensures biological, physiological and psychological balance and optimal interaction between the subject and the environment [16]. B.A. Bodrov most fully defines stress resistance as a complex personality characteristic that demonstrates the degree of adaptation to extreme environmental factors and activities, determines the level of functional reliability and is expressed in the activation of resources of the body and psyche, change of performance and behavior to prevent disorders [17]. O.V. Lozgashcheva defines stress resistance as «a complex trait of the human being, characterized by the degree of adaptation to external and internal factors, the degree of activation of physical and mental resources, in functional state and working capacity» mental, performance and behaviour modification to prevent disorders [18].

Materials and methods of research

As a result of the examination of questions on the problem of professional stress, an empirical study was conducted to study the stress-overcoming behavior of firefighters. We understand stress-coping behavior as certain actions and strategies that firefighters use to overcome stressful situations. The empirical study was conducted among fire service employees of Emergencies Ministry. The sample consisted of 65 men between 28 and 43 years old with 3 to 20 years' work experience. Firefighters have a strong psychological impact and interact closely with people in emergency situations. These employees do not have time to make decisions and receive accurate and up-to-date information, etc.

For the study, a diagnostic program was compiled, including the following package of techniques: 1) SACS questionnaire «Strategies to overcome stressful situations» (S. Hobfoll); 2) USC - level of subjective control (developed on the basis of the control locus scale J. Rotter); 3) questionnaire «Coping-strategies» R. Lazarus; 4) questionnaire proactivity Greenglass (in adaptation E.P. Belinskaya); 5) «16-factor personal questionnaire» R. Cattell.

Results and Discussion

The results of the SACS survey «Strategies to overcome stressful situations» (S. Hobfoll) confirm that firefighters face high levels of stress associated with the need for rapid decision-making and interaction with people in a state of shock.

The predominance of asocial actions points to a desire for isolation in order to protect emotions. High rates of social interactions confirm the importance of support and mutual help to reduce stress. Empirical actions indicate an adequate response to stressful situations. Low rates of cautious, impulsive and aggressive actions demonstrate a willingness to avoid extremes and remain calm under stress.

The study of characteristics of the level of subjective control of firefighters, carried out using the methodology «USK - level of subjective control» J. Rotter, showed that the most important indicators are labor relations and health, which indicates their internality.

Production relations determine job satisfaction and motivation, and health care increases efficiency and helps to cope with stress. However, indicators such as achievements, failures, family and interpersonal relationships are characterized by externality, which can reduce internal motivation and hinder self-development.

The study of coping-strategies of fire service employees using the methodology «Coping-strategy» R. Lazarus showed that firefighters have the most developed self-control, search for social support and acceptance of responsibility. This indicates their emotional resilience and adaptability in stressful situations. Self-control helps to regulate emotions and behavior, maintain clarity of mind and make informed decisions, improving work efficiency and safety.

The search for social support points to a culture of mutual help and support in the collective, reducing stress and increasing job satisfaction. Acceptance of responsibility is associated with professionalism and ethics, contributing to personal and professional development.

At the middle level, flight-avoidance, decision planning, positive reassessment, confrontation and distancing are developed. Escape-avoidance indicates a tendency to avoid problems, which can lead to the accumulation of stress. Solution planning and positive reassessment indicate a constructive approach to problem solving. Confrontation and distance indicate a willingness to solve problems without the necessary flexibility.

An analysis of the characteristics of the proactive spear of fire service employees was carried out with the help of the method «Questionnaire of the proactive spear of Greenglass» (in the adaptation of E.P. Belinskaya).

The results of the study revealed the characteristics of proactive coping among firefighters. The most pronounced types of proactive matching were reflexive matching and finding instrumental support. This indicates a high level of emotional maturity and the ability to cope with stress through self-reflection and teamwork.

At the same time, proactive convergence, strategic planning and preventive convergence have been less developed, which may indicate the complexity of action planning in an uncertain environment.

In order to study the personal characteristics of fire service employees, the methodology «16-factor personal questionnaire» R. Kettell was used. The research indicates that key personality traits of firefighters include high self-control, tension, anxiety, high normalization of behavior, pragmatism, conservatism and nonconformism.

Self-control helps employees to manage emotions and maintain calm in stressful situations. Tension and anxiety can be both positive and negative characteristics affecting emotional burnout.

High standards of behaviour and practices indicate adherence to standards and choice of proven methods. Nonconformism implies non-standard thinking and innovative solutions, increasing the adaptability of services.

To establish a study of the relationship between stress-coping behavior and personal characteristics of fire service employees, correlation analysis was conducted using the T-criterion of Student for independent samples.

The results showed a feedback between attentiveness and sociability (ramp=0.270, r 0.05), a feedback with seeking social support (ramp= -0.309, r 0.01) and avoidance (ramp= -0.252, r 0.05). Correlation factors indicate the fact that stressful situations are less traumatic for common people because of their cautious behavior and willingness to seek advice and support from others. In other

words, social people are not prone to isolation, do not seek to avoid their problems and understand the importance of social resources.

Further analysis of correlation links revealed the existence of a direct relationship between intelligence and cautious actions of subjects ($r_{\text{ramp}}=0.248$, r 0.05), with an inverse relationship established between intelligence and seeking instrumental support ($r=-0.268$, r 0.05), however, as with emotional stability ($r_{\text{ramp}}=-0.300$, r 0.05), reflexive co-alignment ($r_{\text{ramp}}=0.222$, r 0.05) and strategic planning ($r_{\text{ramp}}=-0.259$, r 0.05). Based on the established connections, it can be said that intelligence influences emotional stability and choice of safe and considered actions. At the same time, the existence of feedback between intelligence and the search for instrumental support indicates less dependence on help from outside.

The feedback between emotional stability and cautious actions points to more impulsive decisions. The direct link with reflexive alignment and strategic planning emphasizes the importance of emotional stability in stress management. Feedback between subordination and avoidance ($r_{\text{ramp}}=-0.347$, p 0.01), feedback between restraint and action ($r_{\text{ramp}}=-0.298$, p 0.05), feedback to impulsive actions ($r_{\text{ramp}}=-0.272$, p 0.05), direct link with avoidance ($r_{\text{ramp}}=0.274$, p 0.05), feedback from the escape-avoidance strategy ($r_{\text{ramp}}=-0.321$; r 0.01), feedback from planning ($r_{\text{ramp}}=-0.249$; r 0.05) indicate that subordination and restraint can inhibit active responses to stress. Restraint is also associated with avoidance and planning.

Direct relationship between normative behaviour and confrontation ($r_{\text{ramp}}=0.381$, r 0.01), feedback to self-control ($r_{\text{ramp}}=-0.343$, r 0.01), direct link to assertive actions ($r_{\text{ramp}}=0.206$, r 0.05) and feedback to reflexive co-feedback ($r_{\text{ramp}}=-0.313$, r 0.01) point to the relationship between behavioural norms and stress management strategies.

Conclusion

The profession of fire service employees is a group of professions with a high degree of exposure to stress, due to potential risk, emotional stress and difficult interpersonal relationships. The characteristics of firefighters' behavior strategies in a stress situation, revealed as a result of the study, can become the basis for the development of social and psychological support programs.

The results of the level of subjective control emphasize the significance (internality) for the tested work relations and health status, at the same time an external level in achievements and interpersonal relations is revealed, which can be reflected on employees' motivation.

Data obtained from the study of coping strategies indicate a high level of self-control and search for social support necessary for the emotional resilience of firefighters. At the same time, average flight rates and solution planning indicate certain difficulties in dealing with problem situations. The results of proactive coping indicate an emotional maturity and reflexivity of the subjects, with less developed strategic planning allowing to assume difficulties of behavior in situations of uncertainty.

Establishing a relationship between the parameters of stress-overcoming behavior and personal characteristics of respondents revealed the existence of significant correlations between communality, cautious actions and the search for support; between intelligence, emotional stability and choosing coping-strategies; between normalization of behavior and confrontation in stressful situations.

The study and analysis of the data thus demonstrates the importance of taking into account individual characteristics in training and providing psychological support to emergency response staff.

References

1. Valitova N.E., Khairtudinov I.A. Influence of stress factors on labour productivity of employees of fire protection units // Oil and Gas Business. 2014. No. 12(1). Pp. 168-171.
2. Koshkarov V.S., Troshunin A.V. Influence of stress-factors on the psyche of firemen // Izvestia Ural State University. Ser. 1: Problems of Education, Science and Culture. 2011. No. 2(89). Pp. 180-186.

3. Kulikova T.I. Influence of professional stress on the mental health of the firefighters of the fire service of the Ministry of Emergency Situations // *International Journal of Medicine and Psychology*. 2023. No. 6(4). Pp. 153-157.
4. Fordjour G.A., Chan A.P.C., Amoah P., Fordjour A.A. Exploring the Effects of Occupational Psychological Disorders on Construction Employees and the Construction Industry // *Occupational Diseases and Environmental Medicine*. 2020. No. 8. Pp. 1-25. <https://doi.org/10.4236/odem.2020.81001>
5. Mar'in M.I., Meshalkin E.A. Medico-psychological problems of professional activity of firefighters. Moscow, 1997. Pp. 172-178.
6. Suvorova V.V. Psychophysiology of stress. Moscow: Pedagogika, 1975.
7. Ahami A., Mammad K., Azzaoui F., Boulbaroud S., Rouim F., Rusinek S. Early Maladaptive Schemas, Working Memory and Academic Performances of Moroccan Students // *Open Journal of Medical Psychology*. 2017. No. 6. Pp. 53-65. doi: [10.4236/ojmp.2017.62004](https://doi.org/10.4236/ojmp.2017.62004).
8. Prasad K.D.V., Vaidya R. Causes and Effect of Occupational Stress and Coping on Performance with Special Reference to Length of Service: An Empirical Study Using Multinomial Logistic Regression Approach // *Psychology*. 2018. No. 9. Pp. 2457-2470. <https://doi.org/10.4236/psych.2018.910141>
9. Koval'chikova M., Koval'chik K. Adaptations and stress in the maintenance and breeding of farm animals. Moscow: Kolos, 1978. 271 p.
10. Savenko Yu.S. The problem of psychological compensatory mechanisms and their typology. // *Problems of clinic and pathogenesis of mental diseases*. Moscow, 1974. Pp. 95-112.
11. Kagiyan G.V., Taran V.N., Kuslivaya D.V. Features of psychological stress in non-resident students of psychology during adaptation to training // *Interial*. 2024. No. 1(20). Pp. 125-129.
12. Antonovich Y.E., Sergeevich P.S. Mental Activity of the Brain and Emotional Stress // *Journal of Behavioral and Brain Science*. 2022. No. 12. Pp. 196-210. <https://doi.org/10.4236/jbbs.2022.125011>
13. Trushkova S.V., Veselovskaya N.A. Age peculiarities of stress of employees of a road organization // *Issues in the psychology of extreme situations*. 2022. No. 3. Pp. 52-57.
14. Lipp M.N., Lipp, L.M.N. Proposal for a Four- Phase Stress Model // *Psychology*. 2019. No. 10. Pp. 1435-1443. <https://doi.org/10.4236/psych.2019.1011094>
15. Kimura K., Kato C., Otsuka Y., Aoki K. Examination of the Relationship between Stress Coping and Personality for University Students // *Open Journal of Social Sciences*. 2020. No. 8. Pp. 340-352. <https://doi.org/10.4236/jss.2020.88029>
16. Subbotin S.V. Resistance to mental stress as characteristics of the teacher's metaindividuality // *Thesis Cand. psychol. Science*. Perm, 1992. 152 p.
17. Bodrov V.A. Information stress. Moscow: PER SE, 2000. 352 p.
18. Lozgacheva O.V. Features of forming resistance to stress in the process of professional development of personality // *Pedagogical Education in Russia*. 2012. No. 2. Pp. 35-37.