

Emergency behaviour in situations of environmental disasters

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Abstract: This paper delves into the notion of emergency situations, alongside the human behavioral responses associated with these events. It unravels the significance of psychological elements and human conduct in emergencies, as these factors are pivotal in ensuring preparedness for mindful, resolute, and assertive responses during crisis scenarios. **Keywords:** Psychological training, fear, natural disaster, danger, panic, emergency situation, mental development.

1 Introduction

The significance of research in the field of psychology of individuals faced with crisis circumstances is due to the requirement to develop scientifically based methods to prepare citizens, rescue teams and managers for adequate reactions in the conditions of extreme incidents. The main attention is paid to studying the psychological characteristics of response of ordinary citizens in critical situations, who in most cases are unprepared for such tests.

Entry of persons not prepared for extreme conditions into such situations is inevitably accompanied by psychological and emotional tension, being a source of stress of both psychological and physiological nature. In some people it causes mobilization of vital resources, in others - a drop in productivity, degradation of health, physiological and mental abnormalities. An individual's reaction is conditioned by numerous factors, including personality traits, duration and strength of stress factors, level of awareness of what is happening and perception of the real threat. Psychological state, stability and endurance of the nervous system, and previous experience also play an important role.

Various aspects of these factors ultimately determine the ability to act deliberately, decisively, and thoughtfully in most emergency circumstances. Before discussing the reactions and behavior of society in a crisis situation, it is necessary to delve into the characteristics and potential consequences of such a situation. An emergency is a circumstance resulting from an accident, natural disaster, or other unforeseen event involving loss of life, property, or environmental hazards. Anyone can find themselves in such an extreme environment, experiencing stress, which stimulates the activation of all body systems and significantly affects physical and psychological well-being as well as performance. Emergencies in all circumstances lead to psycho-emotional imbalance.

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2 Materials and methods

The discipline devoted to the psychology of states summarizes the century-old achievements of the scientific community in understanding the dynamics of mental processes. Evgeny Petrovich Ilyin made a contribution to studying ideal psychological conditions for human beings. Alexei Olegovich Prokhorov actively develops concepts related to the imbalance of mental processes. This field also analyzes specific forms of mental reactions, in particular, manifested in conditions of extreme pressure. Research on psychological pressure has been conducted by Tamara Alekseevna Nemchin, Lyudmila Petrovna Grimak, and Vladimir Ivanovich Lebedev. Alexei Olegovich Prokhorov, Anatoly Kempinsky, and other scholars focused on affective reactions provoked by critical circumstances.

In the discourse of psychology, mental states occupy a key approach among various mental phenomena. At the same time, despite in-depth research in the field, many aspects of mental states remain mysterious and under-researched. As T.A. Nemchin argues, a solution and deeper understanding of the problems of mental states is necessary because they significantly influence people's behavior and actions.

Ivan Petrovich Pavlov argued that psychology studies the internal states of a person and makes it possible to deeply understand the diversity of subjective experience.

In the context of extensive discussions and a wide range of views regarding the characteristics, elements, organization, roles, processes, systematization, and other issues related to mental states, numerous researchers support the view that studying this field is important for the development of psychology. For instance, N.D. Levitov, who introduced the concept of “mental state” among the basic psychological categories, argued that the solution of this objective eliminates an existing deficit in psychology, namely, the lack of connection between the theory of mental processes and personality characteristics. Y.E. Sosnovikova expresses a similar opinion, stating that for a complete understanding of the psyche it is necessary to study its specific manifestations through mental states.

As we study the literature of various researchers, we come across a variety of terminologies describing unfavorable and stressful events. M.I. Dyachenko, L.A. Kandybovich, V.A. Ponomarenko use the expression “tense situations”, while L.G. Dikaya relies on the concept of “extreme conditions”. A.V. Libin speaks of “complex situations”, and the term “stressful situations” is used by G. Selje and Kitaev-Smykova. Sellier and Kitaev-Smyk. V.V. Avdeev singles out “acute event situations”, A.F. Maidikov designates “emergency situations”, V.D. Tumanov refers to “abnormal conditions”, and S.A. Shapkin and L.G. Dikaya mention “special conditions”. A number of authors, including T.A. Nemchin, V.G. Androsyuk, V.I. Lebedev, G.V. Suvorov, M.P. Mingalieva, T.S. Nazarova and V.S. Shapovalenko, prefer the terminology “extreme situations” to describe these phenomena [1-8].

Prominent Ukrainian researchers M.I. Dyachenko, L.A. Kandybovich, and V.A. Ponomarenko emphasize the critical role of individual comprehension of extreme (or as they define it, complex) conditions: “The resulting tension is the result of aggravation of the circumstances of activity, which acquire high significance for the individual. In essence, complex objective circumstances of activity turn into a tense ordeal when they are realized, analyzed and evaluated by people as a challenge, threat, etc. Any situation involves the participation of the subject. This is especially true for a tense context, which combines specific aspects of objective activity with a person's personal needs, motivations, goals, and attitudes. Consequently, the tense situation, like any other situation, is a harmony of the objective and the subjective. Where the objective is conditioned by the complication of conditions and processes of activity; the subjective is connected with the emotional state, beliefs, behavior styles under the influence of a significantly changed situation. A universal

sign of tense contexts is the appearance of objectives of high complexity for the subject, “heavy” emotional state”.

In the book “Pedagogy and Psychology” by V.G. Androsyuk, the idea that extreme conditions are defined as a state of the life system that poses a threat to the physical well-being and psychological stability of a person, creating conditions for psycho-emotional tension.

Based on the information presented, let us highlight the key parameters that characterize an extreme situation:

It is an extreme situation with a powerful impact that exceeds human abilities.

2. These conditions represent complex aspects of the environment or objectives that are individually rated as challenging, risky, and so on.

3. Circumstances cause an individual to develop an objective that causes a “complex” psychological state.

An emergency situation provokes the development of an imbalance in the dynamic system of the organism, which entails the need for an optimal allocation of all available resources of this organism.

This context generates dysfunctional states, as well as disorders in the management of psychological processes, which in turn weakens the productivity and stability of objectives.

The individual experiences obstacles in achieving his or her aspirations, embodying motives, upholding values, and pursuing interests.

Extreme events pose a threat not only to physical well-being, but also significantly affect the psychological state, disrupting the stable functioning of the psyche. A variety of stressors arising in such conditions can promote both adaptive reactions that strengthen psychological stability and lead to negative consequences that interfere with the effective activity of an individual. The focus of our attention is the aspect of psychological resilience and adaptation in emergency situations, which entailed positive changes at the level of emotions, cognitive processes and behavior, demonstrating the possibilities of human adaptation to conditions of extreme tension.

According to V.G. Androsyuk, such changes include:

-decrease in sensory thresholds, increase in the speed of sensory and motor responses.

The individual demonstrates the possibility of more detailed perception of stimuli, promptly responds to any changes in the environment;

Reduced fatigue means a decreased or diminished sense of fatigue, resulting in increased resilience and performance in the individual, as well as resilience in the face of discomfort and strain.

- Strengthening the capacity for determination and courage. Volitional characteristics become more pronounced, decision-making is accelerated, anticipation of future scenarios is effectively balanced with reasonable risk;

- Stimulation of commercial initiative, awareness of responsibility. The individual's professional enthusiasm increases, both final and intermediate project objectives are set clearly and concretely;

- stimulation of cognitive activity. The individual demonstrates high sensitivity in perception, effectively mobilizes the resources of short-term and long-term memory. Creative skills are developed, thinking process is characterized by speed, adaptability, ability to find original solutions quickly and efficiently. Intuitive approach is actively used.

The definition of tension, proposed in the psychological dictionary of J. Drever, emphasizes the experience of tension, anxiety and loss of internal balance, which arise in response to certain external stimuli that can threaten stability. Such external provoking elements may include excessive work, a feeling of lack of time, lack of important information, etc. L.V. Kulikov expressed the point of view that the true causes of tension lie in these external factors, not in the subjective experiences of the individual, which should be

considered as a natural reaction of the organism to these circumstances. Consequently, Kulikov expressed some doubts about the explanation of tension through the prism of emotional perception. In turn, A.V. Zaporozhets defines emotions as a key element not so much of activation as a unique reflection of reality, critical for mental regulation and direction of behavior, which emphasizes their significance in the context of psychological impact on human activity and behavioral tendencies.

3 Stages of emergency response and their types

In a crisis, the mental state of an individual goes through a series of phases, and the reactions may differ significantly depending on personal characteristics. The initial phase, “Active emotional stress”, is expressed in increased psychological tension, the dominance of feelings of despair and terror, increased perception of the situation.

It is followed by “Psychophysiological decline in activity”, characterized by deterioration of general well-being and mood, feelings of confusion, panic attacks, decreased motivation and depressive moods. During this period, the depth of psychogenic disorders depends on numerous factors, including personality traits, the unexpectedness of events, and the duration of exposure.

The third stage, the “Resolution Period,” is featured by the gradual stabilization of the emotional state, despite the persistence of a reduced emotional tone. The events, emotions and feelings are analyzed and evaluated. The final stage, “Recovery”, is associated with the resumption of interpersonal relationships and partial return to previous psychophysiological and psychoemotional levels of functioning. Labor productivity and self-assessment of possibilities are often reduced in trauma survivors. Modern psychological science emphasizes the role of fear in crisis conditions: its functionality as a defense mechanism and a negative effect that generates discomfort. Fear activates defense reactions, stimulating survival and self-preservation.

Human behavior in emergency situations (ES) is formed under the influence of fear induced by traumatic experience. In some situations, the intensity of fear reaches such a level that it can cause mental disorders. The main psychopathologies arising after an emergency are reactive psychoses manifested as affective-shock and hysterical states, as well as non-psychotic disorders, for instance, acute stress reactions.

People's reactions to crisis events can be of two types: adaptive, based on a rational and controlled approach to coping with the situation, and dysfunctional, including pathological states, such as, for instance, panic, when fear of a threat embraces the collective and leads to irrational flight. In moments of panic, the crowd becomes particularly dangerous because it loses structure and predictability, driven mainly by emotionalism and general focus of attention, with collective intelligence reduced to a primitive level.

Along with this, the dissemination of inaccurate information, for instance exaggerated reports of impending threats, can increase panic, as was the case after the Chernobyl accident on April 26, 1986, when an explosion destroyed the reactor and unit building, causing a fire. Rescuers, having arrived at the accident site, coped with the fire by morning, but the first symptoms of radiation damage appeared in them already in the process of liquidation of the fire, and 28 firefighters died of radiation sickness during the following weeks.

From the beginning of the disaster response, which lasted actively for several months and in fact until 1994, people evacuated from contaminated areas faced the need to leave their homes, fears of looting, and problems with evacuating animals and belongings. Later, some of them sought more compensation by overstating the levels of radiation contamination.

4 Options for dealing with panic during an emergency

The foundation of preventive measures against psychological disorders lies in studying in detail the process of occurrence and development of individual and group fear reactions, including panic attacks. The importance of professional selection of personnel for work in high-risk conditions, especially for managerial positions in production spheres, is due to the identification of individuals with a high level of risk to themselves and others. Analysis of past cases of catastrophic events confirms the presence of certain personalities (prone to psychopathy, high nervousness) who are predisposed to commit actions that can lead to accidents or to inadequate decisions in critical situations.

Instruction on safety and prevention topics, as well as an educational process aimed at cultivating vigilance, preventive measures and responsibility in extreme conditions. Employees involved in risky facilities are obliged to:

- be aware of the objectives of emergency prevention and be responsible both for preventing emergencies and for their actions in coordinating people in case of fires and other emergencies;
- possess the psycho-emotional resilience to respond to emergencies, recognize that explosion, fire and other emergencies pose a specific threat, and be prepared both to prevent or contain crisis events and to manage human flows;
- awareness of shift schedules and emergency behavior algorithms;
- take an active part in both business simulations and emergency response drills, which provides in-depth understanding of the issues and the development of rapid emergency response skills.

In critical situations and disasters, the primary objective is to maintain order and respond quickly. Effective management is achieved through the dissemination of topical information and behavioral examples from the structures involved. It is important to recognize that chaos and panic in crowds can lead to tragic consequences.

Managing large groups of people is a key aspect in preventing mass panic. Panic is a contagious fear that results in a loss of purposeful control and random leadership by fear-stricken individuals, manifested by instinctive rather than conscious actions. Specific individuals who stand out by active actions or loud noises (for instance, shouting) may instinctively attract attention and trigger imitation in those who are narrowly confined by fear and act without fully comprehending what is happening. In a state of fear, the individual becomes more amenable to external control and can be directed toward safe and rational behavior. When the mass is managed by a person capable of adequate situational awareness, the crowd is able to act rationally and maintain self-control, which helps to protect life.

An important role in the prevention and management of fear is played by a person's professional employment and his or her ability to demonstrate the structured nature of his or her actions and to see similar organization in the behavior of others. Antoine de Saint-Exupery stated, "Activity deprives one of fear. It frees not only from fear, but also from vulnerability, even from chills and ailments." This is confirmed by the situation of the soldiers involved in the rescue of children during the subsequent seismic shifts in Leninakan, who, unlike inactive people, felt no fear.

In critical conditions or in the presence of a potential threat, it is necessary to neutralize (isolate) individuals who can cause panic or draw others into risky behavior. Their potentially dangerous effects on others should be limited to avoid spreading their actions to the public.

In managing large groups of people, a key function is performed by an information system that includes the use of loudspeaking devices, light and sound alerts, exit and route signs, and other supporting elements.

Loudspeaker systems installed in public spaces and buildings play a key role in ensuring the safety of people during emergencies. They are designed to provide prompt information

about risks associated with the use of infrastructure, for instance if elevators are malfunctioning, thus eliminating the risk of getting stuck in them. In addition, urgent instructions on measures to ensure personal safety, including advice on evacuating from high-risk areas, are conveyed.

In periods of natural disasters and their subsequent elimination, the local population perceives local self-government bodies as the main and reliable sources of information. In order to prevent the spread of fear, panic and other negative emotional states among citizens, it is important to increase information support at the level of heads of administrations of cities, districts and settlements through resources provided by the regional government and federal authorities.

During emergencies and their aftermath, local media resources (including regional newspapers, television and radio channels) have a higher degree of influence on public opinion than national media. This is due to their ability to quickly integrate into the specific conditions of the disaster-affected area and to actively participate in the coordination of disaster response efforts.

Newsletters intended for residents of areas affected by natural disasters should be subjected to rapid psychoanalytic testing. It is important to prepare appropriate methodological guidelines for all channels of information dissemination, taking into account the psychological aspects of perception and processing of data by a person in a state of psycho-emotional stress.

Recovery operations following natural hazards should be adapted to the natural cyclical processes and diurnal patterns of human activity, provided that delaying or slowing down these operations does not increase the number of casualties.

Lack of incident data increases the spread of unverified information and rumors. Delay in providing topical information from authorities inevitably leads to sources of gossip.

Verified information from authority figures or institutions usually has a calming effect on the public. Adults, in particular, are in dire need of reliable data provided by government agencies or qualified experts. People who have direct access to sources of such information often feel calmer and more confident, even if the information they receive is not optimistic.

Individuals who are actively engaged in useful social endeavors from the first moments of a crisis are less prone to psychological distress (almost no psychiatric symptoms).

It is important to continue the analysis and systematization of experience, including international experience, in the field of psychological influence on the population during a variety of emergencies.

5 Conclusions

Healthy psyche is critical to the overall mental management process, having a profound impact on daily life and human actions. Nevertheless, a comprehensive theory of psychological states has yet to be formulated, and most of their attributes remain underexplored. The views of L.V. Kulikov, Doctor of Psychological Sciences, highlight insufficiently studied aspects of an individual's possibilities for self-regulation of mental well-being.

Research devoted to assessing the impact of emotional stress on the human body has been conducted by authors from various fields of science, including sociology, psychology, and physiology. The key focus of such work is studying the processes of successful adaptation to frustration, which is understood as an individual's deep experience of failure, associated with a sense of lack of escape and the destruction of hopes for achieving goals. Individuals who regularly find themselves in critical situations are able to develop skills that facilitate a more adequate response to such challenges and optimal mobilization of internal resources. Learning how to eliminate fear is also essential, as is the positive experience that comes with

the satisfaction of accomplishing objectives. This stimulates self-confidence, facilitating effective adaptation to the extreme conditions arising from emergency situations (ES).

In the final part, it is also possible to formulate recommendations for the prevention of psychological depression in the population during crisis events.

First of all, it should be understood that a person who has experienced a serious psycho-emotional shock is better able to return to psychological balance if he/she is involved in physical activity, especially if he/she participates in group activities, as this promotes socialization and recovery.

In order to reduce the negative effects on the individual, it is necessary to provide regular training on how to respond to extraordinary circumstances, develop mental toughness and cultivate willpower. Therefore, a fundamental component of psychological training is the development and strengthening of critical psychological attributes.

The third important aspect concerns the education and training of work teams - this concerns employees at all levels in companies, organizations and institutions. The focus is on building psychological resilience, increasing coping capacity, building resilience and self-discipline, goal orientation, and fostering teamwork and effective collaboration.

It is important to recognize that the psycho-emotional resilience of individuals is a key aspect in critical situations. Minor manifestations of embarrassment or fear, especially in the early stages of an emergency or disaster, can have serious and sometimes irreversible consequences. This is especially true for decision-makers who are tasked with organizing immediate rescue efforts while demonstrating self-control and restraint.

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